



**ATHI WATER WORKS
DEVELOPMENT AGENCY(AWWDA)**
**MINISTRY OF WATER, SANITATION
AND IRRIGATION (MWSI)**



In partnership with



FRENCH DEVELOPMENT AGENCY

BIDDING DOCUMENTS

for

Procurement of

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

VOLUME I :

- BIDDING PROCEDURES AND BIDDING FORMS
- WORKS REQUIREMENTS
- CONDITIONS OF CONTRACT AND CONTRACT FORMS

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PART 1 - Bidding Procedures

Section I - Instructions to Bidders

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A. General

- 1 Scope of Bid**

 - 1.1 In connection with the Invitation for Bids specified in the Bid Data Sheet (BDS), the Employer, as specified in the BDS, issues these Bidding Documents for the procurement of Works as specified in Section VII - Works Requirements. The name, identification, and number of lots (contracts) of this International Procurement Competition (IPC) process are specified in the BDS.
 - 1.2 Throughout these Bidding Documents:

 - a) The term "in writing" means communicated in written form and delivered against receipt;
 - b) Except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
 - c) "Day" means calendar day.
- 2 Source of Funds**

 - 2.1 The Employer **specified in the BDS** has received or has applied for financing (hereinafter called "funds") from *Agence Française de Développement* (hereinafter called "**AFD**") toward the project named **in the BDS**. The Employer intends to apply a portion of the funds to eligible payments under the contract(s) for which these Bidding Documents are issued.
- 3 Corrupt and Fraudulent Practices**

 - 3.1 AFD requires compliance with its policy regarding corrupt and fraudulent practices as set forth in Section VI - AFD Policy - Corrupt and Fraudulent Practices - Environmental and Social Responsibility.
 - 3.2 In further pursuance of this policy, Bidders shall permit and shall cause its subcontractors and subconsultants, to permit AFD to inspect all accounts, records and other documents relