`

LAKE VICTORIA NORTH WATER WORKS DEVELOPMENT AGENCY

TENDER DOCUMENT

TENDER NAME: LUMINO DAM – SOY LIKUYANI CLUSTER WATER PROJECT

TENDER NO. LVNWWDA/GK/KAK/SOY-LUMINO-DAM/2024-2025/28

FINANCED BY: GOVERNMENT OF KENYA

ALL TENDERERS ARE ADVISED TO READ CAREFULLY THIS TENDER DOCUMENT IN ITS ENTIRETY BEFORE MAKING ANY BID

June 2025

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INVITATION TO TENDER

Tender No: LVNWWDA/GK/KAK/SOY-LUMINO-DAM/2024-2025/28

Tender Name: LUMINO DAM – SOY LIKUYANI CLUSTER WATER PROJECT

The Lake Victoria North Water Works Development Agency (LVNWWDA) invites sealed Tenders for LUMINO DAM – SOY LIKUYANI CLUSTER WATER PROJECT

Tendering will be conducted under open tender method (National) 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 from **9.00am to 5.00pm** at the address given below.

Tendering is tender is Reserved to *Youth, Women & PWDs)* Registered appropriately with the National Construction Authority (NCA) Class 6 Water and above.

A complete set of tender documents may be purchased or obtained by interested tenderers upon payment of a non- refundable fee of **Kshs. 1,000** in **Banker's Cheque** and payable to the address given below.

Tender documents may also be viewed and downloaded for free from the PPIP www.tenders .go.ke and the LVNWWDA website https://www.lvnwwda.go.ke/tender/. Tenderers who download the tender document must forward their particulars immediately to procurement@lvnwwda.go.ke *with a copy to* info@lvnwwda.go.ke to facilitate any further clarification or addenda.

Tenders shall be quoted in Kenya Shillings and shall include all taxes. Tenders shall remain **valid for 120 days** from the date of opening of tenders**.**

All Tenders must be accompanied by a dully signed and stamped **Tender Securing Declaration Form in the format provided in the tender document. (***signed by director appearing in the CR 12 of person with the power of attorney* **)**

The Tenderer shall chronologically serialize all pages of the tender documents and bind it properly. (**loosely attached/stapled papers will not be allowed**)

Completed tenders must be delivered to the **Tender Box** in the address below on or before **8th July 2025 1200hrs (Kenya Time)**. Completed tenders should be submitted in one original and one copy.

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

Late tenders will be rejected.

The addresses referred to above are:

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

LAKE VICTORIA NORTH WATER WORKS DEVELOPMENT AGENCY
P.O Box 673 – 50100, KAKAMEGA,
TEL: 0562031552, Fax 0562031506
Email: info@lvnwwda.go.ke/ procurement@lvnwwda.go.ke
Website: www.lvnwwda.go.ke

Address for Submission of Tenders.
Tender Box,
LAKE VICTORIA NORTH WATER WORKS DEVELOPMENT AGENCY P.O Box 673 – 50100, KAKAMEGA,
TEL: 0562031552, Fax 0562031506
Email: info@lvnwwda.go.ke/ procurement@lvnwwda.go.ke
Website: www.lvnwwda.go.ke

Address for Opening of Tenders.

LAKE VICTORIA NORTH WATER WORKS DEVELOPMENT AGENCY P.O Box 673 – 50100, KAKAMEGA,
TEL: 0562031552, Fax 0562031506
Email: info@lvnwwda.go.ke/ procurement@lvnwwda.go.ke
Website: www.lvnwwda.go.ke

Name: **Mr. Wamalwa M. Joel**

Designation: CHIEF EXECUTIVE OFFICER

Signature: _____

Date: 8th July 2025

PART 1 -
TENDERING
PROCEDURES

SECTION I: INSTRUCTIONS TO TENDERERS

General Provisions

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.**

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 corruptor 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.

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:

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

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

Has the same legal representative as another tenderer; or

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

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

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

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

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; or

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 another 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 sub-contractor 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. 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

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.

3.9 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".*

3.10 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 than51 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.

3.11 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.

3.12 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

3.13 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.

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.

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. 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.

5.2 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. 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.

Contents of Tender Documents

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

Section I - Instructions to Tenderers (ITT)

Section II - Tender Data Sheet (TDS)

Section III - Evaluation and Qualification Criteria

Section IV- Tendering Forms

PART 2 Works Requirements

Section V- Drawings

Section VI - Specifications

Section VII - Bills of Quantities

PART 3 Conditions of Contract and Contract Forms

Section VIII - General Conditions of Contract (GCC)

Section IX - Special Conditions of Contract (SC)

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.

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 contract for the Services. The costs of visiting the Site shall be at the Tenderer's own expense.

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. 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.

8.2 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.

8.3 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 Tenderer.

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.

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

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 conductor outcome of the tendering process.

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.

Documents Comprising the Tender

13.1 The Tender shall comprise the following:

Form of Tender prepared in accordance with ITT 14;

Schedules including priced Bill of Quantities, completed in accordance with ITT 14 and ITT 16;

Tender Security or Tender-Securing Declaration, in accordance with ITT 21.1;

Alternative Tender, if permissible, in accordance with ITT 15;

Authorization: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 22.3;

Qualifications: documentary evidence in accordance with ITT 19establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;

Conformity: a technical proposal in accordance with ITT 18;

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**.**

Form of Tender and Schedules

14.1 The Form of Tender and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Tendering Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITT
20.3. All blank spaces shall be filled in with the information requested.

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.

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.

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.

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.

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:

if the procurement process is still ongoing, the tenderer will be disqualified from the procurement process,

if the contract has been awarded to that tenderer, the contract award will be set aside,

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.

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 ITT21.1, 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**:**

in the case of **fixed price** contracts, the Contract price shall be the tender price adjusted by the factor specified in the **TDS**;

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.

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:

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

an irrevocable letter of credit;

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

another security specified **in the TDS**,

21.3 If an unconditional bank guarantee is issued by a bank located outside Kenya, the issuing banks hall 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 Page **19** 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:

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

if the successful Tenderer fails to:

sign the Contract in accordance with ITT 50; or

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.

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

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:

in an envelope or package or container marked "ORIGINAL", all documents comprising the Tender, as described in ITT 11; and

in an envelope or package or container marked "COPIES", all required copies of the Tender; and

if alternative Tenders are permitted in accordance with ITT 15, and if relevant:

in an envelope or package or container marked "ORIGINAL – ALTERNATIVETENDER", the alternative Tender;

and

in the envelope or package or container marked "COPIES-ALTERNATIVETENDER", all required copies of the alternative Tender.

The inner envelopes or packages or containers shall:

bear the name and address of the Procuring Entity.

bear the name and address of the Tenderer; and

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.

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.

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.

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:

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

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.

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:**

the name of the Tenderer and whether there is a withdrawal, substitution, or modification;
the Tender Price, per lot (contract) if applicable, including any discounts;
any alternative Tenders;
the presence or absence of a Tender Security, if one was required.
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

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.**

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.

Deviations, Reservations, and Omissions

30.1 During the evaluation of tenders, the following definitions apply:

"Deviation" is a departure from the requirements specified in the tender document;

"Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the tender document; and

"Omission" is the failure to submit part or all of the information or documentation required in the Tender document.

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:**

affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

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

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.

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.**

Arithmetical Errors

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

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

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.

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

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

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

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

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 that the are the only ones eligible to tender. Otherwise if no so stated, the invitation will be open to all tenderers.

Nominated Subcontractors

36.1 Unless otherwise stated in the **TDS**, the Procuring Entity does not intend to execute any encirclements 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 folliculated 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.

unless their

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:
price adjustment due to discounts offered in accordance with ITT16;
converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT39;
price adjustment due to quantifiable nonmaterial non-conformities in accordance with ITT 30.3; and
any additional evaluation factors specified **in the TDS** and Section III, Evaluation induplication Criteria.

37.3 The estimated effect of the price adjustment provisions of the Conditions of Page **26** 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.**

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.

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.

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:

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.

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**.**

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:

accept the Tender; or

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

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

reject the Tender,

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

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.

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:

Most responsive to the Tender document; and

The lowest evaluated price.

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, all Tenders Tenderers.

F. Award of Contract

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.

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:

the name and address of the Tenderer submitting the successful tender;

the Contract price of the successful tender;

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;
the expiry date of the Standstill Period; and
instructions on how to request a debriefing and/or submit a complaint during the standstill period;

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.**

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 adoring 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.**

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 awards hall request the successful tenderer to furnish the Performance Security within 21days of the date of the letter.

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

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 of Contract.

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**.**

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:

name and address of the Procuring Entity;

name and reference number of the contract being awarded, a summary of its scope and the selection method used;

the name of the successful Tenderer, the final total contract price, the contract duration.

dates of signature, commencement and completion of contract;

Names fall Tenderers that submitted Tenders, and their Tender prices as readout at Tender opening.

Procurement Related Complaints

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

Section II - Tender Data Sheet (TDS)

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

A. General	
ITT 1.1	The name of the Contract is: **LUMINO DAM – SOY LIKUYANI CLUSTER WATER PROJECT** Works The Reference Number of the Contract is: Tender No: **LVNWWDA/GK/KAK/SOY-LUMINO-DAM/2024-2025/28**
ITT 2.3	The information made available on competing firms is as follows: N/A
ITT 3.1	Maximum number of members in the Joint Venture (JV) shall be: N/A
B. Content of Tender Document	
ITT 8.1	Pre-tender site visit N/A. Bidders can call the Agency on 056 2030795 for support in locating the project site.
ITT 8.2	The Tenderer will submit any questions in writing to reach the Procuring Entity not later than **8th July 2025**
ITT 9.1	For Clarification of Tender purposes, for obtaining further information and for purchasing tender documents, the Procuring Entity's address is: 1. Name of Procuring Entity; Lake Victoria North Water Works Development Agency(LVNWWDA) 2. Physical address for hand Courier Delivery to an office or Tender Box at the address below Postal Address; LVNWWDA, P. O. Box 673 – 50100 Kakamega. 3. Insert name, telephone number, and e-mail address of the officer to be contacted.; Manager, Supply Chain Management, Email; procurement@lvnwwda.go.ke ***and cc to*** info@lvnwwda.go.ke
C. Preparation of Tenders	
ITP 13.1 (h)	The Tenderer shall submit the following additional documents in its Tender; All documents to be submitted shall be included under Section III – Evaluation and Qualification Criteria
ITT 15.1	Alternative Tenders ***shall not*** be considered.
ITT 15.2	Alternative times for completion shall not be permitted.
ITT 15.4	Alternative technical solutions shall be permitted for the following parts of the Works: Not Applicable
ITT 16.5	The prices quoted by the Tenderer shall be fixed.
ITT 20.1	The Tender validity period shall be **120 *days*.**
ITT 20.3 **(a)**	(a) The delayed to exceeding 30 number of days. (b) The Tender price shall be adjusted by the following percentages of the tender price: (i) By % of the local currency portion of the Contract price adjusted to reflect local inflation during the period of extension, and (ii) By % the foreign currency portion of the Contract price adjusted to reflect the international inflation during the period of extension; *Prevailing consumer price index obtained from Kenya National Bureau of Statistics or the monthly inflation rate issued by the Central Bank of Kenya for both (i)* and (ii)
ITT 21.1	Tender Security shall be of of KES (N/A) from a reputable bank approved

	by the Central Bank of Kenya. The tender security shall be as prescribed in the bidding document and valid for 120 days from the tender submission deadline. The Security shall be in the form of a Bank Guarantee. a duly signed and stamped Tender Security Declaration Form in the format provided in the tender document. (signed by the director appearing in the CR 12 of person with the power of attorney)
ITT 21.2 (d)	The Tender Security shall be N/A
ITT 21.8	The Procuring Entity may declare the Tenderer ineligible to be awarded a contract by the Procuring Entity for a period of: as provided in the law
ITT 21.8	In addition to the original of the Tender, the number of hard copies is: One(1).Original & Three (3) Copies
ITT 22.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: a Written Power of Attorney
D. Submission and Opening of Tenders	
ITT 24.1	For Tender submission purposes only, the Procuring Entity's address is: Lake Victoria North Water Works Development Agency Physical Address: Kefinco Hse, Off Kakamega /Kisumu Road, Near Barclays Bank, Telephone (056) 20 31552 / 20 31538, Fax (056) 20 31506 Email: info@lvnwwda.go.ke Date and time for submission of Tenders: on or before **8th July 2025** at 12:00 hrs. Tenderers shall not submit tenders electronically.
ITT 27.1	The Tender opening shall take place at the time and the address for Opening of Tenders provided below: Lake Victoria North Water Works Development Agency Main Conference Hall State the date and time of tender opening. 8th July 2025 at 1200hrs
ITT 27.6	The number of representatives of the procurement entity to sign are: At least Three(3)
E. Evaluation and Comparison of Tenders	
ITT 32.3	The adjustment shall be based on the highest price of the item or component as quoted in other substantially responsive Tenders. If the price of the item or component cannot be derived from the price of other substantially responsive items Tenders, the Procuring Entity shall use its best estimate.
ITT 35.2	The invitation to tender is reserved to "Youth, Women & PWDs"
ITT 36.1	At this time, the Procuring Entity does not intend to execute certain specific parts of the Works by subcontractors selected in advance.
ITT 36.2	Contractors may propose subcontracting: Not Applicable
ITT 36.3	The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: Not Applicable
ITT 37.2 (d)	Additional requirements apply. All requirements are detailed in the evaluation criteria in Section III,
ITT 45.1	Award Criteria: The Procuring Entity shall award the Contract to the successful tenderer whose tender has been determined to be the Lowest Evaluated Tender.

	In addition, any contractor terminated on the grounds of integrity and/or fraud or Corruption is ineligible to tender
ITT 46	Notification of intent to enter into a contract shall be communicated through E-mail. Tenderers must therefore provide their E-mail addresses: Email Address 1 (Mandatory):_____ Email Address 2: (Optional):_____
ITT 51.1	The person named to be appointed as Adjudicator is: N/A _
ITT 52.1	Performance Security: IS Required as per Section 142(3) of the Public Procurement and Asset Disposal Act, 2015
ITT 52.2	Disposal Regulations,2020. The performance Security shall be in the form of an unconditional Bank Guarantee amounting to 10% of the contract sum. Other documents required in addition are: ***Detailed Work Program and Beneficial of Ownership Form***
ITT 54.1	The procedures for making a Procurement-related Complaint are detailed in the "Notice of Intention to Award the Contract" herein and are also available from the PPRA Website www.ppra.go.ke or email complaints@ppra.go.ke. If a Tenderer wishes to make a Procurement-related Complaint, the Tenderer should submit its complaint following these procedures, in writing (by the quickest means available, that is either by hand delivery or email to: For the attention: **Mr. Wamalwa M. Joel** Title/position: **Chief Executive Officer** Procuring Entity: Lake Victoria North Water Works Development Agency Email address: info@LVNWWDA.go.ke In summary, a Procurement-related Complaint may challenge any of the following (among others): the terms of the Tender Documents; and the Procuring Entity's decision to award the contract.

SECTION III - EVALUATION AND QUALIFICATION CRITERIA

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:

For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.

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

Exchange rates shall be taken from the publicly available source identified in the ITT 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.

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.

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**.

	PRELIMINARY EVALUATION CRITERIA
No.	**Parameter**
1.	Tenderers must respond by manually submitting Physical tender documents. Tenderers who respond through electronic means shall be disqualified and not subjected to any further evaluation
2.	Properly bound, well-presented document. The tender document shall be paginated / serial numbered. All bidders are required to submit their documents paginated in a continuous ascending order i.e. sequentially paginated, from the first page to the last in this format; (i.e. 1, 2, 3… n where n is the last page) (Loosely attached/stapled pages will not be allowed)
3.	Proof of Registration with the Registrar of Companies. Companies Incorporated under the Company's Act must in addition submit Copy of the recent Certificate of Confirmation of Directors and Shareholding (CR12) issued within the last 12 months from the date of tender opening. (This may be verified with the Registrar of Companies)
4.	Copies of ID's for the directors appearing in the CR 12
5.	NCA Registration for Water Works At least Category 6 (Will be verified)
6.	NCA Valid practicing license(Will be verified)
7.	Copy of Valid Tax Compliance Certificate issued by the Kenya Revenue Authority (Will be verified on the KRA TCC Checker). The Tax Compliance Certificate shall be valid at least up to the Tender Closing date.
8.	Valid AGPO certificate (*Will be verified)*
9.	Proof of Registration within the County of residence. Submit a valid relevant current Trading License /Single Business Permit issued by the County Government.
10.	Form of Tender duly completed, signed, and stamped by the Tenderer in the Format provided.
11.	Must submit a Duly Completed, Signed and Stamped Tenderer's Eligibility -Confidential Business Questionnaire in the format provided
12.	Submit a duly completed, signed and stamped Certificate of Independent Tender Determination in format provided
13.	Submit a duly completed, signed and stamped Self Declaration that the person/tenderer is not debarred in the matter of the Public Procurement and Asset Disposal Act 2015 (Form SD1)
14.	Submit a duly completed, signed and stamped Self Declaration that the person/tenderer will not engage in any corrupt or fraudulent practice (Form SD2
15.	Submit a duly completed, signed and stamped Declaration and Commitment to Code of Ethics Code Form in format provided
16.	Bills of Quantities duly completed, Signed and Stamped by the Tenderer in the format provided
17.	Must submit a Duly Completed, Signed and Stamped Tenderer Information Form in Format Provided
18.	Submit a Tender Specific Written Power of Attorney
19.	a duly signed and stamped Tender Securing Declaration Form in the format provided in the tender document. (signed by the director appearing in the CR 12 of person with the power of attorney)

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

Criteria shall apply:

Alternative Completion Times, if permitted under ITT 13.2, will be evaluated as follows:

……**N/A**……

Alternative Technical Solutions for specified parts of the Works, if permitted under ITT 13.4, will be evaluated as follows: …… **N/A**

……

Other Criteria; if permitted under ITT 35.2(d): See Section 8B: Qualification Criteria

Multiple Contracts

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

OPTION 1

If a tenderer wins only one Lot, the tenderer will be awarded a contract for that Lot, provided the tenderer meets the Eligibility and Qualification Criteria for that Lot.

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

OPTION 2

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

Alternative Tenders (ITT 13.1)

An alternative if permitted under ITT 13.1, will be evaluated as follows: **N/A**

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

Margin of basic technical

Post qualification and Contract ward (ITT 39), more specifically,

In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so

required.

In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.

The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow of Kenya **Shillings Ten million (Kshs. 10,000,000/=)**

Minimum average annual construction turnover of **Kenya Shillings twenty million (Kshs. 20,000,000/=)** within the last 5 **years**

At least **3** of the contract(s) of a similar nature executed within Kenya, or the East African Community or abroad, that have been satisfactorily and substantially completed as a

prime contractor, or joint venture member or sub-contractor each of minimum value of **Kenya shillings Twenty million (Ksh. 20,000,000/=)** equivalent.

Contractor's Representative and Key Personnel, which are specified as interlevel:

No.	Position	Qualifications	Total Work Experience (years)	In Similar Works Experience (years)
1.	Contract Manager,	• Bsc Civil Engineering or Equivalent • Registration with Engineers Board of Kenya • or Equivalent	10	5
2.	Site Agent 1No.	• Bsc Civil Engineering or Equivalent	10	5
3.	Technicians (2No.)	• Diploma in Civil Engineering	5	3
4.	Plumbers(2No)	• Certificate/Diploma in Civil Engineering, Plumbing or equivalent	5	3
5.	Surveyor	At least a Diploma in Land Survey or equivalent	5	3
6.	Health & Safety expert (1No.)	• At least Diploma in Environmental studies/Health and Safety Science or equivalent.	5	3

No.	Equipment Type and Characteristics	Minimum Number Required
1	• Poker Vibrator	1
2	• 1m3 Concrete mixer	1
3	• HDPE Butt Fusion Machine	1
4	• Diesel Generator (15-200Kva)	1
5	• Compressors	1
6	• RTK Survey Equipment	1
7	• No. Pick -Up Vehicle	1

Contractors key equipment listed on the table "Contractor's Equipment" below and morphemically listed as

Other conditions depending on their seriousness.

History of non-performing contracts:
Tenderer and each member of JV in case the Tenderer is a JV, shall demonstrate that non- performance of a contract did not occur because of the default of the Tenderer, or the member of a JV in the last **5 years**. The required information shall be furnished in the appropriate form.

Pending Litigation
Financial position and prospective long-term profitability of the Single Tenderer, and in the case the Tenderer is a JV, of each member of the JV, shall remain sound according to criteria established with respect to Financial Capability under Paragraph
(i) above if all pending litigation will be resolved against the Tenderer. Tenderer shall provide information on pending litigations in the appropriate form.

Litigation History
There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the last **5 years**. All parties to the contract shall furnish the information in the appropriate form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the years specified. A consistent history of awards against the Tenderer or any member of a Marysol in rejection of the tender.

QUALIFICATION FORMSUMMARY

Item No.	Qualification Subject	Qualification Requirement	*Document To Be Completed by Tenderer*	*For Procuring Entity's Use (Qualification Met or Not Met)*
1	Nationality	Nationality in accordance with ITT 3.6	Forms ELI - 1.1 and 1.2, with attachments	
2	Tax Obligation for Kenya Tenderers	Has produced a current tax clearance certificate or tax exemption Certificate issued by Kenya Revenue Authority in accordance with ITT 3.14.	Attachment	
3	Conflict of Interest	No conflicts of interest in accordance with ITT 3.3	**Form of Tender**	
4	PPRA Eligibility	Not having been declared ineligible by the PPRA as described in ITT 3.7		
5	State- owned Enterprise	**Meets conditions of ITT 3.8**	**Forms ELI - 1.1 and 1.2, with attachments**	
6	Goods, equipment and services to be supplied under the contract	**To have their origin in any country that is not determined ineligible under ITT 4.1**	**Forms ELI - 1.1 and 1.2, with attachments**	
7	History of Non-Performing Contracts	**Non-performance of a contract did not occur as a result of contractor default since 1st January 2019**	**Form CON-2**	
8	Suspension Based on Execution of Tender/Proposal Securing Declaration by the Procuring Entity	**Not under suspension based on-execution of attender/Proposal Securing Declaration pursuant to ITT 19.9**	**Form of Tender**	
9	Pending Litigation	**Tender's financial position and prospective long-term profitability still sound according to criteria established in 3.1 and assuming that all pending litigation will NOT be resolved against the Tenderer.**	**FormCON-2**	

10	Litigation History	No consistent history of court/arbitral award decisions against the tenderer since **1st January 2019**	Form CON – 2	
11	Financial Capabilities	The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as Kenya Shillings Ten million (**Kshs. 10,000,000)** equivalent for the subject contract(s) net of the Tenderer's other commitments. **(i)** The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments. (ii) The audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statements acceptable to the Procuring Entity, for the last 3 years shall be submitted and must demonstrate the current soundness of the Tenderer's Financial position and indicate its prospective long-term profitability.	**Form FIN - 3.1, with attachments**	
12	Average annual Construction Turnover	Minimum average annual construction turnover of Kenya Shillings **Twenty million (Kshs. 20,000,000 within the last five (5) years**	Form FIN - 3.2	
13	General construction	Experience under construction contracts in the role of prime contractor, JV member, sub-	4. Form EXP - 4.1	

	experience	contractor, or management contractor for at least **the last 5 years, starting 1st January 2019.**	Experience	
14	Specific construction & contract management Experience	A minimum number of Three similar contracts specified below that have been satisfactorily and substantially completed as a prime contractor, joint venture member, management contractor or sub-contractor between **1st January 2019 and the tender submission deadline i.e. three contracts, each of minimum value Kenya shillings twenty Million (Kesh. 20,000,000) equivalent.** The contractor shall demonstrate that he has successfully undertaken a similar project in the past five years: The contractor must have **NCA Class6 and** above Registration under water Supply category	Form FIN - 3.2	

TECHNICAL EVALUATION (100 marks)				
1. General Experience (10 marks)				
Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least the last 5 years, starting 5 no projects (2Mks)			**10**	**10**
2. Specific construction Experience (40 marks)				
A minimum number of Two similar contract specified below that have been satisfactorily and 100% completed as a prime contractor, joint venture member, management contractor or sub-contractor. (This may be verified with the respective Contracting Authority) (20 Mks)			40	40
3. Critical Equipment (10 marks)				
No.	**Equipment Type and Characteristics**	**Minimum No. Required**		

1.	Poker Vibrator		**1**		**10**
2.	1m3 Concrete mixer		**1**		
3.	HDPE Butt Fusion Machine		**1**		
4.	Diesel Generator (15-200Kva)		**1**		
5.	Compressors		**1**		
6.	RTK Survey Equipment		**1**		
7.	No. Pick -Up Vehicle				
4.Experience of Key Personnel (15 Marks)					
Positions	**Qualifications**	Total Work Experience Years	**In Similar Works Experience Years**	**Marks**	**Marks**
Contract Manager, (Professional Engineer)	Bsc Civil Engineering or Equivalent Registration with the Engineers Registration Board of Kenya or Equivalent	**10**	**5**	**5**	**15**
Site Agent (Professional Engineer) 1No.	Bsc Civil Engineering or Equivalent or Equivalent	**10**	**5**	**3**	
Technicians (2No.)	Diploma in Civil Engineering	**5**	**3**	**2**	
Plumbers(2No)	Certificate/Diploma in Civil Engineering, Plumbing or equivalent	**5**	**3**	**2**	
Health & Safety expert (1No.)	At least diploma in Environmental studies/Health and Safety Science or equivalent	**5**	**3**	**1**	
Surveyor	At least diploma in Land survey or Equivalent	**5**	**3**	**2**	

5. Financial Capability (10 marks)		
(i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as **Kenya Shillings Ten Million (Kshs. 10,000,000)** equivalent for the subject contract(s) net of the Tenderer's other commitments.	2	10
(ii) The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.	2	
iii) The audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statements acceptable to the Procuring Entity, for the last 3 **years** shall be submitted and must demonstrate the current soundness of the Tenderer's Financial position and indicate its prospective long-term Profitability Current Ratio of at least 1, Debt Ratio of at most 1	2	
Average Annual Construction Turnover		
Minimum average annual construction turnover of **Kenya Shillings Twenty Million (Kshs. 20,000,000)** Equivalent over the last 5years.	4	
6. Other Requirements (10 marks)		
Method statement	3	10
Site Organization and Organogram	2	
Mobilization schedule	3	
Work Programme	2	
ADDITIONAL INFORMATION TO BE PROVIDED (5 marks)		
The following additional information to be provided by the bidder		5
a) Litigation Information		
Information regarding litigation, current if any;	2	
b) Current Work Commitment		
Information, in a tabular format, on the Tenderer's current work commitment whether as the main contractor or sub-contractor	2	
c) **Ongoing contracts with the Lake Victoria North Water Works Development Agency**. Information, in a tabular format, on the Tenderer's current work commitment as the main contractor	1	
NOTE:		
Only Bidders who attain minimum technical score of 70% (in B above) will proceed to the next phase of financial evaluation.		
Total marks		**100**
PASS MARK IS 70%		

Note:

Only Bidders who **shall** attain minimum technical score of 70% and Proceed Financial evaluation

FINANCIAL EVALUATTION

Stage 1

This will include the following: -

Confirmation of and considering Bill of Quantities completed and signed.

Conducting a financial comparison for the firms that passed preliminary evaluation, technical evaluation.

The award shall be made to the most economical and advantageous tender in considering the lowest evaluated bid.

Stage 2 and Post Qualification

The lowest evaluated tender having passed stage 1 above shall be the winning bid subject to the employer's right to exercise due diligence relating to confirmation of information submitted by the bidder. **The LVNWWDA may conduct post-qualification as it deems necessary** in accordance with ''The Public Procurement & Disposal Act 2015 Section 83 (1), which provides that *''An evaluation committee may, after tender evaluation, but prior to the award of the tender, conduct due diligence and present the report in writing to confirm and verify the qualifications of the tenderer who submitted the lowest evaluated responsive tender to be awarded the contract in accordance with this Act''*. Any bidder who shall be found to have supplied false or misleading information shall be disqualified and the next lowest tender that has passed stage 1 shall be considered

In addition, any contract terminated on grounds of integrity and/or fraud or corruption is ineligible to tender. These bidders shall be disqualified and the next lowest tender that has passed stage 1 shall be considered.

QUALIFICATION FORMS

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	

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 t:	[*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 appointmen t t:	[*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 t:	[*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 t:	[*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	[*insert the expected time schedule for this position (e.g. attach high level Gantt chart*]
	position:	

FORM PER-2:

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

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 tithe best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, tithe 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:

be taken into consideration during Tender evaluation;

result in my disqualification from participating in the Tender;

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): _____

TENDERERS QUALIFICATIONWITHOUTPRE-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 o~~riginal documents of~~ I. 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 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: _____ J

V Member's Name _____ I

TT No. and title: _____

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
Contract non-performance did not occur since 1set January *[insert year]* specified in Section Misevaluation and Qualification Criteria, Sub-Factor 2.1. Contract(s) not performed since 1set 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, Factor 2.4

Sub-Factor 2.4.

Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-

as indicated below.

Year of award	**Outcome as percentage of Net Worth**	**Contract Identification**	**Total Contract Amount (currency),Kenya 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					

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		

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:

1.1.1.1. 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).

1.1.1.2. be independently audited or certified in accordance with local legislation.

1.1.1.3. be complete, including all notes to the financial statements.

1.1.1.4. 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

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.*

[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.*

4.6 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 subject contract)**
1		
2		
3		

4.7 FORM FIN– 3.4:

Current Contract Commitments / Works in Progress

Tenderers and each member to a 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 Work 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 gear	Ending gear	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	Manage me not Contractor	Sub-contracto r r
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/fa x numbered-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 Misevaluation 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	Manage me not 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 numbered-mail:				

2. Activity No.

Two3.

[2]If applicable

OTHER FORMS

FORMOFTENDER

INSTRUCTIONS TO TENDERERS

The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name Performed.

All italicized text is to help Tenderer in preparing this form.

Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and All italicized All italicized to this Form of Tender.

The Form of Tenders hall include the following Forms duly Tenders Hall by the Tenderer.

Tenderer's Eligibility- Confidential Business Questionnaire

Certificate of Independent Tender Determination

Self-Declaration of the Tenderer

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

To: Lake Victoria NORTH Water Works Development Agency

Dear Sirs,

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 inwards]*_____.

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.

We undertake, if our tender is accepted, to commence the Workses 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 maybe accepted at any time before that date.

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.

We, the undersigned, further declare that:

No reservations: We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;

Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3

and 4;

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;

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];*

Tender Price: The total price of our brief description discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*

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:

Total price of each lot [*insert the total price of each lot in words and figures, indicating the various amounts various amounts*]; and

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*];

Discounts: The discounts offered and the methodology for their application are:

The discounts offered are: [*Specify in detail each discount offered.*]

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*];

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;

Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;

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;

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.

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*];

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 its full or gratuity].*

Name of Recipient	Address	Reason	Amount

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

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;

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

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;

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.

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.

We, the Tenderer, have completed fully and signed the following Forms as part of our Tender:

Tenderer's Eligibility; Confidential Business Questionnaire – to establish we are not in any conflict to interest.

Certificate of Independent Tender Determination – to declare that we completed the tender without colluding with other tenderers.

Self-Declaration of the Tenderer – to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.

Declaration and commitment to the Code of Ethics for Persons Participating in Public any form 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.

TENDERER'S ELIGIBILITY-CONFIDENTIALBUSINESS

QUESTIONNAIRE Instruction to Tenderer

Tenderer is instructed to complete to complete Form, *to complete if Tenderer isa Ven*eerer is further reminded that it is an offence to give false information on this Form.

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

Sole Proprietor, provide the following details.

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

Partnership, provide the following details.

	Names of Partners	Nationality	Citizenship	% Shares owned
1				
2				
3				

Registered Company, provide the following details.

Private or public Company _____

ii) State the nominal and issued capital of the Company

Nominal Kenya Shillings (Equivalent)

Issued

Kenya Shillings (Equivalent).....

Give details of Directors as follows.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

DISCLOSURE OFINTEREST- Interest of the Firm in the Procuring Entity.

Are there any person/persons in (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			

Conflict of interest disclosure

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

Certification

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

Full Name_____ Title or Designation _____

_____ _____

(Signature) *(Date)*

CERTIFICATEOF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Letter of Tender to the _____ [Name of Procuring Entity] for: _____ [Name and number of tenders] 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:

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

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

Ianthe authorized representative of the Tenderer with authority to sign this Certificate, and to submit the Tender on behalf of the Tenderer;

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:

has been requested to submit a Tender in response to this request for tenders;
could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;

The Tenderer discloses that [check one of the following, as applicable:

The Tenderer has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;
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;

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:

prices;
methods, factors or formulas used to calculate prices;
the intention or decision to submit, or not to submit, a tender; or
the submission of a tender which does not meet the specifications of the request for Tenders; except especially disclosed pursuant to paragraph (5)(b) above;

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;

the terms of the Tender have not been, and will not be, knowingly disclosed by the Tenderer, directly or indirectly, tony 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].

SELF - DECLARATION

FORMSFORM 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: -

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 ……. for Lake Victoria NORTH Water Works Development Agency and duly authorized and competent to make this statement.

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

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: -

THAT I am the Chief Executive/Managing Director/Principal Officer/Director of ..... *(insert nameoftheCompany)*whoisaBidderinrespect ofTender No …… for Lake Victoria NORTH Water Works Development Agency *and* duly authorized and competent to make this statement.

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 Lake Victoria NORTH Water Works Development Agency which is the procuring entity.

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 Lake Victoria NORTH Water Works Development Agency

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

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

…… …… …….... …… .....…… ……

(Title) (Signature) (Date)

Bidder's Official Stamp

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

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

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

Name of Authorized signatory…….....
Sign…….....

Position…….....…….....
.....

Office address…….
Telephone…….....…….

E-mail…….....….....

Name of the
Firm/Company…….....……

Date…….....…

(Company Seal/ RubberStamp where applicable)

Witness

Name …….....

Sign.....

Date……

APPENDIX 1- FRAUDAND CORRUPTION

(Appendix 1 shall not be modified)

Purpose

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

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 Fraud and 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 tube 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 A few Kenya's policy of nontolerance such practices and behavior:

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;

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

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

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

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

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

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: -

shall not take part in the procurement proceedings;

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

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

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;

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 artifact. Etc.

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

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

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

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

"collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
"coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
"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.

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 Benetton free and open competition.

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;

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

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

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.

7. FORM OF TENDERSE CURITY - DEMAND BANK GUARANTEE

Beneficiary: _____

Request for Tenders No: _____

Date: _____

TENDER GUARANTEE No.: _____

Guarantor: _____

1. Weave been informed that _____(hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Tender (hereinafter called "the Tender") for the execution of

   _____

2. under Request for Tenders No. _____("the ITT").

Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.

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 or sums 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:

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

having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or
(ii) has failed to furnish the Performance.

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.

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

[signature(s)]

FORM OF TENDER SECURITY (TENDER BOND)

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

BONDNO. _____

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

WHEREAS the Principal has submitted or will submit a written Tender to the Procuring Entity dated the

_____day of _____, 20

for the supply of *[name of Contract]* (hereinafter called the "Tender").

NOW,THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the principal:

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

having been notified of the acceptance of its Tender by the Procuring Entity during the Tender Validity

Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or

(ii) has failed to furnish the Performance Security, in accordance with the Instructions to tenderers ("ITT") of the Procuring Entity's Tendering document.

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

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

IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this_____day of _____20_____ .

Principal:_____ Surety _____

Corporate Seal (where appropriate)

_____ _____

(Signature) *(Signature)*

(Printed amarantite) *(Printed amarantite)*

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 processes Purchaser]* I/We, the undersigned, declare that:

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

I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of…….. [insert number of months or years] starting on…….. [insert date], if we are in breach of our obligation(s) under the bid conditions, because we –have withdrawn our tender during the period of tender validity specified by us in the Tendering Data Sheet; orhaving been notified of the acceptance of our Bid by the Purchaser during the period of bid validity,

fail or refuse to execute the Contract, if required, or

fail or refuse to furnish the Performance Security, in accordance with the instructions to tenders.

I/We understand that this Tender Securing Declaration shall expire if we are not the successful Tenderer(s), upon the earlier of:

our receipt of a copy of your notification of the name of the successful Tenderer; or

thirty days after the expiration of our Tender.

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.

Signe……Capacity / title (director

orpartnerorsoleproprietor, 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

Name of Currency	Amount Payable
Local Currency:	Accepted Contract Price
Foreign Currency No. 1	
Foreign Currency No. 2	
Foreign Currency No. 3	
Provisional Sum expressed in local currency	

PART II - WORK REQUIREMENTS

SECTION V – DRAWINGS
Drawings provided separately

SECTION VI - SPECIFICATIONS

The Specifications to be used for the Works are the General and Technical Specifications given in Volume II of the Bidding Documents.

SECTION VII- BILLS OF QUANTITIES

Preambles

The method of measurement of completed work for payment shall be in accordance with Civil Engineering Standard Methods of Measurement, Fourth Edition (CESMM4).

The Contractor shall visit the site as advised by LVNWWDA and acquaint itself with its nature and position, the nature of the ground, substrata and other local conditions, positions of existing power, water and other services, access roads or any other limitations that might affect his cost or progress. No claim for extras shall be considered on account of lack of knowledge in this respect.

The Contractor shall obtain the Project Manager's approval on the siting of all temporary buildings, spoil heaps, temporary access path, and storage of materials. The Contractor shall also obtain the Project Manager approval and direction regarding the use of any materials found on the Site.

The drawings used in the preparation of these Bills of Quantities can be inspected at the offices of the Procuring Entity or Procuring Entity's Representative during normal working hours. Two sets of the Working Drawings shall be provided to the contractor but additional copies shall be provided at a cost to be determined by the Engineer.

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.

The Contractor shall carry out the various sections of the Works in such an order as the Project Manager May direct. The Procuring Entity reserves the right to occupy the Works by sections on completion provided that such occupation is considered to be both practical and reasonable and will not interfere with the Works. The Contractor shall allow any costs associated with such occupation.

The main Contractor will be fully responsible for paying his Sub-Contractor but the Procuring Entity reserves the right in very exceptional circumstances to make such payments direct in the interests of the project where the completion thereof might be jeopardized by any dispute or vicariousness between the Contractor and the Sub-Contractor involve.

The Contractor shall complete and deliver the Works in the period inserted in the Form of Tenders his time for completion of the Works from the date for Possession, to be agreed with the Engineer. The Contract Period is presumed to have been calculated making due allowance for seasonal inclement weather conditions. No claim for extension of time due to the normal inclement weather for this area shall be entertained.

The Contractor shall, upon receiving instructions to proceed with the Works, draw

up a Programmed and Progress Chart setting out the order in which the Works are to be carried out, with the appropriate dates thereof. This Chart shall be agreed with the Project Manager and no deviation from the order set out in it will be permitted without the written consent of the Engineer. The Contractor will be responsible for arranging the above Programmed with all his sub-Contractors and Specialties. The Contractor shall allow in his rates for carrying out this exercise, and for updating it as required.

The Contractor shall arrange for photographs of the Site to be taken by a professional photographer approved by the Engineer. The Photographs shall provide a record of the Site and adjacent are as prior to the commencement of the Works and shall cover such portion of the works in progress and completion as the Project Manager shall direct. All prints shall be full plate size,

unmounted, and marked on the reverse side with the date of exposure, identification reference and brief description. The copyright of all photographs shall be vested in the Procuring Entity. The negatives and four prints from each negative shall be delivered to the Project Manager within two weeks of exposure.

Figured dimensions are to be followed in preference to dimensions scaled from the Drawings, but whenever possible dimensions are to be taken on the Site or from the buildings. Before any work is commenced by Sub- Contractors or Specialist Firms, dimensions must be checked on the site comparable dimensions shown on the drawings. The Contractor shall be responsible for the accuracy of such dimensions.

Prior to commencement of any work the Contractor is to ascertain from the relevant Authorities the exact position, depth and level of all existing electric cables, waterpipes or other services in the area and he shall make whatever provisions may be required by the Authorities concerned for the support and protection of such services. Any damage or disturbance caused to any services shall be reported immediately to the Architect and the relevant Authority and shall be made good to their satisfaction at the Contractor's expense. Where appropriate the Contractor shall open up the ground in advance of the main work by hand digging, if necessary, to locate precisely the position and details of the services which are likely to affect his operations.

The Contractor shall include in his prices for the transport of materials, workmen, etc./, to and from the site of the proposed works, at such hours and by such route as are permitted by the Authorities.

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.

The Contractor is to allow for complying with all instructions and regulations of the Police Authorities.

All water shall be fresh, clean and pure, free from earthly, vegetable or organic matter, acid or alkaline substance in solution. The Contractor shall provide at his own risk and cost all water for use in connection with the Works, (including works of sub–contractors). If need be, he shall make arrangements with the Local Water Authority

for the installation of a separate meter for all water used by him throughout the Contract and pay all cost and fees in connection therewith. He shall also provide temporary storage tanks and tubing, etc., as may be necessary, and clear away at completion.

The Contractor shall provide all artificial lighting and power for his own use on the Works, (including Sub – Contractor's) including all temporary connections, wiring, fittings, etc., and clearing away on completion. The Contractor shall pay all fees and obtain all permits in connection there with.

The Contractor shall constantly keep on the Works a Literate English-speaking Agent or Representative, competent and experienced in the kind of work involved, who shall give his whole time to the superintendence of the works. (Including works of sub – contractors). Such Agent or Representative shall receive on behalf of the Contractor directions and instruction from the Engineer, and such directions and instructions shall be deemed to be given to the contractor in accordance with the Conditions of Contract. The Agent shall not be replaced without the specific approval of the Engineer.

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 Project Manager 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.

The areas available to the Contractor for work yards, offices and other facilities shall be directed by the Project Manager and any existing features to remain shall be protected from damage throughout the Contract Period and handed back in good condition when they are vacated at the end of the Contract. If additional areas are required, the contractor shall source then at own cost.

The Contractor shall give the Project Manager 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 Speciation's on the Drawings. The checking of setting out or leveling by the Project Manager shall not relieve the Contractor of his duties or responsibilities under the Contract.

The Contractor must take steps necessary to safe guard and shall beheld fully responsible for any damage caused to existing and adjacent property, including buildings that are not a subject of demolition. He shall make good at his own cost damage to persons and property caused there on, and he shall indemnify the Procuring Entity against any loss or claim that may arise.

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 15^{the}October 1998.Legal notice No.154 of 1998. The Contractor is required to pay a monthly level of 0.2% of his factory price of construction works with effect from January 1999. Tenderers hall allow for this in the build-up of his rates.

The Contractor shall provide temporary sheds, offices washrooms, sanitary, accommodation another temporary buildings for the use of the contractor and sub-contractors, including lighting furniture equipment and attendance.

Contractor shall provide/build labor camp sat areas to be agreed with the Engineer. Labor camps shall be complete with sanitary accommodation and fencing gates.

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.

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 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 temporary fencing, hoarding fans, planked footways, guard–rails gantries screen, etc., for the safe custody of the Works, materials and public protection and adjacent properties.

Cover up all and protect from damage, including damage from inclement weather, all finished work and unfixed materials, including that of Sub-Contractors, etc., to the satisfaction of the Project Manager until the completion of the Contract.

The Contractor shall, after completion of the works, at his own expense, remove and clear away all surplus excavated demolition materials, plant, rubbish and unused materials and shall leave the whole of the Site and Works in a clean and tidy state to the satisfaction of the Engineer, sheds, camps, etc. Particular care shall be taken to leave clean all floors and windows and tore move all paint and cement all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection there with.

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.

The Contractors Hall 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 Project Manager for the approval or rejection, and any further samples in the case of rejection, until such samples are approved by the Engineer. Such samples, when approved, shall be the minimum standard for the work to which they apply. The procedure for submitting samples of materials for testing or approval and the method of marking for identification shall be as laid down by the Engineer. The Contractor shall allow in his Tender for such samples and tests, including those in connection with his Sub-Contractors work.

The Contractors attention is drawn to the Finance Bill of the year 2000/2001 on withholding taxon contractual payment section 35(7) (i)(ii) which became effective on 1set August 2000. A 3% withholding tax will be applicable to all interim 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.

Blasting will only be allowed with the express permission of the Architect in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost, in accordance with any Government regulations in force for the time being, and any special regulations laid down by the Project Manager governing the use and storage of explosives.

The National Construction Authority is a state corporation established under the national construction authority Act No.14 of 2011. The broad Mandate of the Authority is to oversee the construction industry and coordinate its development. The National Construction Authority

the

Regulations 2014 with an effective date of 6 June 2014, regulation 25, - Allow 0.5% of the tender sum/contract sum for construction levy.

The Contractor attention is drawn to Finance Bill of 1993 where VAT was introduced in all contracts for construction services. The tenderer is also drawn to VAT Act Cap 476 clause 19(9).The tenderer must allow for VAT1.19 as instructed elsewhere.

The contractor shall allow and pay for all insurance to cover risks and indemnities required Items17 and 18 of the Conditions of contract and also specified in the Special Conditions of Contract.

BILLS OF QUANTITIES

Attached separately

SECTION VIII - GENERAL CONDITIONS OF CONTRACT

These General Conditions of Contract (GCC), read in conjunction with the Special Conditions of Contract (SCC) another 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

Definitions

1.1 Bold face type is used to identify defined terms.

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.

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.

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.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.

Compensation Events are those defined in GCC Clause 42 hereunder.

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.

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.

The Contractor is the party whose Bid to carryout the Works has been accepted by the Procuring Entity.

The Contractor's Bid is the completed bidding document submitted by the Contractor to the Procuring Entity.

The Contract Price is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract.

Days are calendar days; months are calendar months.

Day works 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.

A Defect is any part of the Works not completed in accordance with the Contract.

The Defects Liability Certificate is the certificate issued by Project Manager upon correction of defects by the Contractor.

The Defects Liability Period is the period **named in the SCC** pursuant to Sub-Clause 34.1 and calculated from the Completion Date.

Drawings means the drawings of the Works, as included in the Contract, and any additional and calculated from 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.

The Procuring Entity is the party who employs the Contractor to carry out the Works, **as specified in thick,** who is also the Procuring Entity.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

"In writing" or "written" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

The Initial Contract Price is the Contract Price listed in the Procuring Entity's Letter of Acceptance.

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 nonbyte Project Manager by issuing an extension of time or an acceleration order.

Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.

Plant is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.

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.

SCC means Special Conditions of Contract.

The Site is the area of the works as **defined as such in the SCC**.

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.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.

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.

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.

eel) **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.

A Variation is an instruction given by the Project Manager which varies the Works.

The Works are what the Contract requires the Contractor to construct, install, and turn over to the Procuring Entity, **as defined in the SCC**.

Interpretation

2.1 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.

2.2 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).

2.3 The documents forming the Contract shall be interpreted in the following order of priority:

Agreement,
Letter of Acceptance,
Contractor's Bid,
Special Conditions of Contract,
General Conditions of Contract, including Appendices,
Specifications,
Drawings,

Bill of Quantities[6], and
another document **listed in the SCC** as forming part of the Contract.

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

as a matter of law or official regulations, Kenya prohibits commercial relations with that country; or

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 tony country, person, or entity in that country.

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.

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.

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.

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.

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 Entitymay modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

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.

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.

Procuring Entity'sRisks

11.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Procuring Entity'srisks:

The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant,
Materials, and Equipment), which are due to

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

negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity orby any person employed by or contracted to him except the Contractor.

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 Workshare 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

a Defect which existed on the Completion Date,

an event occurring before the Completion Date, which was not itself a
Procuring Entity's risk, orc) the activities of the Contractor on the Site after
the Completion Date.

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.

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:

loss of or damage to the Works, Plant, and Materials;

loss of or damage to Equipment;

loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and

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.

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.

Contractor to Construct the Works

15.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.

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.

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.

Safety

18.1 The Contractor shall be responsible for the safety of all activities on the Site.

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.

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.

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.

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).

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.

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:

this fully detailed claim shall be considered as interim;

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

the Contractor shall send a final claim within 30 days after the end of the effects resulting from

the eventer 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.

24.2 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.

24.3 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:

The appointment of a replacement Project Manager upon the said person ceasing to act.

Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.

Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.

Any dispute arising in respect of war risks or war damage.

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.

24.4 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 settlement has 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.

24.5 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;

Architectural Association of Kenya

Institute of Quantity Surveyors of Kenya

Association of Consulting Engineers of Kenya

Chartered Institute of Arbitrators (Kenya Branch)

Institution of Engineers of Kenya

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

24.6 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.

24.7 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 another rights timewave, refer the matter to a competent court of law.

24.8 Contract operations to continue

24.8.1 Notwithstanding any reference to arbitration herein,
the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
the Procuring Entity shall pay the Contractor any monies due the Contractor.

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

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.

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 within21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Eventer Variation and submitting full supporting information. If the Contractor has failed to give early warning of 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.

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.

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.

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.

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.

Quality Control

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.

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.

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.

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.

Cost Control

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.

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.

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

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;

the proposed change(s), and a description of the difference to the existing contract requirements;

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

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:

accelerate the contract completion period; or

reduce the Contract Price or the life cycle costs to the Procuring Entity; or

improve the quality, efficiency, safety or sustainability of the Facilities; or

yield another 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 reduction of the Contract Price; the amount to be paid to the Contractor shall be the **percentage specimen the SCC** of the reduction in the Contract Price; or

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.

Cash Flow Forecasts

39.1 When the Program[11], is updated, the Contractor shall provide the Project Manager with an updated cash downforces. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.

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 X100*.

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.

Compensation Events

42.1 The following shall be Compensation Events:

The Procuring Entity does not give access to a part of the Site by the Site Possession Date pursuant to currencies comprising-Clause 20.1.

The Procuring Entity modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.

The Project Manager orders a delay or does not issue Drawings, Specifications, or

instructions required for execution of the Works on time.

The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.

The Project Manager unreasonably does not approve a subcontract to be let.

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.

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.

Other contractors, public authorities, utilities, or the Procuring Entity does not work within the dates another constraints stated in the Contract, and they cause delay or extra cost to the Contractor.

The advance payment is delayed.

The effects on the Contractor of any of the Procuring Entity's Risks.

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.

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.

Tax

43.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date30 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.

Currency y of Payment

44.1 All payments under the contract shall be made in Kenya Shillings

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 I'm/Io

where: Pies the adjustment factor for the portion of

the Contract Price payable.

and B are coefficients[13] **specified in the SCC,** representing the non-adjustable and adjustable portions, respectively, of the Contract Price payable and I'm is the index prevailing at the end of the month being invoiced and Ices the index prevailing 30 days before Bid opening for inputs payable. 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.

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 GCC53.1, 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.

Liquidated Damages

47.1 The Contractor shall pay liquidated damages to the Procuring Entity at the rate per day stated in the **SCC** foreach 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.

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.

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 the date 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.

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 Prices payable. The Performance Security shall be valid until a date 28 day from the date of issue of the Cortication 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.

ayworks

51.1 If applicable, the Day works 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.

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

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.

Taking Over

54.1 The Procuring Entity shall take over the Site and the Works within seven days of the Project Manager's issuing certificate of Completion.

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.

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.

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:

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;

the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days;

the Procuring Entity or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

a payment certified by the Project Manager is not paid by the Procuring Entity to the Contractor within 84days of the date of the Project Manager's certificate;

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;

the Contractor does not maintain a Security, which is required;

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

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.

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.

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.

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 was made.

SECTION IX - SPECIAL CONDITIONS OF CONTRACT

A. General	
GCC 1.1 (q)	**The Procuring Entity is:** Lake Victoria North Water Works Development Agency (LVNWWDA) P.O. Box 3325-40100, Kisumu, Tel: +254 (057) 2025128, (020) 2157233, Hotline 020- 2463081Email: info@lvnwwda.go.ke
GCC 1.1 (u)	Time for Completion shall be **as approved in contract agreement**
GCC 1.1 (x)	**The project Manager is:** Chief Manager Technical Services **LAKE VICTORIA NORTH WATER WORKS DEVELOPMENT AGENCY** **P.O Box 673 – 50100, KAKAMEGA,** **TEL: 0562031552, Fax 0562031506** **Email: info@lvnwwda.go.ke**
GCC 1.1 (z)	The sites are located at **Lake Victoria North Water Works Agency** Area of Jurisdiction of the
GCC 1.1 (cc)	The start date shall be the latest date the contractor shall begin execution of the works
GCC 1.1 (gg)	**The Works Consist of:** Lumino Soy Weir Rehabilitation Lumino Soy Cfu Rehabilitation Lumino Soy Electromechanical Lumino Soy Rising Main To Ivugwi Tank Lumino Soy Transmission And Distribution Lumino Dam Electromechanical And Floating Pontoon Draw-Off System Lumino Dam Rising Main (3200m Length) Od 90mm Hdpe Pipe Schedule Of Day Works
GCC 2.2	**N/A**
C 5.1	The Project Manager **may** delegate any of his duties and authorities.
GCC 8.1	Schedule of other Contractors: **N/A**

GCC 9.1	**Key Personnel** GCC 9.1 is replaced with the following: Key Personnel are the Contractor's personnel named in this GCC 9.1 of the Special Conditions of Contract. 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.
GCC 13.1	The minimum insurance amounts and deductibles shall be: (a) For loss or damage to the Works, Plant, Materials and Contractor's Equipment: Minimum Insurance Amount shall be the Contract Sum plus the value of the **Contractor's Plant & Equipment plus Kshs. 5,000,000 for clearance of debris.** Maximum Deductible shall be **10**% of Each Loss For Personal Injury or death of the Contractor's Employees: Kshs 2,000,000 per occurrence, number of occurrences unlimited. Maximum Deductible Kshs.25, 000.
GCC 14.1	Site Data are: As provided in Part IV: Works Requirements.
GCC 20.1	The Site Possession Date(s) **shall be 14 Days from the Commencement Date**
GCC 23.1 & GCC 23.2	Appointing Authority for the Adjudicator: **Chartered Institute of Arbitrators (Kenya Chapter)**.
GCC 24.3	Hourly rate and types of reimbursable expenses to be paid to the Adjudicator: As agreed by all parties.
B. Time Control	
GCC 26.1	The Contractor shall submit for approval a Program for the Works Within **28 days** from the date of the Letter of Acceptance.
GCC 26.3	The period between Program updates is **14 days.** The amount to be withheld for late submission of an updated Program

	1%of the Contract Amount
C. Quality Control	
GCC 34.1	Contract Duration shall be **6 months** with a Defects Liability Period of **6** **Months.**
D. Cost Control	
GCC 38.9	If the value engineering proposal is approved by the Procuring Entity the amount to be paid to the Contractor shall be 25% of the reduction in the Contract Price.
GCC 44.1	The currency of the Procuring Entity's Country is: **Kenya Shillings.**
GCC 45.1	The Contract not subject to price adjustment in accordance with GCC Clause 45
GCC 46.1	The proportion of payments retained is: **10%**
GCC 47.1	The liquidated damages for the whole of the Works are 0.1 per day. The maximum amount of liquidated damages for the whole of the Works is 10% of the final Contract Price.
GCC 48.1	The Bonus for the whole of the Works is **Not Applicable**
GCC 49.1	The Advance Payments is **10% of the Contract Sum** *(Subject to Advance* *Payment Guarantee from a reputable bank in the format provided in the tender document)*
GCC 50.1	The Performance Security: *Not Required as per Section 142(3) of the Public Procurement and Asset Disposal Act, 2015*
E. Finishing the Contract	
GCC 56.1	The date by which operating and maintenance manuals are required is 2 ***Weeks before the site takeover date.*** The date by which "as built" drawings are required is **2 *Weeks before site takeover.***
GCC 56.2	The amount to be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required in GCC 58.1 is ***1% of the contract sum***

GCC 58.1	The percentage to apply to the value of the work not completed, representing the Procuring Entity's additional cost for completing the Works, is the ***current market rate for outsourcing the works plus 15% of the rate as penalty.***

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 tithe Tenderer's Authorized Representative named in the Tender Information Form on the format below.

FORMAT

For the attention of Tenderer's Authorized Representative

Name: *[insert Authorized Representative's name]*

Address: *[insert Authorized Representative's Address]*

Telephone: *[insert Authorized Representative's telephone/fax numbers]*

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.]

Date of Transmission: [*email*] on [*date*] (local time)

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

Notification of Intention to Award

Procuring Entity: *[insert the name of the Procuring Entity]*

Project: *[insert name of project]*

Contract title: *[insert the name of the contract]*

Country: *[insert country where ITT is issued]*

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:

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.

The successful tenderer

Name of successful Tender _____

Address of the successful Tender _____

Contract price of the successful Tender Kenya Shillings _____
(inwards_____)

Other Tenderers

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

evaluated price Aswell as the Tender price as read out. For Tenders not evaluated, give one main reason the Tender was unsuccessful.

Snow	Name of Tender	Tender Prices 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

How to request a debriefing

DEADLINE: The deadline to request a debriefing expires at midnight on [*insert date*] (*local time*).

You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention toward.

Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:

Attention: [*insert full name of person, if applicable*]

Title/position: [*insert title/position*]

Agency: [*insert name of Procuring Entity*]

Email address: [*insert email address*]

If your request for a debriefing is received within the 3 Days deadline, we will provide the debriefing within (5) 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 (5) 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.

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.

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.

How to make a complaint

Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight,[*insert date*] (local time).

Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:

Attention: [*insert full name of person, if applicable*]

Title/position: [*insert title/position*]

Agency: [*insert name of Procuring Entity*]

Email address: [*insert email address*]

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.

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.

There are four essential requirements:

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.

The complaint can only challenge the decision to award the contract.

You must submit the complaint within the period stated above.

You must include, in your complaint, all of the information required to support your complaint.

Standstill Period

DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).

The Standstill Period lasts fourteen (14) Days after the date of transmission of this Notification of Intention to Award.

The Standstill Period maybe extended as stated in paragraph Section 5 (d) above.

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

Signature: _____ **Name:** _____

Title/position: _____ **Telephone:** **Email:** _____

FORM NO 2: NOTIFICATION OFAWARD - LETTER OFACCEPTANCE

[Letterhead paper of the Procuring Entity] [date]

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

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

.....
(*name of Procuring Entity).*

You are requested to furnish the Performance Security within 30 days in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms included in Section VIII, Contract Forms, of the Tender Document.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Procuring Entity.....

Attachment: *Contract Agreement*.....

FORM NO 3: CONTRACT AGREEMENT

THIS AGREEMENT made the _____day of _____, 20, between _____of _____(hereinafter "the Procuring Entity"), of the one part, and _____of _____(hereinafter "the Contractor"), of the other part:

WHEREAS the Procuring Entity desires that the Works known as _____should be executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Procuring Entity and the Contractor agree as follows:

In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

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.

the Letter of Acceptance

the Letter of Tender

c) the addenda No's _____(if any)

the Special Conditions of Contract

the General Conditions of Contract;

the Specifications

the Drawings; and

the completed Schedules and another documents forming part of the contract.

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.

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. 4 - PERFORMANCE SECURITY

[Option 1 - Unconditional Demand Bank Guarantee]

[Guarantor letterhead]

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

[Insert date of issue]

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

1. We have been informed that (hereinafter called "the Contractor") has entered into Contract No. dated with (*name of Procuring Entity*) (the Procuring Entity as the Beneficiary), for the execution of (Hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

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.

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.*

FORM No. 5 – PERFORMANCE SECURITY

[Option 2– Performance Bond]

[Note: Procuring Entities are advised to use Performance Security – Unconditional Demand Bank Guarantee instead of Performance Bandito difficulties involved in calling Bondholder to action]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ *[insert name and Addressor* Procuring Entity*]*

Date: _____ *[Insert date of issue]***.**

PERFORMANCE Bond.: _____

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

1. By this Bond _____ as Principal (hereinafter called "the Contractor")
and _____] as Surety (hereinafter called "the Surety"), are held and firmly bound unto _____] as Oblige (hereinafter called "the Procuring Entity") in the amount of _____ for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, and assigns presents.

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.

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 maypromptly remedy the default, or shall promptly:

complete the Contract in accordance with its terms and conditions; or

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

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.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

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.

In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this day of _____20_.

SIGNED ON _____ on behalf of By __ in the capacity of in

the presence of

SIGNED ON _____ on behalf of By __ in the capacity of In the presence of

FORM NO. 6 - ADVANCE PAYMENT SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: Lake Victoria NORTH Water Works Development Agency; P.O. Box 3325-40100, Kisumu
Date: _____*[Insert date of issue]*

ADVANCE PAYMENTGUARANTEE 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 executionof _____(hereinafter called "the Contract").

2. Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____(*Inwords*) 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 sumor 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:

   has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

   Has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate fromthe Beneficiary's bank stating that the advance payment referred to above has been credited to the Contractor onits account number ____at .

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 beencertified for payment, or on the day of , 2 ,2 whichever is earlier. Consequently, naydemand for payment under this guarantee must be received by us at this office on or before that date.

The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[sixmonths][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 thefinal product

FORM NO. 7 - RETENTION MONEY SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: Lake Victoria NORTH Water Works Development Agency; P.O. Box 3325-40100, Kisumu

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 _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up tithe limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has beenissued under the Contract and the first half of the Retention Money has been certified for payment, and paymentof *[*insert the second half of the Retention Money] is to be made against a Retention Money guarantee.

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 oridentifying 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.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate fromthe Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited tithe Contractor on its account number ____at _*[insert name and address ofApplicant's bank]*.

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.

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.

FORM NO. 9 BENEFICIAL OWNERSHIP DISCLOSURE FORM

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

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]*

We here by provide the following beneficial ownership information.

Details of beneficial ownership

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

	National identitycard number or Passport number		----- % of shares Indirectly-------- % of shares	…….% of voting rights Indirectly--------- % of voting rights	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?:	significant influence or control over the Company body of the Company (tenderer) Yes -----No----
	Personal Identification Number (where applicable)					
	Details of all Beneficial Owners		**% of sharesa person holds in the company Directly or indirectly**	**% of voting rights a personholds 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 influenceor control over the Company (tenderer)(Yes / No)**
	Nationality(is)				Direct…… … … Indirect…… … …...	2. Is this influence or control exercised directlyor indirectly? Direct…….. Indirect…… …
	Date of birth *[dd/mm/yyyy]*					
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupatio n or profession					
3. **e.t .c**						

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 identitycard 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 personwho in relation to the company:

holds at least ten percent of the issued shares in the company either directly or indirectly;

exercises at least ten percent of the voting rights in the company either directly or indirectly;

holds a right, directly or indirectly, to appoint or remove a director of the company; or

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

VOLUME II

SPECIFICATIONS FOR EQUIPPING WORKS
BOREHOLE EQUIPPING WORKS

Description of works

This Contract is for Pefa-Sinoko Water Project Equipping Works

Location of the Works

The project site is located in Kakamega County

Provision of equipment's material and labor

The Contractor shall provide all equipment, transport, consumable materials and labour necessary for the satisfactory completion of the works in compliance with the specifications herein. The Engineer reserves the right to inspect plant and materials prior to Contractor selection, and may reject plant or material that in his/her opinion is substandard or inappropriate. The Contractor shall provide full descriptions of all plants to be deployed for these works. The Contactor shall present method statements describing in detail the proposed approach to work.

The Contractor shall provide summary detail of the experience of key personnel to be deployed for these works.

Occupation of site

The Employer shall provide land on which the works shall be constructed. The Contractor shall be given possession of such parts of the site that he requires for activities related to construction works including storage of raw materials, equipments and setting up of camp during the period of Contract provided his operation does not interfere with the daily activities of the Employer.

The Contractor shall not enter upon or occupy with men, tools, equipment and materials any land other than the land or right of way provided by the Employer

Diligent performance

The Contractor shall at all times perform the Works diligently and in accordance with sound professional practice. He/she shall not proceed from one stage of works to another without the express permission of the Engineer.

Decisions regarding temporary halt, discontinuing of any element or part of any element of these works, or abandonment of these works, shall be discussed jointly between the Contractor and the Engineer before any further actions are authorised by the Engineer. The Engineer's decision shall be final.

The Engineer will require a written submission justifying any steps taken by the successful bidder taken without the Engineer's approval. An unsatisfactory explanation shall lead to non-payment for works undertaken without prior agreement, and may be included for consideration as liquidated damages.

Drawings

The project drawings shall comprise

The drawings provided in the book of drawings issued for Tender

Such other drawings and/or sketches as are issued from time to time by the Engineer to deal with design modifications in response to on-site conditions. Any additional drawings not provided in the tender shall be prepared by the contractor and Approved by the Engineer.

Record drawing

As the work proceeds the Contractor shall mark up 'As Built' details on a set of prints of the Contract Drawings modified to portray the works as actually constructed and issue to the Engineer's representatives for approval within 7 days of completion of the works covered by each drawing.

Level datum

It shall be the responsibility of the Contractor before commencing work to obtain from the Engineer in writing the values and locations of the benchmarks to be used in these works. All temporary benchmarks shall be referred thereto.

The Contractor shall construct such temporary benchmarks as the Engineer may direct and shall agree the levels thereof with the Engineer. The establishment of such temporary benchmarks shall be deemed part of the Contractor's responsibility in setting out the works.

The reduced levels are shown on the drawing are believed but not guaranteed to be correct. In the event of any discrepancies between the

drawing and the specification, the specification shall have precedence over the drawing.

Setting out

The Contractor shall appoint and employ the necessary qualified and experienced staff to set out the works accurately.

The Contractor shall establish and locate all lines and levels and be responsible for the correct location of all works.

Where directed by the Engineer, the Contractor shall take such levels and dimensions as may be required for the purposes of measurement before disturbance of the ground. These shall be agreed between the Contractor and the Engineer in writing before any ground surface is disturbed or covered up. Any work commenced without taking the said levels and dimensions shall be measured on the Engineer's reckoning of their values before disturbance. The Engineer's decision on this matter shall be final.

Construction and checking of work

The Contractor shall be solely responsible for and shall provide all labour, tools, lifting tackle, and other equipment required for the construction and checking of the works.

No operative shall be allowed to execute any type of work which is normally carried out by a skilled trades man, unless the operative is thoroughly experienced and proficient in the trade concerned. Supervisors and operatives may be required to demonstrate their proficiency or produce certificates of competence to the satisfaction of the Engineer.

As each part of the work is carried out, it shall be subject to the approval of the Engineer.

Survey equipment

The Contractor shall provide for the sole use of the Engineers representative the survey equipment and appliance and these shall revert to the Contractor upon completion of the Contract.

The Contractor shall provide all labour and materials as may be required by the Engineer representative for survey work in connection with works.

Supervision and labour

The Contractor will be required to maintain a competent supervising

engineer and staff on Site throughout the construction period until completion of the works, and thereafter as may be required during the Defects Liability Period. The Engineer shall give prior approval to the appointment of this supervising engineer and shall have the authority to withdraw this approval at any time in accordance with the Conditions of Contract.

All staff and labour employed on the works shall be employed in accordance with the labour and employment laws and regulations of the Republic of Kenya

Contractor's site offices, staff, workshops, storage and working areas, communication, etc

General

The Contractor shall advice the Engineer at which of his offices any notices may be served in accordance with the Conditions of Contract.

Language of correspondence and records

All communication from Contractor to the Engineer and the Engineer's Representative shall be in English language.

All site books, time sheets, records, notes drawings, documents, specifications etc. shall be in English language

Contractor's duty staff & offices

At least one responsible senior representative of the Contractor shall be immediately available at all times and he shall be on site during normal working hours.

To such representative shall be delegated full authority to confer with Engineer's Representatives or his deputy and to take all steps and to issue all those instructions which may be required in an emergency to ensure the safety of all personnel of the works and of all the Employer's and other property on the site and in the immediate vicinity thereof. The Engineer's Representative may from time to time at his discretion after taking into consideration all the prevailing conditions allow some relaxation of this clause but such relaxation shall be made only with his written permission and subject to any special conditions which he may then require.

The Contractor shall provide and maintain at the site, offices for the use of

representative and to which written instructions by the Engineer's Representative can be delivered. Any instructions delivered to such offices shall be deemed to have been delivered to the Contractor.

Accommodation for workmen

Where the Contractor wishes to construct camp to accommodate his labour, the following requirements shall be adhered to and shall also be subject to the requirement made by the District or Provincial Administration or any local Authority.

Demolition of Contractor's temporary structures

The Engineer may at any time before the end of the period of maintenance give the Contractor notice in writing to demolish and remove those buildings and works which are no longer required, whereupon the title to such buildings and works and materials connected therewith shall revert to the Contractor. After the demolition and removal of building and works as required by the Engineer and Contractor shall level, clear, restore and make good the sites and surrounding ground and fill in and compact all latrines, drains, pits and similar works leaving the satisfaction of the Engineer's Representative.

Public Relations

The Contractor shall designate within his site organization competent staff whose responsibility shall be to ensure good relations.

The location of all yards, stores, workshops, offices, etc. shall be agreed beforehand with the Engineer's Representatives and shall be such as to avoid obstruction and nuisance to public and/or the client.

The Contractor shall provide and maintain at or near the site suitable and sufficient shelters, mess rooms, washrooms, latrines etc. as are necessary and customary, to the satisfaction of the Engineer and n accordance with the law and regulations of the relevant authorities.

Definition and use of the Site

Definition of the Site

The Site shall include all those areas of land which, being public or private:

Areas being provided by the Employer for the construction of the permanent works.
Areas being provided by the Employer for temporary works, including camps, offices and stores.

Are acquired, leased, or operated by the Contractor as borrow pits or spoil tips for the permanent works, including all access roads.

Use of the Site

Access to the Site is gained from public and private highways. The Contractor shall be responsible for cleaning and maintaining all existing roads affected by his work while he is on Site. He shall also be responsible for repairing and making good any damage to these roads. If the Contractor, his Sub -Contractors or suppliers, causes the damage, then the repairs will be at his own cost.

The Contractor shall be responsible for the construction, maintenance and repair of any temporary Site roads.

The lands and other places outside the Site, which are the property of or under the control of the Employer, shall not be used except with the approval of the Engineer.

The Contractor shall promptly remove any vehicle, wagon, barge or vessel or any other obstruction under his control, which the Engineer may require to be moved for any purpose. The Contractor shall remove such obstruction promptly upon receiving such instruction and at his own cost, unless the Engineer shall decide otherwise.

The Contractor shall maintain access for the inspection, operation and maintenance of any of the Employer's assets within the Site or elsewhere.

The Contractor shall not use any portion of the Site for any purpose not connected with the works unless the written permission of the Engineer has been obtained.

Possession of the Site

The Contractor shall restrict his activities to those areas of the Site adjacent

to the works being executed and shall avoid any encroachment upon lands outside the areas for which possession has been given. Any trespass or damage or any claim arising from such encroachment shall be the Contractor's sole responsibility and he shall hold the Employer indemnified against all claims arising from such trespass or damage.

Interference with existing works

The Contractor shall not interfere in any way, with any existing works, be it the property of the Employer or of a third party, whether such works has been shown to the Contractor by the Engineer, except where such interference is specifically described as part of the works, either in the Contract or in instructions from the Engineer to take over such works.

Maintenance of natural environment

Disfigurement of the natural environment of the area during construction must be kept to a minimum and special care shall be taken to avoid permanent damage. Needless adverse effects on the local ecology shall be avoided. Bushes and trees shall not be cut except where necessary for the execution of the Works, and then only after the sanction of the Engineer has been obtained.

The Engineer shall have authority to require removal from the Project of any personnel who wilfully neglect these matters.

Quality of Materials and Workmanship

All materials shall comply with the appropriate Standard Specifications and to the approval of the Engineer unless otherwise required hereinafter.

The Contractor, shall, before placing any order of materials, manufactured articles or machinery for incorporation in the works, submit for the approval of the Engineer the names of the suppliers from whom he proposes to obtain such materials, manufactured articles or machinery, together with a list of the same, giving the origin, quality, weight, strength, description and other relevant details. No materials, manufactured articles or machinery shall be ordered or obtained from any suppliers not approved in writing by the Engineer.

All materials shall be delivered to the Site a sufficient period of time before they are required for use in the works, to enable the Engineer to take such samples as he may wish for testing and approval.

Notwithstanding the fact that approval has been given to the source of supply, the Engineer may forbid the use of any materials if, upon delivery,

they are found to be defective, or he considers them unsuitable for incorporation in the works. Such rejected materials shall be removed from the site forthwith.

The Contractor may propose alternative materials of equivalent quality to those specified, and subject to the Engineer's approval, such materials may be used in the works.

The Contractor shall have no claim against the Employer in respect of any financial loss which he may suffer as a result of the rejection of any such materials, and he shall also bear the cost of removing them from the Site.

The Engineer shall have the right to inspect materials and plant for the permanent works during the course of manufacture. The Contractor shall arrange for the right of access to manufacturing premises for the Engineer and his staff during normal working hours. The Contractor shall give the Engineer sufficient notice to allow him to observe the testing of any materials for the works at the place of manufacture. The Engineer shall also be given the opportunity to inspect any material or plant in their completed state before packing for transport to the site.

If requested by the Engineer, the Contractor shall provide the Engineer with copies of orders for the supply of goods or materials required for the works.

Rejected materials and defective work

Materials or work which, in the opinion of the Engineer, do not comply with the Specification, shall be classified as rejected materials or defective work, and shall be cut out and removed from the works and replaced as directed by the Engineer.

Alternatives

The Contractor's main Bid shall comply fully with the Specification.

The Contractor is however at liberty to include alternative materials, items of Plant or methods of construction for which he claims advantages to those indicated in the Specification and Drawings, provided the modes of operation and methods of construction are fully described and are at least equal to those shown on the Drawings or Implied in the Specification.

The Contractor shall submit manufacturer's detailed descriptions of alternatives and he shall draw attention to any aspect of each component that does not fully comply with the requirements of this Specification.

These detailed descriptions, including any departure from the requirements of the Specification may, after approval by the Engineer, be included among the Contract documents and each item shall be in accordance with the description of it. Approval of a manufacturer's description shall not include approval of any departure from the requirements of the Specification unless the Engineer in writing specifically approves the departure.

Where materials, Plant or methods of construction differ from those specified, the Contractor shall submit with his Bid drawings showing any amendments of system design necessary to suit the alternative. The Engineer will either approve these drawings or issue others if he approves the components concerned.

The Engineer however, may not necessarily accept any alternative put forward.

Existing works and services

The Contractor shall acquaint himself with the positions of all existing works before any excavation is commenced. he will be held responsible for any damage, however caused, in the course of the execution of the works, to such existing works and services. Any damage caused shall be made good at the Contractor's expense.

Such existing works and services, where exposed by the execution of the works, shall be properly shored, hung-up and supported to the satisfaction of the Engineer and of the authority concerned. The Contractor shall exercise special care when refilling trenches or other excavations around such existing services. Stop cock boxes, water meters and the like shall not be covered up.

Poles supporting cables and the like adjacent to the works shall be kept securely in place until the works are completed and shall then be made as safe and permanent as before.

Notwithstanding the foregoing requirements and without lessening the Contractor's responsibility, the Contractor shall inform the Engineer immediately any existing works have been exposed and shall comply with any requirements of the authority concerned.
Only when and as directed by the Engineer shall the position of existing works or services be changed by the Contractor to meet the requirements of the proposed work.

The Contractor shall make adequate provision so that when carrying out his work, no interference, damage or pollution is caused to highways and footpaths, or to any mains, drains, sewers, and the like or other parts of the works.

Wherever loads have to be carried over ground in which pipes, valves, culverts, and the like are buried, the Contractor shall take all precautions including where necessary, the provision and use of sleepered roads, light gauge railways or other means to prevent damage occurring to such underground works.

The Contractor shall not store any plant or materials or spoil heaps over existing water mains, or in such positions that interference with access to the mains, control valves and the like is created. Approval by the Engineer to the means of protection employed shall not relieve the Contractor of any responsibility in respect of damage occasioned by his operations.

The laying of pipe work, ducts, drains and the like shall be arranged so as to cause as little disruption, to traffic or public movement as possible with the smooth operation of existing works.

When breaking out and making good existing structures, the Contractor shall disturb the existing structures as little as possible. All structures shall be made good with materials similar to those used in the existing works, or such materials which are considered by the Engineer to be of similar appearance and suitable in all other respects.

Overhead power lines

Where work is being carried out in the vicinity of overhead power lines, the Contractor shall be responsible for ensuring that all persons working in such areas are aware of the safe working distances in the vicinity of high voltage over head power lines especially when cranes or other large masses of steel are in the vicinity of the power lines.

The Contractor's attention is drawn to BS 162, which gives safe clearance for various voltages.

The Contractor shall take all necessary precautions to ensure the safety of his employees and all other persons where work is being carried out near overhead power lines.

Existing access

Existing access to lands, property and all other places shall be maintained by the Contractor for the duration of the works to the Engineer's satisfaction.

Excavation across roads and tracks

Before excavating across any public or private road or track, the Contractor shall give the Engineer ten days notice of his attention to excavate and shall include, in writing, the precautions he proposes to take for the continuance of passage and safety of traffic, and details of the warning signs and lights to be provided and operated. The excavation shall not commence until the written approval of the Engineer has been given.

Liaison with police and other officials

The Contractor shall keep in close contact with the police and other officials in the areas concerned regarding their requirements for the control of workmen, movement of traffic, or other matters and shall provide all assistance and facilities which may be required by such officials in the execution of their duties.

Preservation of trees

No tree shall be removed without prior written permission of the Engineer who will limit the removal of trees to the minimum necessary to accommodate the permanent works.

If trees are removed or damaged by the Contractor or his employees, without approval, then the Contractor shall replace such trees.

Replacement trees shall be not less than two years of age, obtained from a reputable nursery and of a species approved by the Engineer.

The Contractor shall plant, water and ensure that the replacement trees are properly established.

General protection

It shall be the Contractor's responsibility to ascertain the existence of all improvements and facilities which may be damaged by its operations, under or above ground, and he shall protect such facilities which are not to be removed. Such objects which are damaged by the Contractor's operations shall be replaced or restored to a condition as good as when the Contractor entered upon the work, at no cost to the Employer. Damage to

existing roads caused by the Contractor's equipment or operations shall be repaired by the Contractor at no cost to the Employer.

Protection from water

The Contractor shall keep the whole of the works free from water and shall be deemed to have included for all pumping, shoring, temporary drains, sumps and other measures and provisions necessary for such purposes and for clearing away and making good to the satisfaction of the Engineer any damage caused thereby.

Protection against fires

The Contractor is advised that, at all times, it is necessary to guard against fires starting within the Site or in the environs thereof, particularly as the result of the works or from the actions of his employees. The Contractor shall have available, at all times; a trained fire-fighting team provided with adequate fire-fighting equipment and shall deal with all fires on the Site howsoever caused.

Site security

The Contractor will be responsible for the security of works and of site installations during the Contract Period. He must provide fencing, watch and lighting as he deems necessary.

Description of material and workmanship

The following apply to all sections thereafter.

Materials

Materials, commodities, components and equipment are to be new and unused unless otherwise specified. Handle, store, fix and protect all commodities with care to ensure that they are in perfect condition when incorporated into permanent work and handed over on completion

Manufactures recommendations

Handle, store and fix every commodity strictly in accordance with the printed or written recommendations of the manufacturers and/or suppliers. Supply the engineer with copies of the manufacturer's recommendations. Inform the engineer if the manufacturer's recommendations conflict with any other specified requirements and obtain his instructions before proceeding.

Standards

Where commodities or workmanship are specified by reference to Kenya Bureau of Standards (KS), or British Standards (BS), or Code of practice

(CP), or international (ISO) or any other standard, such standards are deemed to be the latest published at the time of tendering. The Contractor will be deemed to have read and understood the standards specified, and no claim for lack of knowledge will be allowed. Substitution of commodities or standards of workmanship complying with other standards may be allowed at the discretion of the Engineer, but application for permission for such substitution must be made in writing in sufficient time to allow adequate irrigation. The Contractor must obtain Certificate of compliance with the standards and supply to the Engineer on request.

Water and power for use on the works

The Contractor shall be solely responsible for the location, procurement and maintenance of a water supply adequate in quality and quantity to meet his obligations under the Contract.

The Contractor shall be solely responsible for the location and continuity of the supply of water for use on the works. Supplies may be derived from boreholes, rivers and streams, but shall in all cases be to the Engineer's approval. The abstraction of water from any sources shall not interfere with any permanent water supply. The Contractor shall be solely responsible for the transporting of water from its source to the point at which it is required for construction purposes, and in such quantities and quality as to enable the works to proceed without hindrance due to the shortage of adequate water supplies.

The Contractor shall take care to avoid unnecessary use of water and to prevent any water running to waste.

The Contractor shall make his own arrangements for power supplies and shall be solely responsible for the location, procurement and maintenance of a power supply, adequate to meet his obligations under the Contract.

Fuel supplies

The Contractor shall arrange for obtaining, storing and distributing all fuel oils required for the completion of the works.

Telephone and communications

The Contractor shall obtain suitable means of communications during the course of the Contract. The use of radio communications may be permitted but the Contractor shall be responsible for obtaining all the necessary permits and licences.

Sanitation

The Contractor shall provide adequate sanitation and refuse collection and

disposal facilities complying with state laws and local by-laws for all houses offices workshops, and the like, erected on the site, all to the satisfaction of the Engineer.
The toilet facilities provided at the site by the Contractor shall be made available, free of charge, to the employees of the Contractor and any of his Sub Contractors.

The Contractor shall warn his employees and Sub Contractors that any employee found fouling the site shall be removed from the site immediately in accordance with the Conditions of Contract.

First aid and medical services

The Contractor shall provide and maintain all equipment necessary to render first aid in case of accidents, snakebites or other emergencies. This equipment shall be kept in readiness at the sites of the works, at camps and wherever the Contractor's staff may regularly live and work. The Contractor shall ensure that there are persons available at all such places with knowledge of simple first aid procedures and able to administer snakebite treatment.

Health checks

The Employer may arrange for the taking of swabs, urine and stool samples from all persons who will be working in and around the works, to ensure that all such persons are free from contagious diseases.

The Employer will pay all medical costs incurred in the taking and analyses of these samples. The Contractor shall make his employees available during normal working hours for undergoing the above mentioned health checks. Reasonable notice will be given.

The Contractor shall keep records in respect of all his employees, showing the dates on which health checks have been and will be carried out.

Every employee whom the Contractor intends to engage on the works shall, in addition to being available for the above tests, successfully undertake a test for typhoid and paratyphoid at an approved hospital or medical centre. The medical certificate for each employee shall be submitted to the Engineer before the employee shall be allowed on Site.

Inspections by the Engineer during the Defects Liability Period

The Engineer will give the Contractor due notice of his intention to carry out any inspection during the defects liability period. The Contractor shall, upon receipt of such notice, arrange for a responsible representative to be

present at the times and dates named by the Engineer.

This representative shall render all necessary assistance and shall take note of all matters and things to which the Engineer shall direct his attention.

Health and safety

General

The Contractor shall use his best endeavour to ensure, so far as is reasonably practicable and to the satisfaction of the Engineer, the health, safety and welfare at work of his employees, including those of his Sub-Contractors, and of all other persons on the Site. His responsibilities shall include:

I. Provision and maintenance of safe and properly illuminated Contractor's Equipment;
II. Establishment of safe and well-illuminated systems of working;
III. Provision of protective clothing and equipment;
IV. Establishment of first aid stations, staffed and equipped to provide information, instruction, training and supervision on all aspects of safety and health on site;
Appointing as Safety Officer one of his senior staff who shall have specific knowledge of safety regulations and have had experience of safety precautions on similar works and who shall advise the Contractor on all aspects of safety and health on Site;
Provision and maintenance of safe access to all work areas on the Site;
VI. Provision of adequate sanitary facilities and maintenance of these in a clean and hygienic state for use by all persons employed by the Employer, Engineer, Contractor or other Contractors on the Site;
VII. Measures to control flies, mosquitoes and pests in both working and recreational areas including chemical spraying, if necessary, in compliance with the rules and regulations of the Employer;
VIII. Reporting details of any accident to the Site Safety Officer as soon as possible after its occurrence;
IX. Reasonable prevention of non-site personnel from entering the work areas.

Safety equipment and training

The Contractor shall provide:

All necessary breathing apparatus, safety harnesses and any other equipment required to ensure safe working of all his personnel on Site;

Test certificates for all safety equipment;
Proof that all relevant personnel have received appropriate training.

Noise control

The Contractor will be required to employ well maintained plant on site at all times and shall undertake all works strictly in accordance with the recommendations of BS 5228 standards (all parts) Noise Control on Construction and Open Sites or other equivalent agreed standards.

Health and safety plan

The Contractor is required to produce a health and safety plan covering the hazards that may apply during the Contract, the rules and standards to be used in assessing risk and in undertaking work and the methods that he will employ to ensure compliance with his plan.

The Health and Safety Plan shall include details of the following:

Details of all potential risks and the proposals for dealing with such hazards;
Controls to regulate risks that occur during all construction, testing and commissioning activities;
Measures to avoid health risk in connection with the use, handling, storage and transportation of hazardous and harmful substances;
Safety equipment and training proposals in respect of equipment referred to above.

Sign boards

Before the erection of any signboards or posters by the Contractor, the Contractor shall obtain the approval of the Employer and the Engineer to the size, location and wording of such sign boards or posters.

Building regulations

All buildings erected by the Contractor upon the Site and campsite or sites and the layout of the buildings shall comply with the Laws of Kenya and all local by-laws as far as they are applicable.

Progress photographs

Photographs showing the progress of the works shall be taken by a competent photographer every month from positions to be selected by the Engineer.

Special photographs showing particular features of the works or matters of interest concerning the works or their surroundings shall also be taken from time to time as and when required by the Engineer.

Photographs shall not be less than 120 mm x 90 mm and shall be inscribed with the date when taken and a brief description or title.

All negatives shall be numbered; retained on the site and on completion of the works the negatives shall become the property of the Employer.

Contractor's tracked equipment

The Contractor's tracked equipment may not be run on any public or private road without the written permission of the owner or authority concerned.

Site meetings

The Contractor shall be obliged to attend all site meetings at the appointed time.

Samples

The Contractor shall submit to the Engineer samples of materials to be used in the works, the samples must be fairly representative of the bulk to be supplied or used. Samples should be subject to relevant tests before submission and Test Certificate should accompany the samples

Testing of water retaining structures

All water retaining structures shall be tested for water tightness on completion in the following manner. The structure shall be filled with water in stages and held at each water level as the Engineer may require. Shall any dampness or leaking occur at any stage the water shall be drawn and the defects remedied to the satisfaction of the Engineer. The procedures shall be continued and finally the structure shall be allowed to remain full for seven days. Should any dampness or leakage or any other defects occur they shall be made good to the satisfaction of the Engineer and the structure retested until the water tightness is approved by the Engineer.

Cleansing and sterilisation of water retaining structures

The inside of all potable water retaining structures and all interior pipework

and fittings shall be thoroughly cleaned and washed after the water tightness has been approved by the Engineer.

The structures shall be filled to overflow level with clean water containing 20 parts per million of chlorine and left shall be drained away and the structures for a period of at least 24hours. The chlorinated water refilled with clean water from which samples shall be taken for analysis to the instructions of the Engineer. If any of results of the analysis are unsatisfactory the sterilisation process shall be repeated until the results of the tests are satisfactory.

Substantial completion

Substantial completion will mean the works are capable of being fully used by the employer in accordance with the intent of the design standards.

Test on completion

On commissioning of the works the Contractor shall have on site personnel to ensure that all the plant is working satisfactorily. The personnel shall be on site for a minimum of 7 days or for such time as required to determine that the equipment is operating to the satisfaction of the Engineer

Site clearance upon completion of works

On completion of the works, the Contractor shall clear the site and remove all temporary buildings, equipment and debris. The Contractor shall level off and grade all areas used for haul roads and all building, store and workshop areas. The whole of the site shall be left in a clean and tidy condition.

EARTHWORKS

Conditions of site

Before carrying out any work on the site the site shall be jointly inspected in conjunction with the Engineers representative to establish its general condition which shall be agreed and recorded in the writing.

Details to be recorded shall include location of all boundary and survey beacons, the condition of buildings surfaces, roads, tracks existing structures, services, fences and other information related to the site and elsewhere which may be affected by the Contractor operations.

In the case of wayleaves for mains and pipelines the boundary of the wayleaves shall be decided by the employer and the Contractor shall provide, erect and maintain in position from commencement to final completion of all works and all reinstatements in every section substantial

timber stakes or similar approved timber markers not less than 1.5m high indicating position of every beacon at 100m or such other interval as the Engineer's representative may require.

In the event of any boundary or survey beacon being disturbed or displaced as a result of the Contractors operations the Contractor shall forthwith at his own expense replace the beacon and shall employ the services of an approved licensed Surveyor for this purpose.

Clearing site

The Contractor shall use methods approved by the Engineer to clear trees, bushes and vegetation from areas to be occupied by the permanent structures required for the Works.

The Contractor shall demolish, break up and remove buildings, walls, gates, fences, advertisements 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. The materials so obtained shall so far as suitable be reserved and stacked for re use as directed; all rubbish and materials not for use shall be destroyed or removed from the site, as directed by the Engineer. Unless otherwise stated elsewhere, all other materials which are cleared shall become the property of the Contractor.

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.

Underground structures and chambers where required to be demolished, shall be demolished to depths shown on the Drawings or as directed. They shall be properly cleaned out and back filled and compacted with suitable material to the direction and approval of the Engineer.

Vegetation

No allowance will be made for the cutting and removal of the crops, grass, weeds and similar vegetation. The cost of all such work will be held to be included in the rates entered in the bill of Quantities for excavation.

Bushes and small trees

All bushes and small trees, the main stem of which is less than 500 mm girth at 1 meter above ground level shall be uprooted (unless otherwise directed by the Engineer) and burnt or otherwise disposed of as directed by the

Engineer.

Hedges

Where directed by the Engineer hedges shall be uprooted and disposed of by burning.

Felling trees

Where directed by the Engineer, trees shall be uprooted or cut down as near to the ground level as possible and the rates entered in the Bills of Quantities shall include for cutting down, removing branches and foliage, cutting useful timber into suitable lengths, loading, transporting not more than 1 km and stacking or disposing of all as directed by the Engineer. For the purpose of measurement trees cut down shall be classified according to their girth at 1 metre above ground level, the cost of grubbing roots shall be deemed to be recovered by the rate for felling trees.

Grubbing-up roots

Stumps and trees 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. For the purpose of measurement, trees roots shall be classified according to the mean diameter of the stump measured across the cut.

Structures

Structures shall not be demolished unless specified or directed. Methods of demolition shall be approved.

Ground levels

Following the completion of site clearance and before the commencement of any earthworks, the site shall be surveyed in conjunction with the Engineers representative to establish existing ground levels and these agreed ground levels and these agreed ground levels shall form the basis for the calculation of quantities of any subsequent excavation and filling.

General excavation clauses

Advance notification of proposed methods

The Contractor shall submit for the consent of the Engineer detailed proposals for methods, dewatering and safety arrangements in respect of each major or critical section of excavation, including drilling and blasting

where appropriate. Except as may be otherwise agreed, the proposals shall be presented at least four weeks before the intended start date and the Engineer shall comment on the proposals within 2 weeks. Only after the receipt and revision of these proposals as may be requested, and with the written consent of the Engineer, shall the Contractor commence the excavation work to which the proposals refer.

The Engineer shall not unreasonably withhold consent and will request revisions of proposals only if he considers that an acceptable end result would otherwise be unlikely. The Contractor shall not subsequently vary the agreed procedure, except in detail, without having obtained the written consent of the Engineer to the change.

No consent as described above shall relieve the Contractor of his responsibility for carrying out his operations in a workmanlike manner and as safely as is reasonably possible to the lines and levels shown on the Drawings or as instructed by the Engineer.

Mechanical Excavation

A mechanical excavator shall be employed by the Contractor only if the sub soil is suitable and will allow the timbering of the trenches or other excavations to be kept sufficiently close to ensure that no slips falls or disturbances of the ground take place or there are no pipes, mains or other services or property which may be disturbed or damaged by its use.

When mechanical excavators are used a different depth of materials sufficient depth of materials shall be left over the bottom of excavations to ensure that the ground at formation level is not damaged or disturbed in any way. The excavation shall then be completed tom formation level by hand.

Excavation for pipe laying

The width of trench excavated for any size of pipe shall be e minimum required for efficient working after allowance has been made for timbering and for shuttering and shall be to the approval of the Engineer. Minimum sizes for different pipe diameters are as shown below;

Pipe diameter (mm)	100-250	300	400	450	500	600
Trench width (mm)	550	650	750	850	1000	1200

In the first instance the trench shall be excavated to within 1250mm of its formation and proper grade pegs shall then be set in the bottom of the trench by the Contractor for the accurate taking out of the rest of the excavation. Excavations shall then be completed by hand to provide a uniform and solid bearing for pipes throughout their entire length. The bottom of the trench shawl be smooth and shall be free from stones and other projections. Joint holes shall be as smalls a size as possible.

If instructed by the Engineer the Contractor shall be required to excavate the pipe trench to a depth of 100mm below the invert of the pipe and refill with compacted granular. Fill to provide a smooth and uniform bed for the pipes. Payment for such additional excavation and additional refilling will be made at the tendered rates.

The materials excavated from trenches shall be laid compactly at the sides of the trench except where in the opinion of the Engineers representative this would so obstruct any road or footpath as to prevent passage of traffic or pedestrians. In such cases the Contractor shall excavate material at such distances to the specifications of the Engineer.

Excavation of foundations thrust and anchor blocks

Excavation for foundation and for anchor and thrust blocks shall be to such depths as the Engineer may direct and no concrete or other material shall be placed until formation has been examined and approved.

The engineer may direct that a layer of excavation of not less than 75mm thick shall be left undisturbed and subsequently taken out by hand immediately before concrete or other material is placed. Similarly such concrete or other material o placed in contact with the side face of an excavation the Engineer may direct that the final 75mm thickness of excavation be left undisturbed and subsequently take out neatly to profile by hand.

Areas of excavation which are to receive a layer of concrete as screeding under the structural concrete shall be covered with the screeding immediately the excavation has been completed.

Dewatering of excavations

The Contractor shall maintain all excavations free from water, irrespective of its source, to the extent necessary for the execution of the Works or in the interests of safety, and to the satisfaction of the Engineer. He shall provide,

install, operate and maintain all necessary appliances and Plant for this purpose.

The Contractor shall take all necessary precautions at points of discharge of water to avoid flooding or damage to the Works, adjoining works or property and to avoid pollution of watercourses.

Cuttings, embankments and borrow areas shall be drained so as to be free of standing water which would have adverse effects on the permanent works. All drains and ditches shall be properly maintained. The Contractor shall replace any material which, in the opinion of the Engineer, has been adversely affected by water.

The dewatering of excavations immediately prior to concreting shall not be commenced until at least one standby pump is on hand.

Remedial work

Any damage resulting from the Contractor's operations during excavation, including damage to foundations and excavated surfaces shall be repaired at the expense of the Contractor and to the satisfaction of the Engineer.

Safety of excavations and persons

The Contractor shall take full responsibility for the stability and safety of all excavation works and methods of construction including temporary support of excavated surfaces, diversion of water, pumping etc. He shall assume full responsibility for the safety and prevention of injury to personnel and for damage. His safety provisions shall comply with relevant local regulations and the requirements of Clause 1.35.

The Contractor shall provide and install handrails all necessary temporary supporting works such as timbering, shoring, anchorages and the like wherever such support is required. All support arrangements must be to the approval of the Engineer, who may order such support to be strengthened or altered if it is considered necessary in the interests of the work or to safeguard against accidents to workmen.

If the Contractor wishes to batter and/or cut back the face of an excavation in order to eliminate or reduce the quantity of timbering and shoring required, he shall obtain permission from the Engineer. Both the slope and the extent to which such battering is to be carried out must be agreed with the Engineer before excavation is commenced.

Timbering and shoring shall be so designed and constructed that, if

necessary, it can be inserted as excavations proceed and safely withdrawn as backfilling is raised. Walings and struts shall be suitably positioned to permit pipes and other materials to be installed in the excavations. No temporary supports shall remain in excavations after backfilling unless approved by the Engineer.

If slips of material occur in any part of the excavations during the execution of the Works or during the Defects Liability Period, the necessary remedial works shall be executed to the approval of the Engineer. Such remedial work shall be at the Contractor's expense in cases where the Engineer considers that the Contractor has not exercised reasonable preventive measures.

Classification of excavated material

Classification of excavation material shall be as in the Ministry of Public Works Standard Specification (MoWSS) section 5.

(a) *Class 1: "Rock' or Hard Materials* shall include all material in which in the opinion of the Engineer requires blasting or the use of metal wedges or the use of compressed air drill for its removal or cannot be extracted by ripping with a tractor of less than 180 hp. And rear mounted heavy ripper. Individual boulders grater than 0.2m3 in volume shall be included in this class when their nature and size are such that they cannot be removed without recourse to one of these methods.

When a portion of excavation contains 75% or more by volume of boulders of this order such portion shall be considered as class 1 martial throughout.

(b) *Class 2:"Normal' or Soft Materials* shall include all material which in the opinion of the Engineer does not require blasting or metal wedges and sledge hammers, or compressed air drilling or rooting or ripping.

(c) *Class 3: "Compacted Gravel" or "Decomposed rock"* shall include all material such as consolidated murrum and decomposed stratified rock, stones or boulders than 0.2m3 in volume which are harder than soft or normal material in that they may be extracted by ripping as defined in Class 1, or in confined spaces by hand excavation using compressor tools, provided all other reasonable steps to the satisfaction of the of the

Engineer have been taken to facilitate the removal by the other methods.

Waterlogged Material" Material of Class 2 and 3 that is excavated in a waterlogged condition and necessitates de-watering and pumping operations provided all reasonable precautions have been taken by the Contractor to dewater that material to the satisfaction of the Engineer.

In the event of a dispute as to the classification of a material, the decision of the Engineer shall be final.

The Engineer shall be empowered to require rock to be excavated without explosives and payment will be made accordingly.

Limits of excavation

The surfaces exposed by open cut excavation against which concrete is to be placed shall be excavated to the lines shown on Drawings or as required by the Engineer. No material shall remain within the outline of structural concrete. Elsewhere in open cut, the excavation shall be to the lines and levels shown on the Drawings or as required by the Engineer except that local points of undisturbed hard rock may be permitted to extend within the required lines of excavation where approved by the Engineer.

Revision of limits

During the progress of the work, the Engineer may find it necessary or desirable to revise the required lines and levels of any part of the excavations because of the conditions disclosed by the excavations or for any other reason. When the Contractor is advised of such revision before the excavation of such part has been commenced to the lines and levels shown on the Drawings, the revised excavation will be paid for at the billed rate for the main excavation. If, however, such revision requires additional excavation to be made after the excavation of such part has already been carried out to a point where the normal procedure for the main excavation cannot reasonably be used, the additional work shall be carried out as specified and will be paid for under the Contractual provisions for variations. This will include removal of rock and filling of resultant voids which, in the opinion of the Engineer, could not reasonably have been anticipated and are beyond the control of the Contractor.

Excavation in excess

The Contractor shall not deliberately excavate beyond the lines and levels shown on the Drawings or designated by the Engineer (as above or otherwise) without prior written approval. Any deliberate excavation beyond the required lines and levels which is performed by the Contractor for any purpose (such as for working space) shall be at the expense of the Contractor. If such excavation should, in the opinion of the Engineer, require to be backfilled, such backfilling shall be done at the Contractor's expense to the satisfaction of the Engineer with grade 10 concrete or compacted granular or other approved fill material similar to the to the original formation level and/or dimensions as the Engineer require. Beneath load bearing structures, foundations and other reinforced concrete work, the filling to any over-excavation shall be of the same quality concrete as that required for the associated concrete structure unless the Engineer permits leaner concrete.

Where it is intended that concrete be cast against the side of excavated material the Contractor may alternatively propose to the Engineer to over-excavate, back shutter and backfill, but the Engineer will be under no obligation to accept the proposal and, subject to the conditions listed in the notes on measurement, no extra payment will be made if the alternative proposal is accepted.

Refilling of excavations

All re-filing of excavations and trenches shall be thoroughly compacted in layers not exceeding 150mm. compacted thickness and by means which will not damage the works.

Hard filling

Hard filling shall consist of approved clan mixed ballast, broken stone and or concrete. All the material shall be broken so as to as to pass through 75mm diameter ring. Fill shall be free from earth, clay, vegetation and other organic matter and shall contain no broken plaster mortar or other rubbish. It shall be laid in 300mm. layers each layer being properly spread and thoroughly compacted with rollers and/or rammers.

Refilling of pipe trenches

Filling around and for 300mm over the top of pipe shall be completed by hand using approved hand rammers and suitable material obtained from

excavations. Materials for such refilling shall be free from stones greater 25mm.

Free draining fill

Free draining fill for use as backing to walls shall consist of sound hard stone or broken rock or concrete derived from demolition of structures. the particles shall be roughly cubiformed and shall be between 75mm and 25mm in size. All smaller particles, dust, rubbish and organic matter shall be excluded.

Graded gravel for drains

Graded gravel surround to drains shall be clean washed stone or crushed hard rock graded between 20mm and 5mm.

Hardcore

Hardcore for use in foundations and paved areas shall consist of sound hard stone or broken rock or concrete derived from excavations demolition of structures and shall be 75mm in size. Sufficient but not excessive blinding material of smaller sizes may be used at the discretion of the Engineer.

Pumice filling of roof

Insulation of for the horizontal reservoir roof shall be of broken pumice or such other stone as the Engineer may approve which has been washed, screened so as to eliminated dust and small particles.

Pumice shall be distributed evenly and raked true to falls and to uniform finished thickness.

Sources of fill materials

The Contractor shall obtain the necessary general fill materials for construction of the works from excavations required to be undertaken for the permanent works.

Other fill materials such as sand, graded aggregate and rock fill for use as fill materials and all road works materials shall be obtained by the Contractor from sources to be approved by the Engineer.

The Contractor is required to provide details of his proposed source

of fill materials within upon award of Contract. Irrespective of the details provided above, the Contractor will be entirely responsible for ensuring that the materials supplied meet the requirements of the Specification including for any necessary crushing, blending or other preparation.

Acceptance by the Engineer of the source of any material shall not in any way be deemed to imply approval by the Engineer of the material to be supplied, nor shall approval of a potential borrow area be construed as constituting approval of all materials contained therein.

The Contractor will be responsible for obtaining all necessary approvals and temporary Wayleaves in connection with the obtaining of fill materials at his own cost.

The Contractor shall carry out at his own expense such sub-surface investigations, and obtain and submit such samples as are required by the Engineer, to enable the Engineer to assess the suitability of the materials in any proposed borrow area for use as fill. The Contractor shall keep accurate records approved by the Engineer of any test pits, trenches or drill holes which he makes for the purpose of investigating fill materials and a copy of such records shall be submitted to the Engineer immediately after completion of the test pit, trench, or drill hole. Samples recovered from such test pits, test trenches and drill holes and submitted to the Engineer for approval will be tested at the expense of the Contractor.

The Contractor shall give the Engineer not less than 14 days notice of his intention to develop any potential borrows area or quarry.

Excavated material suitable for re-use

Depending on its nature and quality, excavated material will either be:-

Re-used as fill or backfill;
taken to spoil.

The Contractor shall select materials as required and use his skills to avoid unnecessary waste of potentially usable materials.

Re-used material

Where the Contractor has been informed that the intention is that excavated

material is to be re-used elsewhere in the Works, the Contractor shall ensure that his excavation techniques result in material suitable for the particular re-use requirement which is described.

In order to achieve particular materials the Contractor shall be prepared to sort materials into different stockpiles, which he must maintain in an uncontaminated condition. Any contaminated material shall be abandoned and replaced at the Contractor's expense. The Contractor may be required to cart the excess contaminated material to spoil or dispose them in-situ as directed by the Engineer. No extra costs will be paid to the Contractor for complying with such instructions. In executing the instructions issued by the Engineer, the Contractor will be required to give effect to the environmental concerns specified in Clause 1.19 hereof.

In all such cases it will be to the Contractor's advantage to phase as far as possible the excavation work to suit the construction in which the excavated material is to be re-used, particularly as no additional payment for double-handling of materials will be made.

Requirements specific to excavations for particular parts of the works

Trenches, manholes and confined foundations

Confined and narrow excavations, such as for trenches and manholes, shall be excavated with particular care and attention to adequacy of temporary strutting because trench collapses are one of the commonest causes of death and injury on construction sites. The dangers inherent in inadequate supervision of such work, particularly in water-bearing ground or damp conditions, cannot be over-emphasised. Continuous dewatering may be necessary in water-bearing ground.

Excavated material shall be cast or moved to a position sufficiently far away from the edge of the trench that instability of the trench wall (supported or otherwise) will not be called into question.

Excavated material which will clearly be unsuitable as backfill shall be removed to spoil as soon as possible after being excavated.

The widths of trenches for pipes shall be of the minimum required or as shown on the Drawings. Trenches shall not be so narrow that the pipe cannot be properly installed and jointed. Neither shall they be of excessive width or with battered sides because this will increase the loading on an unprotected pipe. At pipe joint locations the trench shall be widened and deepened to leave the joints unsupported so that they can be properly made and inspected. In Class 2 material an extra 150 mm over the depth for Class

1 material shall be excavated and replaced by pipe bedding material.

Supports shall be left in permanently when so directed When they are removed, the removal shall be done progressively as backfilling proceeds and in stages so that no voids are left.

Excavations at or near the toes of cuttings or embankment slopes shall be carried out in such a manner that there is no excavation into the slopes. In such trenches the pipe run shall be completed and backfilled at the end of each day's work unless otherwise agreed with the Engineer.

Structures

The Contractor shall excavate such that concrete and other structures may be formed to the lines and levels shown on the Drawings or as instructed by the Engineer. He shall increase the dimensions above the minima required in the interests of safety if so directed by the Engineer. In the course of the excavation work, the surrounding material shall be preserved in the soundest possible condition.

Excavation for foundations in Class 1 material shall be made to approximately 0.5 m above the levels shown on the Drawings. Final trimming shall be delayed until shortly before foundation preparation is due to commence.

During the course of blasting operations where, in the opinion of the Engineer, action is necessary to avoid damage to adjoining material or to adjacent structures, the Engineer may instruct the Contractor to reduce the explosive charges or to use other methods such as pre-splitting or cushion blasting or to cease using explosives altogether and to continue by other means such as use of hydraulic breakers or line drilling.

Excavated surfaces which will remain permanently exposed shall be finished off in a neat and workmanlike manner and graded to provide adequate drainage. Rocky material liable to become detached from such surfaces shall either be removed (and holes backfilled where practicable) or anchored.

Excavated surfaces on or against which concrete structures will be cast shall be trimmed so that there are no projections within the permissible limits and cleaned to remove loose, soft or foreign materials by hand, air and water jets or other effective means. Unless shown otherwise on the Drawings or directed by the Engineer, the Contractor shall cast all in situ concrete structures against the excavated side surface in Class 2 material.

Thus, when excavating in Class 2 material, excavation lines shall be kept as close as possible to the actual structural requirements.

Where the Contractor over-excavates sides of excavations by an additional width exceeding 500 mm, the Engineer shall be empowered to direct the Contractor to use formwork at his own expense to achieve the final surfaces of in situ concrete structures.

Disposal of excavated material

Material which has to be excavated in order to execute the Works, but is unsuitable for construction purposes or which is surplus to requirements as fill, shall be kept separate from other materials and not allowed to cause contamination of material required for use in the Works. Such unwanted material shall be disposed of by spreading the material in layers in designated spoil areas as directed by the Engineer. The material shall be compacted to the maximum practicable extent by routing the haulage traffic over the area. Permanent spoil areas visible after completion shall be shaped to follow existing contours such that the tips blend in with the local topography. Such disposal areas shall be kept neat and tidy. Surfaces shall be finished and graded to the extent necessary to provide surface drainage, and grassed to prevent future erosion of the materials.

Procedure on completion of excavation

Upon substantial completion of excavation, the excavated surface shall be cleared of spoil sufficiently to allow inspection by the Engineer. Final clearing and surface preparation procedures shall not commence until the Engineer has approved the excavated level. Neither shall any excavated surface for the Permanent Works be covered until the Contractor has obtained the approval of the Engineer. The Contractor shall at his own expense uncover any excavation which has been covered without such approval.

Where the material replaced in an excavation is other than the material removed, supports shall be removed before or during filling and in such a way that the material from the walls of the excavation does not contaminate the replacement material.

Excavated surfaces which are to have fill material or concrete placed upon them shall be prepared as specified elsewhere.

Site investigation

The Contractor will be deemed to have made all necessary site

investigations at the time of tender.

Drilling and blasting

The use of explosives by the Contractor shall at all times and in all respects be in accordance with BS 5607 and local regulations. Prior approval of the Engineer must be obtained and the method of blasting approved if the Contractor wises to remove rock by blasting. The handling and use of explosives must comply with the explosives act or the department of mines and geology regulations. All necessary precautions to prevent injury or damage to person or property must be taken.

Before any blasting operation is commenced, the Contractor shall submit for approval such details as the Engineer may require, including drilling, charging and firing patterns and, when requested, calculations indicating the anticipated level of shock waves reaching nearby structures and works.

The Contractor shall use explosives for blasting in connection with the work only at such times and places and in such manner as the Engineer may approve, but such approval shall not relieve the Contractor from his responsibilities for injury, loss, inconvenience to persons, damage to the Works or to adjoining structures, roads etc., by the use of explosives. The Contractors blasting foremen shall have suitable experience to the approval of the Engineer and a current blasting licence for the type of work required.

The Contractor shall be entirely liable for any accident which might occur and shall meet any necessary compensation for injury or damage caused to persons, animals, works or property. The Engineer shall have the power to limit or prohibit blasting in areas where, in his opinion, the use of explosives would have adverse effects or has been carried out in a reckless manner. In the event of such limitation or prohibition, the Contractor shall have no claim against the Employer for delay.

Where there is a possibility of shattering the rock to an unacceptable degree or damaging concrete already placed, the Engineer may order the Contractor to cease blasting and to excavate the rock by hydraulic breakers, line drilling or other approved methods.

Except as otherwise approved by the Engineer, no bench height in rock shall exceed 6 m. Blasting shall be carefully controlled as approved by the Engineer to preserve the rock beyond the required lines and levels in the soundest possible condition by such means as limiting the size of the charges, varying the size and spacing of the drill holes, and using delays. Any unstable or shattered material beyond such lines and levels shall be

removed immediately to the satisfaction of the Engineer.
Where material of a particular grading is required to be produced from solid material for use in the Works, the Contractor shall adjust his procedures as may be necessary.

Stability of exposed rock faces

Earlier clauses, concerning excavation generally, have already made it clear that the Contractors support measures shall be approved by the Engineer but that such approval will not relieve the Contractor of any of his Contractual responsibilities.

As rock excavation proceeds, the Contractor shall scale and remove from the surfaces of any excavation all loose, overhanging or otherwise dangerous rock. Permanent excavated slopes shall be carefully scaled to stabilise the surfaces to the satisfaction of the Engineer, and berms shall be maintained free of fallen rock.

If deemed necessary following excavation, natural and excavated surfaces of rock shall be supported by the most appropriate of rock bolts where required or approved by the Engineer. Temporary support measures shall be applied as soon as possible after excavation and in any case within 2 weeks of agreement that they are required.

Preparation of excavated surfaces

General procedures

Procedure for all surfaces

As a general rule, foundation areas upon which fill is to be placed without any special measures are to be of material of equal competence to the initial layer of superimposed fill material.

After completion of excavation to the satisfaction of the Engineer, the exposed surfaces shall be cleared of all loose, softened or otherwise unsuitable material to the satisfaction of the Engineer.

Where filling or concrete is to follow, such preparation work will be carried out immediately before covering the excavation and the approval of the Engineer obtained before placement commences. The Contractor shall take all necessary measures to prevent any subsequent damage to or contamination of a cleaned and prepared surface, and shall maintain the surface in an acceptable condition until the commencement of the next stage of work.

Further procedures for class 1 materials

Where the surface exposed at foundation level is Class 1 material suitable to receive whatever is to be placed upon it, no further treatment will be required, other than compaction of exposed horizontal surfaces where considered necessary by the Engineer. The Contractor's excavated profile will be deemed to have taken account of any settlement resulting from compaction and no payments will be made for additional fill resulting from such compaction settlement.

Where, however, the replacement of unsuitable material below the nominal founding level is instructed, the foundation shall be brought back to the correct level as instructed by the Engineer. The replacement material will depend on the type of works concerned. The Contractor is advised that the Engineer will pay particular attention to the density and strength of exposed foundation materials and may order excavation of materials below the level indicated on the drawings together with its replacement in a recompacted state. Any shortfall in material resulting from an increase in density of the sub foundation layer will be made up from material excavated from the foundation area above and compacted in the excavation to raise the sub foundation layer to the design profile. Payments for such work will be based on unit rates for excavation and filling as provided in the bill of quantities and shall be additional to the payments for preparation of surfaces which will be based on the final excavation profile instructed by the Engineer, including any over excavation as detailed above.

Particular items for preparation of surfaces to receive membrane linings (e.g. hold up pond linings) are included elsewhere in the specification.

Further procedures for class 2 materials

Where the surface is to be prepared to receive fill or concrete, surface cracks, crevices and fissures shall be cleaned by using hand tools, air hoses and water jets to remove loose material to a depth where sound material is encountered or until the depth cleaned out is at least four times the width of the surface opening, whichever is the lesser. After cleaning, the surfaces shall be prepared using appropriate methods as directed by the Engineer.

Particular requirements for concrete structures

Where the excavated surface is Class 1 material, the procedure shall be as already described.

Where the excavated surface is Class 2 material, the Contractor shall employ such measures as brushing, washing and air hosing to clean the surfaces to the satisfaction of the Engineer. Concrete of the grade directed

by the Engineer (normally that of the adjoining part of the structure) shall be used for backfilling over break below foundation level at the Contractors expense unless another method is agreed to be acceptable.

Materials for filling

Sources

The Contractor shall submit to the Engineer for approval sufficient samples to determine whether each intended source meets the requirements for quality. No materials may be placed as fill without approval regarding the source. Notwithstanding any such approval, the Contractor shall be entirely responsible for ensuring that only material complying with the Specification is placed in the fill. The Engineer may at any time withdraw his approval of a source if he considers that the material from that source is no longer satisfactory for use in the Works.

The Engineer may refuse to approve a source of material proposed by the Contractor if he considers that other more suitable sources are available.

The Contractors attention is drawn also to Specification Clause 3.3.9 concerning the source of fill materials.

Material for general filling

Materials for general filling shall comprise suitable material excavated from the works which are, in the opinion of the Engineer, suitable for such use. The Contractor shall condition the material to obtain the moisture contents required for placing and compaction. The grading limits and other required properties not stated herein will be shown on the drawings.

Unless otherwise indicated, material will be classified "unsuitable" for general filling if it is:

clay or silt with an organic content exceeding 12% when tested under the relevant clauses of BS 1377

clay having a liquid limit exceeding 80 and/or plasticity index exceeding 55;

susceptible to spontaneous combustion;

domestic or industrial refuse and any other material which, by virtue of its physical or chemical composition or moisture content, will not compact to form a long term stable fill.

Suitable material shall comprise all that which is acceptable in accordance with the requirements of the Specification, is within the specified limits of moisture content, is approved by the Engineer and will compact to form a long term stable slope as directed or shown on the Drawings. Where grading envelopes are given, the material shall lie within the grading zone required for the proposed location and shall moreover have a grading curve reasonably parallel to the given envelope i.e. it shall be neither gap-graded nor single-sized.

Graded aggregate filters

Graded aggregates for use as a filter layer in the construction of the hold up ponds and for use as fill in other areas shall comprise aggregates of a similar quality to that specified for concrete construction works as defined in Specification Section 6 and shall be graded according to the details indicated on the drawings.

Rock fill

Rockfill for use in layers in embankments or other areas as erosion protection (e.g. hold up ponds) shall comprise competent, approved rock graded in size within the grading envelopes indicated on the drawings. The individual pieces of rockfill shall be sound, hard, dense and durable to the approval of the Engineer.

General requirements for filling

During placement of fill in foundation areas where seepage is occurring, the Contractor shall direct such seepage away from placement operations. Fill should then be placed and compacted in such areas as quickly as possible.

The Contractor shall construct the fill areas only with materials meeting the specified requirements. The fill shall be free from sizeable lenses, pockets and layers of material which are substantially different in grading from the surrounding material. Materials of widely different gradings shall not be placed adjacent to each other.

Fill material shall be loaded, transported, placed and spread in the fill areas in such a manner that excessive segregation is avoided. Any material placed which does not meet the requirements shall be removed, remixed, blended or otherwise reworked at the expense of the Contractor to produce a material which does satisfy the specified requirements whether or not such material has been covered by other fill material.

The Contractor shall construct the fill areas by placing, spreading and

compacting the fill material in continuous layers which extend over the entire surface area at that level and are approximately horizontal although they shall have sufficient falls to prevent ponding of rainwater.

The Contractor shall complete each layer of fill placed up to abutment contacts and ensure that compaction as specified is carried out adjacent to abutments. He shall not allow fill at abutment contacts either to lag behind or to get ahead and form feather edges.

All fill materials shall be levelled after spreading to obtain a surface free from irregularities, bumps and depressions. Except where space is limited, fill shall be placed by routing the hauling and spreading units over the fill area and, as far as is practicable, the hauling units shall be so routed that they do not follow the same paths but run evenly over the surface of the fill.

During the placing, spreading and levelling of materials, the Contractor shall remove all particles of rock or boulders which are large enough to interfere with the compaction of the layer of material.

The Contractor shall place, spread and level the fill material in such a manner as to achieve layers which are uniformly thick. Except as otherwise agreed, the thickness of material in each layer after compaction shall be 0.15 m.

Compaction definitions

Unless otherwise stated, earthworks compaction will be assessed with respect to the values of maximum dry density and optimum moisture content as determined by the 2.5 kg rammer method described in BS 1377.

Moisture conditioning

Moisture conditioning for compaction purposes may be required in the material to be used.

During filling operations, the Contractor shall maintain the moisture content of the fill within a range of 75% to 105% of the Standard Proctor Test optimum moisture content.
Prior to dumping and spreading any layer, the surface of the previous layer shall be checked to ensure that the surface has not dried out or become desiccated. If the surface of the previous layer has dried out, the Contractor shall at his own expense lightly scarify and apply water to bring the moisture content within the range required.

Material which is too wet shall be removed from the fill or the moisture content reduced to the designated limits by any methods which will allow the water to evaporate from the fill material if the weather conditions are such that this can be achieved.

Where the fill material is too dry, water shall be added to the material by controlled sprinkling and disc-harrowing or other approved methods to blend the added water uniformly throughout the material as required. If this addition of moisture results in the fill material becoming too wet, it shall be dealt with as described above.

Equipment used to apply water to fill materials shall do so uniformly. Water bowsers shall be equipped with positive shutoff valves such that no leakage will result from the nozzles when the equipment is not operating. Any leaks that do occur shall be repaired immediately. The Contractor shall have in constant attendance during placing and spreading operations a suitable water bowser, a disc harrow or similar device and equipment suitable for lightly scarifying fill surfaces.

Compaction: end-product requirements

The Contractor shall blend, condition, transport, deposit and compact the fill material so that it has the correct moisture content and grading immediately before compaction and the correct relative density after compaction.

Material shall be placed in layers of compacted thickness to suit the compacting equipment but not exceeding 250 mm unless otherwise agreed with the Engineer. For smooth-wheeled rollers the thickness shall not exceed 150 mm.

Unless otherwise stated the layers of fill material shall be compacted to a relative dry density of not less than 95% relative compaction. Laboratory compaction tests shall be conducted by the Contractor at his own cost in conjunction with in situ density tests to be agreed by the Engineer.

If the Contractor's compacting equipment is not capable of producing the minimum required dry density, or if the number of passes required by the Contractor's equipment to produce the required density is in excess of 12 passes, the Engineer may require the Contractor to provide and use alternative equipment. Only when the Engineer is satisfied that the equipment and number of passes are satisfactory will the Contractor be permitted to start placing and compacting the fill. The minimum number

of passes to be expected is 10 if a tamping foot roller is used and 6 if a pneumatic tyred or vibratory roller is used.

Once the compaction equipment and the requisite number of passes have been approved by the Engineer these shall not be altered without agreement.

Compaction equipment shall be kept clean and maintained in good working order.

Each layer of fill shall be compacted by passing the compaction equipment over it the required number of times such that every part of the layer is covered by the compaction equipment to complete a pass. The routing of all plant shall be so arranged as to avoid concentration and over-compaction.
A pass shall mean one traverse of the wheel of a compactor across the surface of a layer in one direction only. To achieve one coverage when compacting by means of a towed pneumatic-tyred roller, 2 passes will normally be required with the roller so routed that on the second pass the tyres of the roller cover the areas between the tyre tracks of the first pass.

For compaction by vibratory rollers, an overlap of 150 mm shall be maintained between adjacent passes of the roller and this overlap shall be maintained where drums are towed in multiple arrangements behind a single tractor.

The Contractor shall take every precaution when operating compaction equipment in the neighbourhood of structures or the foundation of the embankment not to damage the structures or disturb the foundation. Any such damage or disturbance shall be repaired by the Contractor at his own expense.

Trial embankments

The Engineer may order that trial embankments be carried out to verify the maximum layer thickness and number of passes for the particular material and items of equipment intended to be used. Where such trial embankments are within areas of filling, no additional payment will be made.

Testing

General

The Contractor shall have available all necessary testing equipment to ensure that at all times he is fully aware of the moisture and density

characteristics of fill materials. In addition to the laboratory method of moisture determination, suitable field apparatus which will give a quick reading shall be employed by the Contractor. With this equipment a constant check shall be made by the Contractor on the moisture contents of all materials about to be placed or compacted. The results shall be correlated in the early stages of the Contract against laboratory test results using the fill material to be placed.

All testing equipment for fill materials shall be provided by the Contractor at his own cost.

Testing of fill materials shall be carried out by the Contractor at his own cost.

The methods of testing outlined in BS 1377 will be used unless other testing techniques are expressly required by the Engineer.

It will be necessary to adjust the frequency of testing as work proceeds in order to suit the variations in fill placing rates and areas covered. As a very general guide, the Contractor may expect as a minimum that, for each material placed as fill on an area on which work occupies a whole shift, a test of compacted fill for density, grading and moisture content will be required once per layer per shift. The Engineer shall be empowered to increase the frequency if he considers this necessary in the interests of the quality of the work or if the area concerned is of above-average importance or sensitivity.

Further control tests in borrow areas and stockpiles shall be carried out as necessary to check that the material being placed, or about to be placed, meets the requirements of the Specification, to optimise placing destinations and to identity unsuitable material.
Whenever the Contractor conducts tests on materials used or to be used as fill, he shall immediately make the results of his tests available to the Engineer, who will have access to and may take over or supervise any portion of such sampling and testing, in addition to any sampling and testing he may conduct independently.

When requested by the Engineer, test pits for quality control shall be excavated to depths not exceeding 1 m and shall be backfilled by the Contractor with fill material similar to that excavated. The Contractor shall render such assistance as is necessary to enable pitting, sampling and testing to be carried out expeditiously. The Contractor is advised that no separate payments will be made for such test pits as the Engineer may

request nor for the backfilling thereof and is advised to allow for a minimum of 50 such pits to be provided in fill areas during the Contract. However, if the tests fail, the Contractor will provide further test pits required by the Engineer to enable him draw the required conclusion. The extra pits shall be issued at the Contractor's expense

Construction joints in fill

Construction joints shall not be used in fill areas where there is a practicable alternative.

The sloping face of construction joints, whether required or approved by the Engineer, shall not be steeper than 1 in 1.75 and, during placement, the material shall be compacted as close as practicable to the exposed face of the construction joint.

Prior to placing a layer of fill materials against previously placed fill in any construction joint, the surface of the material previously placed in the area of the joint shall be cut back a horizontal distance of not less than 1.5 m beyond that required to expose a dense face satisfactory to the Engineer.

The Contractor shall do everything necessary as required by the Engineer to match and bond the materials placed against a construction joint into the previously placed material in order to achieve a dense homogeneous fill across the construction joint.

Suspension and resumption of operations

The Contractor shall suspend fill placing operations whenever inclement weather conditions are such that the material cannot be placed and compacted at the optimum moisture content and to densities equal to those which would be achieved under normal conditions. If fill placement is suspended because of precipitation or impending precipitation or for any other reason, the surface of impervious fill materials shall be graded and rolled smooth to seal the surface and to avoid unnecessary absorption of moisture. Payment will not be made for standing time consequent upon inclement weather.

Where operations have been suspended, the effects of rain or other adverse conditions shall be assessed before placing is resumed. Prior to resumption of fill placement, any material not conforming to the specified requirements shall be removed or reconditioned until it is suitable. Equipment shall not otherwise be allowed to travel or work on the fill, except for necessary removal, until it has dried sufficiently to prevent excessive rutting and to allow the equipment to operate satisfactorily.

Dressing of outer faces

The Contractor shall dress the outer faces of fill areas and other filled areas to form a neat, uniform, workmanlike appearance and shall use for this purpose a hydraulically operated backhoe or other approved equipment. To achieve a uniform compacted density to the extreme edges of the fill area, the Contractor shall at his own expense overfill the fill areas, compact to the edge and subsequently trim the faces to the required lines indicated on the drawings. The Contractor is advised that this particular requirement will be applied to all exposed faces of filled areas. The dressing of the faces shall be completed as the work proceeds and the Contractor shall ensure that any areas requiring dressing are at all times within the operating range of the equipment.

Special compaction

In areas which are inaccessible to the normal compaction equipment or which require special compaction for other reasons e.g. around structures or instrumentation, the Contractor shall use special hand or other suitable compactors, approved by the Engineer, to achieve the desired compaction. In general such compaction shall be used near concrete structures, against irregular rock surfaces or in zones of very limited area. The fill shall be forced into all irregular depressions and corners.

Where special compaction is required, the fill material shall be placed in layer thickness approved by the Engineer but not exceeding 150 mm. Compaction by special methods shall be carried out, as agreed by the Engineer, to achieve dry densities equivalent to those being achieved in adjacent areas by normal compaction methods.

Equipment used for special compaction shall be hand-guided heavy duty mechanical tampers, hand-guided vibratory rollers, hand methods or other such compaction arrangements suited to working in confined spaces as may be approved by the Engineer.

Tolerances

The Contractor shall construct embankments, fill areas and any required zones therein such that maximum local deviations from the finished outside slope surface of the embankment do not exceed 0.2 m measured at right angles to the surface. In addition:

The finished outside slope surface shall not be uniformly lower than the required lines;

The top surface shall not be less than the required dimensions;

Where an embankment has berms, the levels of the berms shall not be lower than the required elevations;

All finished slopes shall drain effectively in accordance with the arrangements shown on the Drawings;

The Contractor must allow for any settlement that may take place during the course of construction. If the Engineer envisages that there will be some post-construction settlement, the levels of the Drawings will indicate and allow for such settlement and the Contractor shall build to those levels and will be paid for so doing. The level of the finished surface shall nowhere be lower than that prescribed.

Protection and maintenance

The Contractor shall maintain all fill in a satisfactory condition until the completion of the work.

He shall shape the surface and take such steps as are necessary to avoid ponding of water on the fill or contamination of the fill by traffic or other causes, and shall at all times keep the surface and slopes of the fill areas free from rubbish, rejected or unsuitable material, and waste materials.

Backfilling of excavations

Backfilling of areas excavated to remove unsuitable material below formation level shall normally be with Class 1 material acceptable to the Engineer. In marshy areas the Contractor may be instructed to use, rockfill in compacted layers or other special methods to produce a surface which will remain stable when fill is placed on it and compacted.

Fill material used for backfilling excavations shall be approved Class 1 material free from large clods, large rocks, rubbish and other undesirable constituents. Where free-draining material is shown on the Drawings, all layers thereof shall be of consistent quality.

Backfill material shall normally be selected by the Contractor from excavated material at the Site which he has set aside for this purpose. When suitable backfill material cannot be obtained in this manner, it shall be obtained by the Contractor from another borrow source and brought to the Site. Both the source and the type of material to be used will be subject to approval by the Engineer.

Procedure

Unless otherwise agreed, backfilling shall be carried out in layers not exceeding 150 mm after compaction. Each layer shall be watered to the approximate optimum moisture content and thoroughly compacted uniformly over the full area of each layer to the density of the surrounding ground. Unless otherwise instructed, vibrating plate or similar compaction equipment shall be used in confined areas. Where appropriate the final layer of backfill shall be neatly finished to accord with the surrounding ground levels and any settlement which occurs shall be made good by re-compacting and the addition of further compacted backfill.

MATERIALS

Pipes and fittings

The approval in writing or otherwise by the Engineer of any materials shall not in any way whatsoever relieve the Contractor from any liability or obligation under the Contract and no claim by the Contractor on account of the failure, insufficient or unsuitability of any such materials will be entertained.

All items shall be suitable for water works purposes and for use with cold water installation and operation being in a tropical climate.

All items hereinafter specified shall be to such other Standard or Specification which in the opinion of the Engineer provides for a quality of material and workmanship not inferior to the Standard Reference Number (SRN) quoted. The Standard or Specification must be submitted to the Engineer for approval before commencement of work.

IV. All ferrous pipes and fittings shall be coated with bituminous protective paint suitable for use in and transport through a tropical climate.

The Contractor shall supply to the Employer a certificate stating that each item supplied has been subjected to the tests hereinafter laid down and conforms in all respects to the said Specifications.

VI. The Contractor shall provide adequate protection to all piping, flanged items and valves so as to guard effectively against damage in transit and storage and ingress for foreign matter inside the valves.

VII. All pipe work and fittings shall be subjected to a work hydrated test pressure, which shall be not less than twice the maximum operating pressure.

VIII. The Contractor should exercise diligence to provide the best material

IX. Where applicable the manufacture's Specification should accompany all offers. The name of the manufacturer must in every case be stated.

Where necessary the Contractor shall provide rubber gaskets all other bolts, nuts etc. to undertake jointing at fittings etc.

XI. Any article required under this Contract. Which are found to be faulty due to a crack, flaw or any other reason or is not in accordance with the specification stipulated will not be accepted nor will the Employer be liable for any charges in respect of such an article. Where any such rejected article can, in the opinion of the Engineer, be rendered usable, the Contractor may deal with it accordingly and include it in the Contract at

a price to be mutually agreed. Straight pipes which have been cut will be accepted provided the length is not less than 4 meters or two thirds of the standard length whichever is the lesser and will be priced pro-rata.

XII. Wherever possible, sample of pipes and fittings shall be submitted for approval of the Engineer prior to the Contractor obtaining the total requirements.

High Density Polyethylene pipes

The maximum sustained working pressures to which the pipes and fittings will be subjected is based on water at temperature of 20 degrees centigrade.

The Contractor shall submit full details of the pipes he intends to supply.

The pipes up to and including 40mm diameter can be of a solvent weld type. The pipe shall be supplied with interchangeable sockets preformed at the factory and of such internal diameter that it takes the plain end of the pipe with the same nominal diameter.

The joint shall sustain the end thrust to which the pipe shall be subjected. The Contractor shall supply sufficient quantity of the cleaner and adhesive, which shall be required to make the joints with the pipes.

The pipes of 50mm diameter and over shall consist of a grooved socket at one end of the pipe. The socket shall be designed to give a clearance fit on the outside diameter of the parent pipe. The sealing medium, which shall seat in the groove, shall be a rubber ring.

If the formation of the socket and groove results in the thinning of the original wall thickness of the pipe, it shall be compensated for by shrinking on the socket area a reinforcing sleeve of the same material as the pipe.

The socket and groove shall incorporate no sharp angles where the stress points are created.

The joints shall take 10% deformation of the spigot at the point where it enters the socket without leakage from the pipe when subjected to the test pressure specified for the pipe. Thermal expansion of the pipe shall be capable of linear deflection up to 3 degrees.

The sealing ring shall be of first grade natural rubber and the physical properties of the mix.

The Contractor shall supply sufficient, quantity of any lubricant or other material, which shall be needed to make the joint, which shall be assembled by hand.

The Contractor shall submit full details of the type of joint offered and a full

description of the method of jointing.

The fitting shall have the same type of joint as for the pipes to be used. The Contractor shall submit full details of the materials dimensions and test pressures of the fittings offered.

Precautions shall be taken to avoid damage to the pipes and fittings.

In handling and storing the pipes and fittings, every care shall be taken to avoid distortion, flattening, scoring or other damage. The pipes and fitting shall not be allowed to drop or strike objects. Pipes lifting and lowering shall be carried out by approved equipment only.

Special care shall be taken in transit, handling and storage to avoid any damage to the ends.

Pipes and fittings shall be marked at no greater than one meter intervals showing their class and diameter.

Pre- cast concrete units

Pre-cast concrete covers to be pre-cast units for use in the works, whether instructed under the Contract or proposed by the Contractor.

Formwork for pre-cast units

Moulds shall be so constructed that they do not suffer distortion or dimensional changes during use and are tight against loss of cement grout of fines from the concrete.

Moulds shall be set up on firm foundations so that no settlement occurs under the weight of the fresh concrete.

Moulds shall be constructed so that units may be removed from them without sustaining any damage.

Release agents used for demoulding shall not stain the concrete or affect its properties.

Reinforcement for pre-cast units

Reinforcement in pre-cast units shall comply with general requirements and those of Clause 6.1 When preformed cages are used the cages shall be made up on jigs to ensure dimensional accuracy and shall be carefully supported within the mould in such a way that they cannot move when concrete is placed. Reinforcement may be tack welded where bars cross to provide rigidity in the cage but reinforcement shall not be welded.

Cover to main reinforcement shall be as shown on the drawings, or if not shown shall be not less than 25mm or the diameter of the bar, whichever is the greater. Cover on distribution steel shall not be less than 15mm or the diameter of the bars.

Bars may be placed in pairs provided that there are no laps in the paired lengths.

Casting of Units

Concrete for pre-cast units shall comply with Clauses 5.9 using the class of concrete specified on the drawings.

The area in which units are cast shall be adequately protected from the weather so that the process is not affected by rain, sun or drying winds.

Curing Pre-cast Units

Requirements for curing shall be generally as set out in Clause 5.11

The Contractor shall ensure that units do not suffer any loss of moisture or sudden changes of temperature for at least four days after casting. If a water spray is used for curing, the water shall be at a temperature within 5 degrees centigrade of the temperature of the unit being cured.

If the Contractor proposes curing at elevated temperatures, the method shall be subject to the agreement of the Engineer and shall include means whereby units are heated and subsequently cooled evenly without sudden changes of temperature.

Dimension tolerances of pre- cast units

Units shall be accurately formed to the dimensions shown on the drawings unless closer tolerances are called for by the Engineer.

Surface finish of pre- cast units

The formed faces of Pre- cast units shall be finished on class of finish is specified on the drawings.

Free faces shall be finished to class UF2 unless another class of finish is specified on the drawings.

In cases where a special finish is required a trial panel shall be constructed by the Contractor which after approval by the Engineer shall be kept available for inspection at the place of casting and production units shall thereafter match the approved pattern.

Those parts of the unit which are to be joined to other units or other units or to in situ concrete shall be brushed with a stiff brush before the concrete has fully hardened. Alternatively, if the concrete has been allowed to harden the surface shall be roughened by sand blasting or by the used of a needle gun.

Handling and storage pre- cast units

Pre- cast units shall be handled in a manner which will not cause damage of any kind and shall be stored on a hard impermeable base.

Prestressed units and large Pre- cast normally reinforced units shall be handled and stored so that no stresses shall be induced in excess of those which they will incur in their final positions in the works unless they have been designed to resist such stresses.

Units shall be provided with adequate lifting holes or loops, placed in the location shown on the drawings or agreed by the Engineer and they shall be lifted only by such holes or loops. Where it is not possible to provide holes or loops, suitable sling positions shall be indicated in paint on the units.

Units shall be marked indeligibly with the reference number and date of casting and shall be stacked on suitable packers which will not damage the concrete or stain the surfaces. Not more then two packers shall be placed under each unit and these shall be located either at the position of the permanent support points or in positions such that the induced stresses in the unit will be a minimum.

Testing pre- cast units

Pre- cast units shall be capable of safely sustaining the loads which they have been designed to carry. The Contractor shall subject units selected by the Engineer to load tests simulating the working conditions. Detailed of such tests shall be agreed between the Engineer and the Contractor.

In case of units subjected to bending loads the test piece shall be supported at full span and a loading equivalent to 1.25 times the sum of the live and dead loads which were assumed in the design shall be maintained for one hour without the appearance of any signs of distress. The recovery one hour after the removal of load shall be not less then 75 per cent of the full load deflection.

If the unit fails to meet the above requirement, further tests shall be carried out on two more units. If either of these fails the whole batch of the unit will be rejected.

If the Engineer so requires, a test of destruction shall also be carried out which on units subject to bending shall be as follows:

The unit shall be supported at full span and a load applied in increments instructed by the Engineer up to 95 per cent of the designed ultimate load. This load shall be held for 15 minutes without failure of the unit. The deflection at the end of this period shall be not more than 1/40th of the span. The load shall then be further increased until failure occurs.

If the unit fails to sustain the required load for the prescribed period or if the deflection exceed the specified amount the Engineer may order two further tests, and if either of these fail, the batch of units which they represent may be rejected.

Submission of samples

As soon as possible after the Contract has been awarded, the Contractor shall submit to the Engineer a list of the suppliers from whom he proposes to purchase the materials necessary for the execution of the Works. Each supplier must be willing to admit to the Engineer or his representatives, to his premises during ordinary working hours for the purpose of obtaining samples of the materials in question. Alternatively, if desired by the Engineer, the Contractor shall deliver the samples of the materials to the Engineer's office without charge.

The information regarding the names of the suppliers may be submitted at different times, as may be convenient, but no source of supply shall be changed without the Engineer's prior approval once a supplier, source or material has been approved.

Samples of materials approved will be retained at the Engineer's office until the completion of the Contract. Samples may be tested to destruction.

All materials delivered to site must be at least equal in all respects to approved samples; otherwise they shall be rejected. No special payment will be made for compliance with clauses specifying tests etc. to ensure quality control etc. unless specifically itemized in Bills of Quantities.

Materials for concrete

a. General

The Contractor shall submit to the Engineer full details for all material, which he proposes to use for making concrete. No concrete shall be placed in the works until the Engineer has approved the materials of which it is composed. Approved materials shall not thereafter be altered or substituted by other materials without the consent of the Engineer.

b. Cement

Cement shall be free flowing and free of lumps. It shall be supplied in the

manufacturer's sealed unbroken bags or in bulk. Bagged cement shall be transported in vehicles with effective means of ensuring that it is protected for the weather.

Bulk cement shall be transported in vehicles or in containers built and equipped for the purpose.

Cement in bags shall be stored in a suitable weatherproof structure of which the interior shall be dry and well ventilated at all times. The floor shall be raised above the surrounding ground level and shall be so constructed that no moisture rises through it.

Each delivery of cement in bags shall be stacked together in one place. The bags shall be closely stacked so as to reduce air circulation but shall not be stacked against an outside wall. If pallets are used, they shall be constructed so that bags are not damaged during handling and stacking. No stack of cement bags shall exceed 3m in height. Different types of cement in bags shall be distinguished by visible markings and shall be stored in separate stacks.

Cement from broken bags shall not be used in the works.

Cement in bags shall be used in order in which it is delivered.

Bulk cement shall be stored in weatherproof silos, which shall bear a clear indication of the type of cement contained in them. Different types of cement shall not be mixed in the same silo.

The Contractor shall provide sufficient storage capacity on site to ensure that his anticipated programme of work is not interrupted due to lack of cement.

Cement which has become hardened or lumpy or fails to comply with the Specifications in any way shall be removed from the site.

All cement for any one structure shall be from the same source.

All cement used in the Works shall be tested by the manufacturer or the Contractor in a laboratory acceptable to the Engineer. The Contractor shall supply two copies of each certificate to the Engineer.

Each set of tests carried out by the manufacturer of Contractor shall relate to not more than one day's output of each cement plant, and shall be made on samples taken from cement which is subsequently delivered to the site. Alternatively, subject to the agreement of the Engineer's the frequency of testing shall be one set of tests for every 200 tonnes of cement delivered to site from each cement plant.

Cement which is stored on site for longer than one month shall be retested at an approved laboratory for every 200 tonnes, and at monthly intervals thereafter.

Cement which does not comply with the Specification shall not be used in Works and it shall be disposed of by the Contractor.

The Contractor shall keep full records of all data relevant to the manufacturer, delivery; testing and use of all cement used in the works and shall provide the Engineer with two copies thereof.

c. Fine aggregate

Fine aggregate shall be clean hard and durable and shall be natural sand, crushed gravel sand or crushed rock sand. All the material shall pass through a 5mm standard sieve. In order to achieve an acceptable grading, it may be necessary to blend materials from more than one source.

The fine aggregate shall not contain iron pyrites or iron oxide, It shall not contain mica, shale, coal or other laminar, soft or porous materials or organic matter unless the Contractor can show by comparative tests, on finished concrete, that the presence of such materials does not adversely affect the properties of the concrete.

Other properties shall be as out below:-

Content passing a 75 micron standard sieve shall not exceed 3 per cent for natural of crushed gravel sand of 15 per cent for crushed rock sand.

Chlorides soluble in a 10 per cent solution by weight of nitric acid shall not exceed 0.05 per cent by weight expressed as chloride ion when tested, subject also to the further restriction given in the note on total chloride content in sub-clause 4.5 (d)

Sulphates soluble in a 10 per cent solution by weight of hydrochloric acid shall not exceed 0.4 per cent by weight expressed as SO when tested, subject also to the further restriction given in the note on total sulphates content in sub-clause 4.5(d)

Soundness: after five cycles of the test in AASHO ---------- or an approved equivalent the aggregate shall not show a weight loss of more than 10 per cent.

Organic impurities:

If the test for presence of organic impurities in aggregates described below shows that more than a trace of organic impurities is present, the fine aggregate shall not be used in the works unless the Contractor can show by tests on finished concrete that the presence of organic impurities does not adversely affect the properties of the concrete.

Test for presence of organic impurities aggregates:

This test is designed to indicate the presence of organic impurities in aggregates used for making concrete.

A 350 cc graduated bottle shall be filled to the 120 cc mark with a sample of the aggregate liquid after shaking gives a total volume of 200 cc. The bottle shall be stopped, shaken thoroughly and allowed to stand for 24 hours. If, after 24 hour, the colour of the solution is no darker than a pale brown, the aggregate under test may be deemed satisfactory.

d. Coarse aggregate

Coarse aggregate shall be clean and durable crushed rock, crushed gravel or natural gravel. The material shall not contain any iron pyrites, iron oxides, flaky or laminated material, hollow shells coal or other soft or porous material, or organic matter unless the Contractor can show the comparative tests on finished that the presence of such materials does not adversely affect the properties of the concrete. The pieces shall be angular rounded or irregular.

Coarse aggregate shall be supplied in the nominal sizes called for in the Contract and shall be graded for each nominal size.

Other properties shall be as set out below:-

The proportions of clay silt and other impurities passing a 75 micron standard sieve shall be no more than one per cent by weight.

The content of hollow and flat shells shall not be such as will adversely affect the concrete quality when tested. The total content of aggregate shall not be more than the following.

40mm nominal size an above 2% of dry weight
20mm nominal size 5% of dry weight 10mm
nominal size 15% of dry weight.

Chlorides soluble in a 10 per cent solution by weight of nitric acid shall not exceed 0.03 per cent by weight, expressed as chloride ion when tested but subject also to the further restriction under the percent solution by weight of hydrochloric acid shall not exceed 0.4 per cent by weight expressed as 50g when tested subject also to the further restriction given in the total sulphates content hereunder.

Soundness: After 5 cycles of the test in AASHO T104 or approved equivalent, the aggregate shall not show a weight loss of more than 12 per cent.

When tested in accordance with Test C289 of the American Society for Testing of Materials or approved equivalent, the aggregate shall be non-reactive.

Flakiness Index when tested shall be as set out hereunder:

For 40mm stone and above, not more than 40
For 20mm stone and below, not more than 35

If the Flakiness Index of the coarse aggregate varies by more than five units from the average value of the aggregate used in the approved trial mix, then a new set of trial mixes shall be carried out if the workability of the mixes has been adversely affected by such variations.

Impact value: Not more than 45 per cent when tested.

Ten per cent fines value: Not less than 50kN when tested.

Shrinkage: When mixed with other ingredients in the approved proportions for concrete and tested, the shrinkage factor shall not exceed 0.05 per cent.

Organic impurities: If the test for presence of organic impurities in aggregate shows that more than a trace of organic impurities is present, the aggregate shall not be used in the works unless the Contractor can show by tests on finished concrete that the presence of organic impurities does not adversely affect the properties of the concrete.

Water absorption: The aggregate shall not have water absorption of more than 2.5 per cent when tested.

Aggregate Crushing value (ACV): not more than 35 per cent

Los Angeles Abrasion (LAA) not more than 50 per cent.

NOTE: Total chloride and sulphates content:

Total chloride content, expressed as chloride ion, arising from all ingredients in a mix including cement, water and admixtures shall not exceed the following limits, expressed as percentage of the weight of cement in the mix:-

For pre stressed, concrete, steam cured concrete or concrete containing sulphates cement: 0.05 per cent.

The total sulphates content expressed as 50g of all the ingredients in a mix including cement, water and admixtures shall not exceed 0.4 per cent by weight of the aggregate or 4.0 per cent by weight of the aggregate or 4.0 per cent of the

weight of cement in the mix whichever is the lesser.

e. Testing aggregates

Acceptance testing

The Contractor shall deliver to the Engineer samples containing not less than 50kg of any aggregate which he proposes to use in the Works and shall supply such further samples as the Engineer may require. Each sample shall be clearly labelled to show its origin and shall be accompanied by all information.

Tests to determine compliances of the aggregates with the requirements of Sub-Clause 7.5 (c) and (d) shall be carried out by the Contractor in laboratory acceptable to the Engineer. If the tested materials fail to comply with the specification, further tests shall be made in the presence of the Contractor and the Engineer and acceptance of the material shall be based on such tests.
A material shall be accepted if not less than three consecutive sets of test results show compliance with the Specification.

Compliance testing

The Contractor shall carry out routine testing of aggregate for compliance with the Specification during the period that concrete is being produced for the Works.

The tests set out below shall be performed on aggregate from each separate source on the basis of one set of tests for each day on which aggregates are delivered to site provided that no set of tests shall represent more than 250 tonnes of fine aggregate not more than 500 tonnes of coarse aggregate, and provided also that the aggregate are of uniform quality, if the aggregate are of uniform quality, if the aggregate from any source is variable, the frequency of testing shall be increased as instructed by the Engineer.

In addition to the above routine tests, the Contractor shall carry out the water content of the concrete as required by the specification.

Moisture content: as frequently as may be required in order to control the water content of the content of the concrete as required by the Specification.

Chloride content: As frequently as may be required to ensure that the proportion of chlorides in the aggregate does not exceed the limit stated in the Specification.

The Contractor shall take account of the fact that when the chloride content is variable it may be necessary to test every load in order to prevent excessive amounts of chloride contaminating the concrete. For this purpose the Contractor shall use the rapid field test (the Quanta test). In the event of disagreement regarding the results of the field test, the chloride content of the aggregate shall

be determined in the laboratory (the volhard test).

Delivery and storage of aggregates

Aggregate shall be delivered to site in clean and suitable vehicles. Different types of sizes of aggregate shall not be delivered in one vehicle.

Each type or size of aggregate shall be stored in a separate bin or compartment having a base such that contamination of the aggregate is prevented. Dividing walls between bins shall be substantial and continuous so that no mixing of types or sizes occurs.

The storage of aggregates shall be arranged so that, as far as possible rapid drying out in hot weather is prevented in order to avoid sudden fluctuation in water content. Storage of fine aggregates shall be arranged so that they can drain sufficiently before use in order to prevent fluctuations in water content of the concrete.

Water for concrete and mortar

Seawater or brackish water containing more than 1000 ppm chloride ion or 2000 ppm sulphate ion shall not be used for mixing or curing concrete.

Water shall be clean and free from harmful matter.

The Contractor shall carry out tests to establish compliances with the specification.

Building stone

All building stones shall be capable of withstanding when wet a crushing stress of 1.4kg /sq.mm. The source of stone shall be approved by the Engineer and stone supplied there from shall be free from Magadi, overburden, mudstone, cracks, sand holes, veins, laminations or other imperfections.

The stone shall be chisel dressed into true rectangular blocks, with each surface even and at right angles to all adjoining surface, to the size specified. For exposed stonework the maximum permissible variation of any of the specified dimensions shall be 6mm provided that cut stone, supplied as rock face stone may be hammer dressed on one face only or on one face and one end if in other respects it conforms to this specification. Stones shorter than 375mm will not be accepted.

Unless the Engineer allows otherwise, the Contractor shall at his own expense provide and dress four 100mm cubes of stone for testing.

The stone shall be sound when tested except that:-
The treatment shall be repeated for 10 cycles only and

The second criterion of failure shall be amended to allow for a loss of weight of not more than 20kg of its original weight.

Stone Dust

Stone dust for building shall be blacktrap screened to the following grading:-

Passing 10mm sieve	100%
Passing No. 4 sieve	85% - 100%
Passing No. 100 sieve	5% - 25%

Murram

Murram shall be from an approved source quarried so as to exclude vegetable matter, loam, topsoil or clay. The California Bearing Ratio of the murram, as determined for a sample compacted to maximum density 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.

Water for cement treated materials

If water for the works is not available from the Employer's supply, 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 substances: Tests for water for making concrete, all to the cost of the Contractor.

Cement mortar

Cement mortar shall consist of proportions by volume as specified or Portland Cement, natural sand or crushed natural stone or a combination of both. Building Sands from Natural Sources. The constituent materials shall be accurately gauged and mixed in an approved manner.

Cement mortar shall be made in small quantities only as and when required, and any mortar which has begun to set or which has been mixed for a period of more than one hour shall be rejected.

Hydrated Lime

Building Limes and shall be of the semi – hydrated type.

Calcium chloride

Calcium chloride shall be good industrial grade, and shall be obtained from and approved source.

Lime mortar

Lime mortar shall consist of proportions by volume as specified by hydrated lime and natural sand or crushed natural stone or a combination of both. The constituent materials shall be accurately gauged and mixed in an approved manner in a proportion specified.

Cement – lime mortar

Cement – line mortar shall consist of Portland Cement, hydrated lime and natural sand or crushed natural stone or a combination of both. The constituent materials shall be accurately gauged and mixed by volume in an approved manner in proportion specified.

Cement – lime mortar shall be made to set or which has been mixed for a period of more than two hours shall be rejected.

Cement grout

Cement grout shall consist of Portland Cement and water mixed in the proportion of one part by volume of cement and one and a half parts by volume of water. The grout shall be used within one hour or mixing.

Cast stone

Cast stone shall be manufactured by an approved manufactures to the shapes and dimensions shown on the drawings. Cast Stone. It shall have dense and even surface of the texture and colour detailed on the drawings or required by the Engineer. Where indicated, exposed faces of the stone shall be formed of a specially graded mix. Metal bond ties of approved manufacturer shall be cast in with the stone as shown on the drawings. Samples of the completed stone shall be submitted for the Engineer's prior approval.

All stones shall be protected from damage during transport and erection by means of cement slurry coating or by other approved methods.

Reinforcement for concrete

Reinforcement which shall comply with the following Standard, covers plain and deformed bar reinforcement and steel fabric to be cast into concrete in any part o

the works but does not include pre-stressing tendons or any other embedded steel.

All reinforced shall be from an approved manufacturer and, if required by the Engineer, the Contractor shall submit a test certificate from the manufacturer.

All reinforcement for use in the works shall be tested for compliance with the appropriate Standard in a laboratory acceptable to the Engineer and two copies of each test certificate shall be supplied to the Engineer. The frequency of testing shall be as set out in the relevant Standard.

In addition to the resting requirement described above, the Specification shall be removed from site.

All reinforcement shall be delivered to site either in straight lengths or cut and bent. No reinforcement shall be acceptable in long lengths which have been transported bent over double.

Any reinforcement which is likely to remain in storage for a long period shall be protected from the weather so as to avoid corrosion and pitting. All reinforcement which has become corroded or pitted to an extent which in the opinion of the Engineer will affect its properties shall either be removed from site or may be tested for compliance with the appropriate Standard at the Contractor's expense.

Dowel bars

Dowel bars and tie bars shall consist of mild steel, or deformed bars of high yield steel and they shall be free from oil, paint other than bond – breaking compound, dirt, loose rust and scale.

Dowel bars and tie bars shall be of sizes as shown on the drawings and directed by the Engineer, and shall be straight, free from burred edges, or other irregularities and shall have their sliding ends sawn or , if approved, sheared.

Bond breaking compound for dowel bars shall consist of 66 per cent of 200 pen bitumen blended hot with 14 per cent light creosote oil and, when cold, brought to the consistency of paint by the addition of 20 per cent solvent naptha or other approved compound meeting the following requirements.

It shall not retard or in any other way affect the setting of concrete.
The average bond stress on bars coated with the compound with half their length cast into concrete specimens and subject to pull out rests at 7 days shall not exceed 0.14 Newtons per square millimeter and the total movement other dowel bar relative to the concrete shall not be less than

millimeters in section and 0.45 metre long and made with the same mix proportions as used in the Works.

Structural steel for welded work

The use of Structural Steel in Building and for welded work, High Yield Stress and High Tensile Structural Steel, High Tensile (Fusion Welding Quantity) Structural Steel for Bridges, etc, and General Building Construction.

Waterproof underlay

Waterproof underlay shall consist of wither waterproof paper. Waterproof Building Paper, containing approved fibrous reinforcement, or 900 Gauge polythene sheeting as stated in the Bill of Quantities.

Preformed joint filler

Preformed joint filler shall be of the thickness shown on the drawing or as stated in the Bills of Quantities.

The material comprising joint filler shall be as stated on the drawings or approved by the Engineer.

HDPE pipes and fittings

HDPE pressure pipes shall have outside diameters complying with ISO 161-1 1978.

Concrete pipes

Reinforced concrete pipes and special fittings for drainage purposes shall have "Cornelius" or similar approved spigot and socket flexible joints and shall comply with BS 5911 "Concrete cylindrical pipes and fittings including manhole inspection chambers and street gullies".

Unreinforced concrete pipes with ogee joints shall comply with BS 5911 Part 3.

Concrete porous pipes

Concrete porous pipes shall comply with the requirements of Porous pipes for under-drainage.

Concrete drain invert blocks

Pre- cast concrete invert blocks shall be manufactured from concrete Class 20/10 as specified on drawing using maximum 12mm size aggregate. If required, cube test certificates shall be supplied by the manufacturer.

Concrete slabs for open drains

Pre- cast concrete slab for lining open drains shall be manufactured from concrete Class 20/10 as specified in Table 4.2 using maximum 12mm size aggregate. If required cube test certificates shall be supplied by the manufacturer.

Manhole covers and frames

Cast Manhole Covers, Road Gully Gratings and Frames for Drainage Purposes except that the manhole covers shall be constructed of mild steel, concrete filled, in accordance with the standard detail drawings.

Foul water sewer manhole shall have triangular Grade "A" heavy duty covers and frames. Circular manhole covers and frames shall be used on surface water sewer manhole.

Gully grating and frames

Gully grating and frames shall be of nominal size 500mm x 350mm except that the gully grating shall be constructed of mild steel concrete filled in accordance with the standard detail drawings.

Where indicated as being kerb inlet type the gullies shall conform to the shape and dimensions given on the detail drawings supplied.

Pre- cast concrete manhole and inspection chambers

Concrete Cylindrical Pipes and Fitting including Manholes, Inspection Chambers and Street Gullies and they shall carry the relevant Standard Institution registered certification trade mark, or test certificates shall be furnished by the manufacturer.

Pre- cast concrete gullies

Pre- cast concrete gullies shall be un-reinforced Concrete Cylindrical Pipes and fittings including Manhole, Inspection Chambers and Street Gullies.

Valve Chamber and Manhole step iron

Steps irons of general –purpose type shall comply in all respects with malleable Step Irons.

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. Coal Tar Creosote for the preservation of Timber or an alternative approved timber preservative.

Water bars

Water bars shall be "Dumbbell" type and be of natural or synthetic rubber or extruded PVC. They shall be flexible, tough, elastic and durable and of dimensions detailed. They should be unaffected on contact with dilute acids or alkalis. Joints and junctions hall, when possible, be prefabricated by the manufacturer's instruction including recommended adhesive shall be followed and used. Samples shall be submitted for approval of the Engineer before use of any material.

Concrete blocks

All solid and hollow concrete blocks used in the walling must be capable of withstanding a crushing pressure of not less than 0.35 per square millimetre after 29 days. The blocks shall be cast in metric sizes.

Plumbing materials

Galvanised mild steel pipes

Galvanised mild steel pipes and fittings shall comply with BS 1387 Class B or"Medium Grade". Threading for screwed and socketed joints shall be in accordance with the requirements of BS 21. Joints shall be made with an approved pipe-jointing compound in accordance with the manufacturer's instructions. Red lead compounds shall not be used. Joints in underground piping shall be coated with bitumen or other approved composition.

Fittings for galvanised pipes

All fittings for galvanised steel water pipework shall be galvanised heavy weight fittings in accordance with BS 1740. Fittings for waste pipework shall be galvanised malleable iron complying with the requirements of BS 143. Brass or gunmetal fittings shall be subject to the approval of the Engineer.

Sanitary ware

Sanitary ware in white glazed fireclay shall be to the Engineer's approval.

Lavatory basins shall be 275 x 450 mm and shall be supplied complete with two 300 mm porcelain enamelled cast iron fixing brackets, 30 mm chromium plated grid waste with plug and chain, 30 mm chromium plated bottle trap, 38 mm seal, and 12 mm chromium plated pillar taps as necessary.

WC suites shall be to the Engineer's approval and shall either be supplied complete with 11 l white, fireclay low-level cistern with vertical valve and chromium plated flush handles, 30 mm porcelain enamelled steel curved flush pipe including jointing to pan and cistern and white plastic seat or complete with 11 litre high level cast iron cistern with chrome plated chain and handle, 33 mm flush pipe including jointing to pan and cistern and white plastic seat.

Shower units shall comprise 38 mm chromium plated grid waste, 38 mm copper P-trap, 12 mm chromium plated stop cocks and mixing valve as required and 12 mm diameter chromium plated shower arm with 100 mm shower head.

Stainless steel sinks and drainers shall comprise 20 SWG pressed stainless steel single bowl single drainer sink overall size 1350 mm x 525 mm fixed in kitchen cabinet framing complete with 38 mm chromium plated grid waste with plug, chain and combination overflow, 38 mm copper P-trap with brass cleaning eye and combined taps and mixer with swivel inlets with adjustable centres. Double units shall be provided where these are indicated on the Drawings.

Bathtub units shall comprise white porcelain enamelled cast iron bath 1,675 mm or 1,525 mm long as required complete with 38 mm chromium plated grid waste, 38 mm bath trap assembly and 19 mm chromium plated pillar taps or combined taps and mixers as required.

Taps and stopcocks

Taps and stopcocks shall be to BS 1010. Stopcocks shall be fitted on the main service as it enters any building.

CONCRETE WORKS

General

Code of practice

All workmanship, materials, tests and performances in connection with the reinforced concrete work are to be in conformity with the latest edition of the followings

British Standard Code of Practice (C.P. 114 for "Structural Use of Concrete") where not inconsistent with these specifications.
British Standard Code of Practice B.S 5337 " the design and construction of reinforced concrete structures for the storage of liquids
Appropriate Ministry of Works Standards in any or in their absence appropriate British Standards

Contractor's plant

Not less than 30 days prior to the installation of the Contractor's plant and equipment for processing, handling, transporting, storing and proportioning ingredients, and for mixing, transporting and placing concrete, the Contractor shall submit drawings for approval by the Engineer, showing proposed general plant arrangements, 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.

Materials

Cement

Cement, unless otherwise specified, shall be Portland cement of the Blue Triangle brand, or Bamburi Portland Cement brand. Any other brand must be approved by the Engineer and shall comply with the requirements of B.S. 12 with the exceptions that it may contain reactive volcanic ash (of not more than 10% of total weight) and the quantity of insoluble residue permitted in B.S. 12 may be exceeded. A manufacturer's Certificate of Test in accordance with B.S. shall be supplied for each consignment delivered to site.

Should the Contractor require using cement of the rapid hardening variety, he shall obtain the approval of the Engineer and also obtain any instructions regarding the modifications to the preambles caused thereby. Any additional cost that may be caused by the use of the rapid hardening cement shall be at the Contractor's expense.

Cement may be delivered to 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 a weather-proof 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 was 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 more than 1500 mm in height.

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.

Aggregates

The aggregates shall conform with the requirements of B.S. 882 and the sources and all types 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 through out the Works and not varied without the approval of the Engineer. Fine aggregate 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 set out in zone 1 or 2 of B.S. 882.

Coarse aggregate shall be good, hard, clean approved black trap or similar stone, free from dust, decomposed stone, clay, earthy 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 the above requirements, but is dirty or adulterated in any manner it shall be screened and/or washed with clean water if he so directs at the Contractor's expense.

Aggregates shall be delivered to the site in their prescribed sizes or grading and shall be stockpiled on paved areas or boarded platforms in separate units to avoid intermixing.

Fine aggregate

Fine aggregate shall be sand free from impurities and complying with British Standard No. 882. Grading zone 2 of Table 2.

Coarse aggregate

Coarse aggregate shall be hard crushed rock free from impurities and complying with British Standard No. 882 "graded aggregate" 20 mm to 5 mm nominal size as Table 1.

Water for mixing concrete

Water for concrete shall be free from impurities, complying with BS 3148. Water for washing and curing shall be such that it will not impair neither the strength of the finished concrete nor its appearance.

Hardcore

Hardcore for filling under floors shall be good, hard stone ballast or quarry waste, to the approval of the Engineer, broken to pass through not greater than a 150 mm ring or to be 75% of the finished thickness of the layers being compacted, whichever is the lesser. Hardcore shall be free from all weeds, roots, vegetable soil, clay, black cotton soil or other unstable materials.

It shall be graded with smaller stones and fine materials to give a dense compact mass after consolidation. Sufficient fine material shall be added to each layer to give gradation of material as necessary to obtain a solid compact mass after rolling. Hardcore filling is to be laid in layers each of a consolidated thickness not exceeding 250 mm. Each layer shall be compacted by at least 8 passes of a 10-tonne smooth-wheeled roller or a 2-tonne vibrating roller until all movement ceases. Sufficient water is to be added to obtain maximum compaction to the Engineer's approval. To each layer a 25 mm thick layer of sand complying with the specification of fine aggregate for concrete shall be spread over the surface and forced into the hardcore by the use of a vibrating roller weighing not less than 2 tones. This operation should be carried out when the materials are dry and repeated whilst the sand is well watered. Should all the sand be absorbed the Engineer may require a further layer to be applied and the process repeated.

The top surface of the hardcore shall be levelled or graded to fall as required, and shall then be blinded with a layer of similar material broken to 25 mm gauge and finished with a 10-tonne smooth-wheeled roller. The surface so obtained shall be to the Engineer's approval.

Compacted hardcore

The sub-grade shall be compacted by a smooth-wheeled roller of 8 to 10 tonnes weight or the vibrating roller of minimum 1300 Kg., or other approved plant. The number of coverage shall be at least 10 and there shall be a 50% overlap of successive coverage. If so instructed by the Engineer, water shall be added during compaction to obtain optimum water content. Filling shall be compacted as above but in maximum 200 mm deep layers.

Sand

The sand shall be as described for fine aggregate but that for plastering shall be light in colour and well graded to a suitable fineness in accordance with the nature of work in order to obtain the finish directed.

Finishes

General

The Contractor will be required from an early stage in the Contract to prepare samples, for the approval of the Engineer, of the various concrete finishes specified hereafter. Samples are to be prepared using the same materials and the same methods of construction, compaction, curing, etc. as the Contractor proposes to use for executing the full quantity of the work. A record of the mix, water content, method of compaction, any additives used, etc., is to be kept for each sample prepared. When the Engineer has approved a sample it will be kept on site in an approved location. The finishes in construction will be expected to be up to a standard equal to the approved sample. Consistency in cement colour, and the colour, grading and quality of aggregates must be maintained in all finished concrete work.

Mortars

Cement mortar shall consist of one part of Portland cement to three parts sand by volume. The cement/lime mortar shall consist of one part of Portland cement, one part of lime and six parts of sand by volume.

The ingredients of mortar shall be measured in proper gauge boxes on a boarded platform, the ingredients being thoroughly mixed dry, and again whilst adding water. In the case of cement/lime mortar, sand and lime shall be mixed first and then the cement added.

All mortar is to be thoroughly mixed to a uniform consistency with only sufficient water to obtain a plastic condition suitable for toweling. No mortar that has commenced to set is to be used or re-mixed for use.

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.

Fair face

Fair face surfaces shall be clean, smooth, even, true to form, line and level, and free from all board marks, joint marks, and honeycombing, pitting, and other blemishes. Forms are to be provided with a smooth lining of plywood, steel, or other approved material which will achieve the required finish without any general rubbing down. Rubbing down will only be permitted to remove any projecting fins at corners or joints.

Fine face

Fine face surfaces shall be for Fair face above, but to a higher standard obtained from forms provided with an impervious sheet lining of metal or plastics faced plywood in large panels arranged in an approved pattern. Rubbing down shall only be permitted after an inspection by the Engineer. The finished surfaces shall be capable of receiving a painted finish.

Chisel-dressed finish

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 by shearing and exposing the aggregate without excessive cracking of the surrounding matrix. Arises of columns, beams, etc., are pre-formed fair face with timber fillets set in the formwork and care must be taken in working up to these 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. All surfaces requiring this treatment are to have 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 plane surface is achieved. The use of sharply 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.

Protection of finishes

Wherever possible, in-situ exposed concrete finishes should be commenced at the highest level and worked progressively down the building. Precaution shall be taken to avoid staining or discoloration of previously finished concrete faces by leakage of grout from newly placed concrete. The Contractor shall, during all stages of construction, adequately protect all concrete finishes from Damage by leaking grout, knocking, paint stains, falling plaster, etc. In cases of balustrade walls to staircases and members where Damage is otherwise likely, concrete

finishes shall be protected by cladding with timber, celotex, or other approved sheeting. All Sub-Contractors shall be informed accordingly on the precautions to be taken.

Blinding

All blinding concrete to be 1:3:6, or as otherwise instructed by the Engineer in writing.

Formwork

The method and system of formwork which the Contractor proposes to use shall be approved of by the Engineer before construction commences. Formwork shall be substantially and rigidly constructed of timber or steel or pre-cast concrete or other approved material.

All timber for formwork shall be good, sound, clean, sawn, well-seasoned timber, free from warps and loose knots and of scantings sufficiently strong for their purpose.

Construction of formwork

All formwork shall be of sufficient thickness and with joints close enough to prevent undue leakage of liquid from the concrete and fixed to proper alignment, level and plumb and supported on sufficiently strong bearers, shores, braces, plates e.t.c. properly held together by bolts or other fastenings to prevent displacement, vibration or movement by the weight of materials, men and plant on same and so wedged and clamped as to permit easing and removal of the formwork without jarring the concrete. Where formwork is supported on previously constructed portions of the reinforced concrete structural frame, the Contractor shall by consultation with the Engineer ensure that the supporting concrete is capable of carrying the load and/or sufficiently propped from lower floors or portions of the frame to permit the load to be temporarily carried during construction.

Soffits shall be erected with an upward camber of 5 mm for each 5 meters of horizontal span or as directed by the Engineer.

Great care shall be taken to make and maintain all joints in the formwork as tight as possible, to prevent the leakage of grout during vibration. All faulty joints shall be caulked to the Engineer's approval before concreting. The formwork shall be sufficiently rigid to ensure that no distortion or bulging occurs under the effects of vibration. If at any time the formwork is insufficiently rigid or in any way defective the Contractor shall strengthen or improve such formwork as the Engineer may direct.

The Contractor's attention is drawn to the various surface textures and applied

finishes required and the faces of formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish.

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.

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 sawdust, nails, chips 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. 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, and made good to the requirements of the Engineer. Any voids or honeycombing shall be treated as described in "Faulty Concrete".

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 and 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	2 days
Slab Soffits (props left under)	3 days
Beam Soffits	7 days
Removal of props (partly subject to 7 days concrete cube strength being satisfactory) to:	
Slabs	10 days
Beams	14 days
Cantilevered Beams and Slabs	28 days

If the Contractor wishes to take advantage of the shorter stripping times permitted for beams and slab soffits when props are left in place, he must so

design his formwork that sufficient props are agreed with the Engineer can remain in their original positions without being moved in any way until the expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted.

The above times may be reduced in certain circumstances, at the discretion of the Engineer provided an approved method is adopted at the Contractor's expense to ensure that the required concrete strength is attained before the forms are stripped.

Solid strips in composite slabs shall be considered as beams. The tops of retaining walls shall be adequately supported with stout raking props at intervals required by the Engineer. These props are not to be removed until 7 days after casting of the floor slab is over.

Supporting props to wall and beam soffits

When directed by the Engineer, supporting props to wall and beam soffits are to be left in position until the completion of the whole of the reinforced concrete structure. The props are to be to the approval of the Engineer and the Contractor must submit the suggested method of propping to the Engineer prior to removal of formwork to the relevant surfaces.

Concrete mixes

Concrete to be used shall be of the classes specified in "Ministry of Works standard Specification" Section 17.

Class	**Nominal mix**	**Trial Strength in N/mm2**		**Where used in this Contract**
		7 day	28 day	
15	1:3:6	13	19.5	Surround to pipes
25	1:2:4	25	32.5	Structural concrete, walls

Concrete mixing and placing

The concrete shall be mixed only in approved power-driven mixers of a type and capacity suitable for the work, and in any event not smaller than 0.04/0.28 cu.m. capacity. The mixer shall be equipped with an accurate water measuring device. All materials shall be thoroughly mixed dry before 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 material 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 may be carried out and shall be in accordance with B.S. 1881. The Contractor shall provide the necessary apparatus and carry out such tests as are required. 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.

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 sections being 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 discarded from the mixer direct either into receptacles or barrows and shall be distributed by approved 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 prior approval of the Engineer.

Concrete shall be placed from a height not exceeding 1,500 mm 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 1,500 mm deep in the walls and similar members.

Concrete in columns may be placed to a height of 4 meters with careful placing and vibration and satisfactory results. Where the height of the column exceeds 4 meters suitable openings must be left in the shutters so that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of the approved extent. At the completion of a specified or approved part a construction joint of the form and in the positions hereinafter specified shall be made. If stopping of concrete be unavoidable elsewhere, a construction joint shall be made where the work is stopped. A record of all such joints shall be made by the Contractor and a copy supplied to the Engineer.

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed. The Contractor shall provide runways for concreting to the satisfaction of the Engineer. Under no circumstances will the runways be allowed to rest on the reinforcement. 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 work. Where concrete is laid on hardcore or other absorbent materials, the base shall be suitable and sufficiently wetted before the concrete is deposited.

Works cube tests

Work cubes are to be made at intervals as required by the Engineer in accordance with C.P. 114, and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150 mm moulds in strict accordance with the Code of Practice. Three cubes shall be made on each occasion. Each cube shall be marked with a distinguishing number (numbers) to run consecutively and the date, and a record shall be kept o site giving the following particulars:-

Cube No.
Date made
Location in work
7-Day Test, Date, Strength
28-Day Test, Date, Strength

Cubes shall be forwarded, carriage paid, to an approved Testing Authority, in time to be tested two at 7 days and the remaining one at the discretion of the Engineer. No cube shall be dispatched within three days of casting. Copies of all Works Cube Tests shall be forwarded to the Engineer and one shall be retained on site. If the strengths required above are not attained and maintained during 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 Works Cube Tests.

Compaction

At all times during which the 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. Concrete shall not be placed at a rate greater than will permit satisfactory compaction or to a depth greater than 400 mm before it is compacted.

During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous tamping, spading, slicing and vibration. Vibration is required for all concrete of classes 40, 35, 25, and 20. Care shall be taken to fill every part of the forms, to work the concrete under and around the reinforcement without displacing it to avoid disturbing recently placed concrete which has began 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 be of a frequency not less than 7000 cycles per minute and shall have a rotating eccentric weight of at least 0.05 Kg. with an eccentricity of not more than 12 mm. Such vibrators shall visibly affect the concrete within a radius of 250 mm from the vibrator. 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 the vibrators and reinforcement, and vibrators and formwork shall be avoided. Internal vibrators shall be inserted vertically into the concrete at not more than 500 mm centers and shall be moved constantly 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 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 no more than 1200 mm centers. In addition to internal and external vibration the upper surface of suspended floor slabs shall be leveled by tamping or vibrating to receive finishes. Vibrating elements shall be of the low frequency high amplitude type operating at a speed of not less than 3000 r.p.m.

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 Hessian sacking, polythene sheeting, or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least 7 days after the concrete has been placed. The Contractor will be required to provide complete coverage of all fresh concrete for a period of 7 days. Hessian or 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, Hessian or other materials in small pieces.

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

Faulty concrete

Any concrete which fails to comply with these specifications, or which shows signs of setting before it is placed shall be taken out and removed from 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 an inspection and issued instructions for the repair. The whole cost whatsoever, which might be occasioned by the need to remove faulty concrete, shall be borne by the Contractor.

Pre-cast units

Pre-cast reinforced concrete slabs to be made to sizes as shown in the Drawings. Slabs to be cast with Grade 25 concrete in approved formwork, suitably vibrated and cured for 28 days before use.

REINFORCEMENT

Steel

Reinforcement shall be;

Plain round mild steel or high yield steel bars conforming to B.S 4449
Cold worked steel bars conforming to B.S 44461, or
Fabric reinforcement conforming to B.S 4483

The con tractor shall obtain from his supplier s certificate of the mechanical and physical properties and shall submit the to the Engineer for approval

General Reinforcement

The following clauses concerning joints give details of reinforcement required at such locations. This clause deals with other reinforcement in external road and drainage slabs.

The top reinforcement layer shall have 50 mm cover unless otherwise permitted and shall terminate 40-80 mm from edges and joints. Mesh fabric shall have main bars longitudinal.

At transverse laps between sheets of mesh fabric the first transverse bar of one sheet shall lie within the last complete mesh of the previous sheet. No overlap will be required longitudinally between sheets.

Unless detailed otherwise, all corners of box-outs for manholes etc. shall be provided with 12 mm bars 1200 mm long across and bisecting the corner angle in the slab where that angle exceeds 40°. These bars may lie on any top reinforcement, which may be depressed locally to maintain cover to these crack control bars. In unreinforced slabs such bars shall have 50 mm cover.

Similarly at corners of slabs having no load transfer bars to other slabs, 10 mm bars shall be positioned to prevent cracking across the corner. At a 90_o corner one bar shall be L-shaped with equal 1500 mm legs with hooked ends. A similar V-shaped bar with an internal angle of 30° shall be placed to bisect the corner angle with its apex also in the corner.

Bending and placing reinforcement

Reinforcement shall be cleaned before placing and secured with space blocks in the correct position. It shall be bound with suitable wire and have such cover as shown on the drawings.

Strength of reinforcement

Characteristic strengths of reinforcement are as given in B.S. 4449, 4461, and 4483. **Rod reinforcement**

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

Hot Rolled bars for the Reinforcement of concrete	to B.S. 4449 (metric units)
Cold worked steel for the reinforcement of concrete	to B.S. 4461 (metric units)

The Contractor will be required to submit a test certificate of the rollings. Reinforcement shall be stored on racks above ground level. 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 the concrete.

BRC

The BRC should be electrically cross-welded steel wire mesh reinforcement to B.S. 4483: 1969, or as directed by the Engineer, and of the size and weight specified in the Drawings.

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

Fixing reinforcement

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and in accordance with B.S. 4466 (1969). Reinforcement must be cut and bent cold and no welded joints will be permitted, unless so detailed. Reinforcement shall be accurately placed 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. No concreting shall be commenced until the Engineer has inspected the reinforcement in position and until his approval has been obtained and Contractor has given two clear days' notice of intention to concrete.

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 to adjust and correct the position of any reinforcement which may be displaced. The vibrators are not to come into contact with the reinforcement.

Position and correctness of reinforcement

Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as in C above, it shall be the Contractor's sole responsibility to ensure that the reinforcement complies with the details on the Drawings and is fixed exactly in the positions shown therein and in the positions to give the prescribed cover. The Contractor will be held entirely responsible for any failure 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.

Concrete cover to reinforcement

Unless otherwise directed, the concrete cover to rod reinforcement over main bars in any face shall be:-

Foundations against blinding	50 mm
Strip foundations	40 mm
Columns/Floor slab	40 mm
Beams	25 mm

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.

Fixtures

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 position of all electrical conduits 25 mm and over in diameter shall be submitted to the Engineer for his approval before being placed.

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 and holes in concrete members as required and must ensure that adequate notice is given to such Sub-Contractors informing them when concrete 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. Unless otherwise instructed by the Engineer, all electrical conduit to be positioned within the reinforced concrete shall be fixed

inside the steel cages of beams and columns and between the top and bottom steel layers in the slabs and similar members.

The proposed position of all electrical conduits 25 mm and over in diameter which are to be enclose 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.

PIPEWORK

HDPE pipes and fittings

HDPE pipes and fittings shall comply with **BS EN 12201 / SABS.**

HDPE pipes upto 50-mm diameter shall be jointed with solvent cement joints in accordance with the manufacturer's instructions. Pipes having diameter larger 50 mm shall be jointed using approved flexible mechanical joints.

All tees, reducers, sockets flange etc. of any diameter are to be jointed to pipes with solvent cement joints.

All jointing and laying of HDPE pipes and fittings shall be carried out strictly in accordance with the manufacturer's instructions.

Steel pipes

Steel pipes shall be to BS 3601

Sluice valves

Flanged sluice valves shall confirm to BS 1218 or B.S 5163 whichever is applicable

Sluice valves shall have heads for key operation unless otherwise stated.

Valves shall be securely fixed with the spindle in vertical position, unless otherwise stated. They shall be checked for ease of operation and water tightness. Valve glands shall be repacked if necessary.

Unless otherwise stated, sluice valves should be able to withstand the working pressure of the class of pipe adjoining the valve.

All sluice valves shall be double flanged, with flanges faced and drilled and to conform to the manufacturer's dimensions or those specified in B.S 4504.

All sluice valves shall be suitable for opening and closing by manual operation against the unbalanced heads stated in meters water column.

Air valves

Air valves shall be of cast iron conforming to BS 1452, grade 14. They shall be suitable for working pressures not less than the specified for the class of pipe specified. To which they are connected.

Air valve shall be of the single acting type for the automatic admission and discharge of either large quantities of air during emptying or filling or small quantities of air under pressure during normal working condition of the pipeline.

Each air valve shall be complete with an isolating valve and cork.

All double orifice air valves shall be flanged. Flanges shall be faced and drilled and shall conform to the dimensions specified in B.S 4504 table for NP 10 unless otherwise stated.

All double orifice air valves shall be supplied drilled with a 20. Dia. Hole tapped pipe. Thread suitable for fixing of pressure gauge hole shall be fitted with brass screwed plug and copper compression ring casket.

Manufacturer's instructions.

The Contractor shall be responsible for obtaining copies of any manufacturer's instructions for pipes jointing and shall familiarizes himself and his employees with these instructions.

All necessary tools and equipment required for the laying, jointing and testing of pipes and joints shall be provided by the Contractor at no extra costs.

Step Irons

Step irons shall be galvanized malleable iron and shall comply with B.S 1247.

Surface Boxes

Surface boxes shall confirm to B.S 1426.

Trench excavation.

Excavated material shall be placed tidily and compactly at the sides of the trench so as to occupy as little space as possible and to create as little nuisance as possible.

The bottom of the trench shall be absolutely smooth and completely free from stones and sharp objects so as to ensure that the pipes rests uniformly upon original ground throughout its length.

Backfilling with excavated material beneath the pipe at low spots will not be permitted. Excavation below the bottom of the trench at pipe joints must be kept to a minimum.

If the bottom of the trench materials that is unsuitable for pipelaying, the Engineer may instruct the Contractor to excavate below formation level and backfill to formation with suitable approved material properly compacted.

No pipe laying is to take place until the bottom of the trench is carefully examined by the engineer's representative.

Minimum trench depth

The minimum depth for pipe trenches shall be that which provides a cover of 600 mm above the top of the pipe.

Backfilling in pipe trenches

Backfilling around the pipe and to a height of 300 mm above it is to be carried out by using material that is free from stones and carefully compacted in layers not exceeding 150 mm thick.

Backfill to trenches shall be properly compacted and subsequent subsidence shall be the Contractor's responsibility and shall make it good at his own expense.

All topsoil shall be kept aside during excavation and be replaced after backfilling.

All surplus material from the excavations shall be disposed.

Removal of timbering

All timbering materials shall be removed from trenches before or during backfilling unless, in the opinion of the Engineer, its removal will cause any subsidence in which case he may instruct the Contractor to backfill leaving the timbering in place.

Reinstatement

Immediately backfilling of trenches as been completed, temporary reinstatement of the ground surface shall take place.

When in the opinion of the Engineer's representative a suitable period as elapsed after the temporary reinstatement and expects no further settlement, he shall allow the Contractor to carry out the permanent reinstatement. This shall in any way relieve the Contractor of his responsibility for the reinstatement and, should any further unforeseen settlement take place, the Contractor will be required to make good the reinstatement at his own expense.

Permanent reinstatement means the ground surface shall be restored to its original form and condition.

Handling and storing pipes

Particular care shall be taken during loading, unloading, handling and transportation to avoid distortion, flattening, denting, scoring or any damage to external or internal coating, sheathing or lining of the pipes, fittings, etc.

Pipes shall be stacked clear of the ground on the timbers of adequate dimensions to prevent damage to the pipes and successive tiers shall be

separated by timber of similar dimensions. Wooden wedges shall be fixed to these timbers to prevent the wedges from rolling.

Fittings etc. shall be stacked clear of the ground on timbers not more than 1 tier high.

All valves rubber joint rings, gaskets, nuts, bolts, washers and similar fittings shall be stored in approved locked premises and shall not be distributed to the trench until immediately prior to fixing. All rubber joint rings and gaskets must be stored in a cool place.

All HDPE pipes and fitting should be stored under cover and protected from the weather to the satisfaction of the Engineer.

Examination of pipes

Before laying each pipe must carefully be examined for damage. Any defects in the external coating or internal lining shall be made good. The pipes shall be carefully examined for cracks or chipped ends. Damaged ends shall be cut off beyond the damaged area and machined true.

All pipes shall be cleaned internally before laying.

Laying of pipes

All pipes shall be laid strictly to the lines, levels and gradients as shown on the drawings unless where otherwise directed by the Engineer.

Mains shall be boned to even gradients using site rails no dips or bumps permitted.

All pipes shall be solidly bedded on the trench bottom. Joint holes shall be as small as possible and filled in compactly before the refilling of the trench commences.

The Contractor shall make full allowance for all cuttings and jointing of pipes.

Surface water

No surface water or other extraneous matter shall be allowed to enter the pipes during or after laying. Should this happen, the Contractor shall arrange for the necessary cleaning of the pipe at his own expense.

Painting of exposed pipes, valves, fittings and metalwork

All pipes, valves, tubes, manhole covers and the like, that are left exposed to the air at river crossings, in manholes, chambers etc., except where galvanized,

shall be thoroughly cleaned and painted with two coats of approved bituminous paint after erection.

Testing of pipes

All pipes and apparatus that are to contain water under pressure shall be tested to the working pressure plus 50 %. If the pipes are in the trench they shall be backfilled for the two thirds of the distance between joints, leaving joints exposed. The fill shall be a minimum of 450mm deep.

Testing shall take place in the presence of the Engineer's representative as the work proceeds, test lengths being approved by the Engineer. The maximum length of the pipe laid without pressure testing must not exceed 3 km.

Pipes shall be securely anchored and pipe ends shall be closed by means of caps or blank flanges. Sluice valves shall not b used at the end of a test length.

The Contractor shall give the Engineer's representative a minimum of 24 hours notice of his intention to carry out a test.

All water, materials and apparatus for carrying out the tests are to be provided by the Contractor at no extra cost.

The procedure for testing is as follows.

The test length shall be filled with water and brought to the required test pressure by means of a pressure pump. When the required is obtained, indicated by an approved pressure gauge, the pump shall be disconnected, and the pressure of the water watched for a period of 60 minute, any drop in pressure being carefully monitored.

If there is a drop in pressure at the end of the 60 minutes period, the pump should be reconnected and the test pressure re-established. The pump should then be disconnected and the pressure lowered immediately by bleeding off the water from the mains through a tap into a container. When the pressure reaches the same pressure that was indicated at the end of, the 60 minutes test period, the tap is closed and the amount of water collected in the container is measured. This amount of water is the leakage and for the test to be successful must not be greater than the "allowable leakage" as calculated below.

$$\text{Allowable leakage (litres)} = \frac{dxlxp}{1{,}227{,}000}$$

Where d -diameter of pipe (mm)
-length of pipe under test (m)
p-average pressure in pipe (m).

If the test fails, it is the Contractor's responsibility to locate the leak and remedy it so that the pipeline passes the test.

Sterilisation

Treated water mains should be washed out and sterilised before being put into service. Sterilisation should consist of introducing water containing a quantity of chlorine such that there is a concentration of chorine throughout the mains at not less than 30 parts per million. This solution is to remain in the pipeline for a period of 24 hours after which the main shall be thoroughly flashed out with water to be used for the supply.

The inside of water retaining structures shall, after being thoroughly cleaned, be filled to overflow level with water containing 20 parts per million of chlorine and left for at least 24 hours before flushing out.

After flushing, bacteriological samples of water shall be taken in accordance with the Engineers instructions. If any of the samples proves to be inferior to that of the supply water, the sterilization and flushing shall be repeated.

All costs of sterilization shall be the Contractor's responsibility. The cost of sampling and testing shall be the responsibility of the employer if successful but if not shall be borne by the Contractor.

Concrete surround for pipes

Bed the draw off pipe and surround it with Class 15 concrete as specified. The sequence of work will involve:

Lay the Concrete bed

Lay, and joint the pipes on the Concrete bed.

After the pipes have been tested complete the Concrete surround.

Penstock

All penstock shall be of the flat back type and shall be drop tight went tested to a minimum face pressure of 1.0 bar

Penstock frames and doors are to be of best quality cast iron complying with B.S 1452 with two annular gunmetal sealing faces on frame and door. The gunmetal shall comply with the requirement of B.S 1400

All screw penstocks shall be provided with mild steel spindle screwed fro ant-clockwise opening and running in a gunmetal nut housed in a suitable head

gear which shall have hand wheel for operation. The extended spindle shall be of cadmium plated mild steel with protection tubes; wherever there lengths so required steadying brackets shall be provided

All penstock shall be supplied complete with all necessary nuts, bolts or studs and washers for fixing in position.

All headstocks shall have forged steel rod and be complete with gunmetal index pointer working over polished and graduated gunmetal indicator plate fixed to the side of the pillar. The distance from the base to the centre of the operating hand shall not be less than 0.8m.

BUILDING'S WORKS

Damp proofing

Damp proof courses shall protrude beyond the outer face of the wall for a minimum of 25 mm, the last 10 mm of which shall be turned down on an approved profile to form an anti-ant lip. The material shall be laid on a cement screed trowelled smooth. At all angles, intersections etc. the material must be lapped not less than 75 mm.

A damp proof membrane of 500 gauge polythene shall be laid under floor slabs where indicated on the Drawings or directed by the Engineer and shall have laps of not less than 200 mm at all joints.

Bonding to concrete

All doorframes shall be fixed with holdfasts screwed to the frames one end and built into blockwork or concrete at the other end. Alternatively, holdfasts may be formed as an integral part of metal doorframes. Doorframes shall have three holdfasts at each side.

The holdfasts shall be of 6 mm x 25 mm galvanised wrought iron 200 mm long, one end turned up, twice drilled and countersunk for screwing to frames with stout screws and the other end formed swallowtail for building into brickwork etc.

Bonding ties shall be of 6 mm x 15 mm galvanised wrought iron 150 mm long with both ends formed swallowtail for building into blockwork, etc.

Blockwork walling

Blocks for walling shall be properly bonded together and in such manner that no vertical joint in any one course shall be within 100 mm of a similar vertical joint in the courses immediately above or below.

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 walling shall be built strictly true and square.

The blocks shall be bedded and jointed in 1:3 cement/sand mortar with beds and joints not more than 20 mm or less than 12mm thick, all flushed up and grouted solid as the work proceeds. All walling shall be properly protected as the mortar is setting.

Ends of lintels, sills, joints, roof trusses, etc. shall be built in and bedded solid in mortar. They shall bear 300 mm on supports and shall be cast with a recessed throating under the front edge. Block walls shall be pinned up to the underside of concrete beams and slabs with cement.

Timber frames shall be built in with holdfasts and bedded solid and pointed both sides in cement mortar. Lugs of window frames shall be built in or cut and pinned to blockwork. Frames shall be bedded solid in mortar and pointed in approved mastic

applied with a caulking gun externally.

All holes for pipes, electrical conduits, etc. mortises for bolts, dowels, etc. shall be cut or formed grouted up in cement and made good.
Horizontal reinforcement consisting of approved fabric shall be provided in every third course to span between the vertical block reinforcement. A proprietary wall reinforcement system may be used with the Engineer's approval.

At corners and junctions of walls, all horizontal reinforcement shall be lapped 300mm. The cavities of the blocks shall be filled with 1:3 cement/sand mortar around a mild steel reinforcing bar.

External faces of blockwork shall be rendered with 12 mm thick 1:5 cement/sand mortar to BS 5262 with a woodfloat finish.

Internal faces of blockwork shall be plastered to BS 5492 with an undercoat to suit the blockwork surface. The total thickness shall be 20 mm.

Openings through walls shall be formed to the net size required and rendered smooth in cement mortar. Where openings occur in cavity walls the wall shall be built solid all round the opening.

Painting

Delivery and storage

All materials are to be delivered to the site in the manufacturers' original containers with seals unbroken and are to be clearly marked with the manufacturer's name or trade mark and a description of the contents, colour or pattern, and, if applicable, the conditions for storage and the date by which they shall be used.

All materials are to be stored at Site in accordance with the manufacturer's directions and to the satisfaction of the Engineer.

Materials samples and tests

During the course of the work, the Engineer may take samples of any of the paints, varnishes, stains or sealers, either from the sealed or open containers, before or during use.

When requested by the Engineer to do so, the Contractor shall submit samples for testing in accordance with BS 3900. The costs of such test, including transport and incidental costs, shall be borne by the Contractor if the results show non-compliance with the Specification.

Any work executed with materials tested and found not to comply with the requirements of the Specification shall be burnt off or otherwise removed and re-executed as directed by the Engineer.

Workmanship

Before painting, varnishing, staining or sealing is commenced; every possible precaution shall be taken to keep down dust.

During the execution of painting and decorating work, the Contractor shall take all necessary precautions to protect the health and safety of the workmen, including provision of washing facilities. The Contractor shall comply with all statutory rules and regulations affecting the trades engaged on the work.

Only skilled workmen shall be employed. A properly qualified foreman shall be constantly in attendance on the work while it is proceeding.

All brushes tools and containers used in carrying out the work shall be clean and free from foreign matter and shall be thoroughly cleaned before being used for a different type of material.

An ample supply of dustsheets shall be provided to protect the work as it proceeds.

Unless the manufacturers instruct otherwise, all liquid materials shall be thoroughly stirred before use. Where necessary the liquids shall be strained to remove any skin before application.

All containers shall be kept securely covered with tight fitting lids when not in use.

No dilution of liquid materials will be allowed, except as recommended by the manufacturer or as otherwise permitted by the Engineer.

The Contractor shall arrange his work so that any treated surfaces to be subsequently covered up shall be treated before they become inaccessible.

The painting work shall be carried out in accordance with BS 6150 and all painting varnishing, staining or sealing shall be executed in dry conditions when relative humidity is less that 80%. No such finishes shall be applied to surfaces structurally or superficially damp and all surfaces must be ascertained to be free from condensation, dust, oil or any other foreign matter before application of each coat.

The tints of undercoats are to approximate to those of the finishing colour but in order to indicate the number of coats applied, a difference is to be made in the shade of each succeeding coat.

Primed or undercoated work shall not be left in an exposed or otherwise unsuitable situation for too long a period before completing process.

Rubbing down before application of the final coats shall be by means of the wet process with waterproof glass paper. Preliminary coats of paint shall be lightly rubbed down with fine sandpaper before the next coat is applied.

Finishing coats shall be applied evenly over the whole surface to give a solid film free from brush marks, sags, runs, orange peeling or other defects.

The Contractor shall clean down all paintwork on completion, remove all marks due to spill and leave all painted surfaces to the complete satisfaction of the Engineer.

Samples of workmanship and colour

The Contractor shall prepare samples of the different finishes on the appropriate backing material, with the correct priming and undercoats where applicable, for acceptance by the Engineer, including alternatives as directed. These samples shall be prepared at least twenty-eight days before commencement of the actual work.

Preparation of surfaces

General

All surfaces shall be thoroughly prepared and shall be clean, free from loose dirt or other impurity. No paint shall be applied until all surfaces are thoroughly dry.

Preparation of the different materials to receive decorative and protective finishes shall be as specified below.

Concrete and concrete blockwork

Surfaces shall be brushed down thoroughly to remove all dust and loose material. Mortar droppings and nibs shall be removed and defects made good.

Efflorescence shall be brushed off as it appears and all decoration deferred until it ceases.

Plaster and rendering

Surfaces shall be brushed down to remove loose material and dust. The surface shall be washed, where directed, with a minimum of warm water and detergent, and allowed to dry.

Minor defects, cracks and holes, after cutting out as necessary, shall be made good and rubbed down flush with the surrounding surface.

Efflorescence shall be brushed off as it appears and all decoration deferred until it ceases.

Hardwood

All surfaces shall be rubbed down smooth with fine abrasive, and dusted off. No further preparation is required for wood to be stained or clear sealed.

Iron and steelwork

Bare iron and steelwork to be painted shall be thoroughly prepared by removing all grease, dirt, rust and loose mill scale.

All tools shall be operated in such a manner that no sharp ridges or burrs are left and no cuts made in the steel.

Dust and other loose material shall be removed after cleaning. Oil and grease shall be removed with white spirit.

The priming coats shall be applied before any contamination or rusting occurs.

If the surfaces have been exposed to salt spray laden winds or to atmosphere polluted with chemicals, they shall be thoroughly washed with fresh water and allowed to dry before priming.

Steelwork delivered primed is to be thoroughly washed down to remove all dirt and grease. All defective paint, damaged, blistered, crazed or not firmly adhering, etc. shall be removed by scrapping back to a firm edge or, if necessary, the surface shall be completely stripped. All such areas shall be patch-primed immediately upon delivery. Areas damaged during erection shall be similarly dealt with.

Galvanised iron and steel

Galvanised iron and steel surfaces shall be thoroughly cleaned to remove all grease, dirt, dust etc.

Priming

General

Before priming, painting, varnishing, staining or sealing is started; all possible precautions shall be taken to keep down dust.

All metal fittings and fastenings shall be removed before the preparatory processes are started. They shall be cleaned and refixed in position on final completion of the work.

Special priming

Unless the paint manufacturer recommends otherwise the following materials shall receive special priming:

Cement based surfaces, such as concrete, fair face blockwork and brickwork, render and plaster, and asbestos free boards containing cement which are to receive oil based paints, shall be treated with an alkali-resistant primer.
Galvanised iron and steelwork shall be treated with calcium plumbate or a two-pack etching primer.
Copper shall be treated with a suitable etching primer.
Hardwood shall be treated with aluminium primer.
The smooth face of hardboard shall be treated with specially formulated hardboard primer.

All uncoated iron and steelwork cleaned of rust, millscale, etc., in preparation for painting shall be primed within twenty-four hours of preparation whether at the works or on Site.

Painting

Concrete surfaces are to receive one coat of undercoat and two coats of approved plastic emulsion.

Iron and steelwork are to receive one coat of red lead primer, two coats of undercoat and one coat of high gloss finish.

All wooden surfaces are to be primed with aluminium wood primer and are to receive two coats of exterior grade undercoat and one coat of exterior or interior, as appropriate, high gloss finish.

Plumbing

Galvanised malleable iron brackets shall be used for fixing galvanised steel pipes up to 50 mm diameter. Pipes larger than 50 mm diameter shall be fixed with galvanised iron or brass hinged holderbats. For fixing to timber, stout galvanised pipe clips screwed to the timber shall be used.

Drainage pipes shall be encased with 150 mm surround of Class C20 concrete beneath floor slabs.

Workmanship in timber

All joiner's work shall be wrought and finished with a clean even and smooth surface, arises straight and cleanly cut, and all to be properly framed together, single or double mortised, and tenoned, housed, dovetailed or fitted with all proper and suitable joints whether these are shown on the Drawings or not, and all joints shall be fitted without stopping, the whole being glued, feathered, tongued and fixed with screws, nails etc. all detailed on the Drawings or as approved by the Engineer and in accordance with the best class of workmanship.

Adhesives used for timberwork shall be synthetic resins of the phenol and amenoplastic type BR in accordance with BS 1204 Parts 1 and 2.

Nails for joinery shall be oval lost head nails.

Screws shall be countersunk wood screws. Steel screws shall be used only in concealed positions, or where the work is to be painted, elsewhere brass shall be used. Steel screws in contact with aluminium shall be dipped in zinc chromate solution before fixing. Ironmongery is to be fixed with screws of the same metal, except for aluminium, which shall be fixed with chromium, plated brass screws.

All joinery shall be properly protected from injury or from weather by casing wherever required.

Wooden doors

General

The materials used in the construction of wooden doors shall be in accordance with BS Doors shall be obtained from an approved manufacturer and the details and methods of construction shall be to the Engineer's approval.

Flush doors

Flush doors shall be 45 mm thick overall, faced both sides with 4mm plywood and lipped on all edges with 10 mm thick hardwood. External doors shall be faced both sides with exterior quality plywood and assembled with waterproof adhesive to type MR of BS 1203. Suitable blocking pieces for door furniture shall be built in. Glazed vision panels shall be inserted as shown on the Drawings and shall be to the approval of the Engineer.

Cupboard doors shall be as above but 40mm thick overall.

Door and window furniture

Each door shall be provided complete with all hinges, handles, locks, three keys per lock, bolts, doorstops etc. and all necessary screws, bolts and other fixings. Double leaf doors shall be provided with barrel bolts top and bottom of the first closing leaf, complete with flush mounted floor socket, and handle for the top bolt extended to 2.0 m above floor level.

Windows shall be provided with all necessary hinges, fasteners, locks, catches, stays, etc.

Glazing

Glazing shall be clear or obscured glass, set in metallic putty and shall be subject to the approval of the Engineer. Clear glass shall be used for all windows except in toilets or as otherwise directed by the Engineer. Glazing shall be carried out in accordance with BSCP 152 "Glazing and fixing of glass in buildings", and the window manufacturer's instructions.

Proprietary sheet metal roofing

The fixing of all proprietary roof sheeting, etc. shall be in accordance with the manufacturer's details and as shown on the Drawings.

Bituminous felt roofing

Bituminous roofing felt shall be laid in accordance with BSCP 144 Part 3. Before laying roofing felt the underlying concrete surface shall have any cracks and expansion joints

sealed with a bituminous patching compound. A slip membrane comprising one layer of one ply roofing felt shall be laid and adhered to the concrete at all edges.

Two underlayers of two ply roofing felt shall be applied with 100 mm overlaps between strips, bonded with bitumastic compound at all edges. The overlap joints between successive layers shall be staggered to half the strip width.

A surface layer of grey mineralised surface felt of an approved colour, shall be laid with 100 mm overlaps, fully bonded with hot applied bitumen compound.

Guttering

Gutters shall be laid to falls as directed. The general arrangement of the drainage system shall be to the Engineer's approval.

Fencing and gates

Wire and metal posts used in compound boundary fences and gates shall be of galvanised steel to the details shown on the Drawings.

Posts, stays and gates shall be primed with one coat of zinc chromate paint and finished with two coats of oil based aluminium paint.

The whole of the fencing shall be to a pattern approved by the

Engineer. **Ladders**

Unless otherwise indicated permanent ladders shall be of mild steel and shall be in accordance with BS 4211. Rungs shall be 20mm diameter solid round bar and shall be at 300 mm centres. Stringers shall be 65 mm x 10 mm strip set 300 mm apart shall extend 1.0 m above the top rung and shall be turned out at the bottom and drilled for 12 mm holding down bolts. Intermediate and top support stays shall be l00 mm x 100 mm strip, bolted to the stringers with 12 mm bolts and shall be of a length that will give a minimum clearance of 200 mm behind the rungs. Support stays shall have a maximum spacing of 2.5 m.

Ladders exceeding 4.0 m height shall be equipped with a safety cage consisting of hoops of 50 mm x 8 mm strip bent to a diameter of 0.76 m, fixed to the stringers at 0.55 m centres and joined by one additional stringer of 50 mm x 8 mm strip at the maximum distance from the rungs.
All components of ladders shall be galvanised after cutting, drilling and welding and all fixing bolts, nuts washers, etc, necessary to complete the installation shall be provided.

Ladders to insides of water retaining structures shall be galvanised mild steel.

Open mesh steel flooring

Open mesh flooring shall be to BS 4592 and shall be painted black in accordance with

the Specification.

Kicker plates 100 mm high shall be provided round all openings.

Chequer plate flooring

Chequer plate flooring shall be of mild steel and manufactured with diamond chequering or other non-slip pattern. The plates shall be of sufficient thickness not to bend or spring in ordinary usage and shall be fitted evenly and truly into steel angle frames or curbing with suitable attachments for building into concrete flooring.

The plates and frames shall be painted an approved colour in accordance with the Specification.

Handrailing

Handrailing shall consist of 38 mm diameter galvanised steel sections of tubing BS 1387, screwed at each end. The sections shall be joined by 38 mm diameter galvanised steel equal crosses, equal tees or short radius 90_o bends where appropriate, such that the top rail shall be 1 m and the lower rail 0.5 m above the concrete slab, and the spacing between standards shall be 2 m maximum. A 38 mm diameter galvanised steel flange shall be screwed to the base of each standard and drilled for four 20 mm diameter, 100 mm long mild steel rag bolts which shall be cast into the reinforced concrete slab.

All handrailing components shall be galvanised after cutting, screwing and drilling and shall be supplied complete with all bolts, nuts, washers and other fixings necessary to complete the installation.

Removal of anthills

Anthills that come within the area covered by the building and three metres clear all round shall be entirely removed and the queen eradicated. The cavity formed by the removal of the nest must be treated and filled in with approved materials in layers not exceeding 300 mm thick well rammed and consolidated.

Ant proofing

No ant treatment is to be carried out near potable water structures. Otherwise ant treatment is to mean the treatment of the whole of the surface under floors with a solution composed of 5 parts by weight of Pentachlorophenol to 95 parts by weight of furnace oil well mixed together.

The solution is to be applied by means of a watering can with a fishtail spout. It is to be accurately applied at the rate of five litres per square metre of surface.

Before and after the application the surface is to be cleaned free from foreign matter, particularly scrap timber and cellulose material.

Fencing

Details of the types of fencing and gates to be installed under the Contract are included with the Drawings. The Contractor shall, when required provided details of any alternative type of fencing. The Contractor should note that the Engineer is not obliged

to accept the Contractor's alternative proposals, but will not unreasonably withhold consent, provided the Contractor's alternative design is fit for the purpose intended, is demonstrably durable and meets all other requirements of the relevant British Standard.

Fencing shall be strained wire mesh fencing also to BS 1722 except as indicated.

All bolts to fencing shall be burred over.

All posts to be founded in Class E concrete.

All steelwork to fencing shall be galvanised and painted in accordance with the relevant painting specification.

Handrailing

General details of the type of handrailing to be installed under the Contract are included in the Tender Drawings. The Contractor shall, when required, submitted for consideration alternative type of handrailing proposed. The Contractor should note that the Engineer is not obliged to accept the Contractor's alternative proposals, but will not unreasonable withhold consent, provided the Contractor's alternative design is fit for the purpose intended and is demonstrably durable.

Landscaping and miscellaneous works

Stone Pitching

Stone pitching shall be either set in mortar or set dry. Stones shall be sound, tough and durable. No stone shall be less than 200 mm minimum dimension, except that smaller pieces may be used for filling spaces between the larger stones.

Mortar shall be composed of 1 part cement to 4 parts of sand of approved quality.

All pitching shall be set on a backing of free-draining material. No pitching shall be placed until the underlying material has been compacted sufficiently to avoid future settlement. Unless otherwise specified, pitching on embankments shall be supported on a toe wall of stone masonry, approximately 1,000 mm deep x 350 thick unless otherwise instructed.

Commencing at the toe wall, if any, the stone pitching shall be firmly bedded into the underlying material and against the adjoining stones. The stones shall be set by hand with the longest dimension at right angles to the slope, with their surfaces in close contact, and in courses so as to break joint. The spaces between the larger stones shall be filled with spalls securely rammed into place. The finished surface of the pitching shall present an even, tight surface.

Where pitching set in mortar is specified, suitable weepholes shall be formed. Remaining spaces between the stones shall be filled with mortar in such a way as to completely fill the voids. The joints shall be neatly pointed. Pitching set in mortar shall be cured for a minimum period of 4 days by continuous spraying, or by covering with

water-retaining material and keeping wet.

Precast paving

Precast paving slabs shall be in Grade 25/10 concrete with a wood float finish and shall be 50 mm thick unless otherwise shown on the Drawings.

Where slabs are to be laid on original ground, topsoil shall be removed and the subsoil shall be scarified to a depth of 150 mm and compacted to 93% of modified AASHTO density. The Contractor shall remove to a level agreed with the Engineer any locally soft areas where the above compaction cannot be achieved. The excavated material shall be replaced with approved backfill compacted to the above density.

Where slabs are to be laid on sand, the area to be paved shall be trimmed to falls, compacted and overlain with 50 mm of sand which shall be watered and raked to a true surface. The paving slabs shall then be laid and bedded down using a light vibrating-plate compacter. Concrete edge strips shall be provided on the perimeters of such paved areas to prevent loss of sand.

Where slabs are to be laid on concrete bedding, the area to be paved shall be trimmed to falls, compacted and overlain with 75 mm of Class E dry mix concrete. The dry mix concrete shall be spread out dry and raked to a true surface. The paving slabs shall then be laid and bedded down using a light vibrating-plate compacter. Joints between slabs shall be filled and pointed with 1:4 cement:sand mortar.

Topsoil and grassing

The Contractor will be required to complete all surface drainage works and other remedial works indicated by the Engineer ahead of topsoiling and grassing.

Topsoil stockpiled from the Works shall be spread to a minimum depth of 100 mm over the areas to be grassed.

All surfaces to be grassed shall immediately before planting of grass be reduced to a fine tilth free from stones larger than 50 mm.

An approved indigenous star type grass (e.g. Cynodon dactylon, Cynodon niemfuensis (Star grass) and Chloris gayana (Rhodes grass) shall be used for all planting except where the Engineer indicates otherwise. All grass shall be won from areas designated for such use by the Contractor. The Contractor shall ensure that such areas are not made barren by the excessive transplanting of grass runners from such areas. In general the cover of areas used for winning grass runners shall not be reduced by more than 50%. Where, in the opinion of the Engineer, the removal of grass is considered excessive, he will instruct the Contractor accordingly.

Splits (clumps) of the transplanted star grass shall be planted at a grid not exceeding 300 mm in all areas where such grass is required. Where instructed by the Engineer, the

Contractor will be required to apply an approved fertiliser to the grassed areas.

Planting shall preferably be carried out at the beginning of a rainy season and the Contractor will be required to adjust his works programme accordingly. In exceptional circumstances, grassing works will be allowed during the Defects Liability Period for the Works, but the Contractor should expect consequent extended Defects Liability Periods for these areas of the Works.

The Contractor shall care for and water the grass at his own expense until it is firmly established both during the construction and Defects Liability Periods for the Works. Allowance for the following operations considered necessary for the establishment of grassed areas should be made in tender pricing.

Planting

The Contractor shall obtain and plant suitable shrubs and trees as directed and shall provide the same maintenance input during the construction and Defects Liability Period as that provided for grassed areas.
In the case of ground cover plants, the lateral shoots shall be spread out well around the plant as far as shape permits to encourage outward growth.
Climbing plants shall be positioned with the root ball touching the wall/fence, and shoots angled towards the structure to be climbed. Where appropriate, climbing stems shall be lightly trained to climbing frames. All containers, labels, canes and ties shall be removed unless otherwise instructed.
Failure of shrubs and trees due to drought will be the sole responsibility of the Contractor

STRUCTURAL STEELWORK

The whole of the structural steelwork and testing shall comply with the relevant clauses of B.S. 449. The Contractor shall include for the preparation of all shop details from the drawings. All such details shall be approved in writing by the Engineer before the work is put in hand. Every drawing shall show the number and sizes of all rivets and bolts, complete details of welds, type of electrodes, welding procedure, whether the welds are to be made in the shop or elsewhere and any other relevant information. The Contractor shall be responsible for the accuracy of his shop details and for shop fittings and site connections.

The Contractor shall take the dimensions from the structure and he shall verify all dimensions given on the drawings before the work is put in hand.

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

The fabrication and erection of the steelwork shall be carried out in accordance with Part 5 of B.S. 449.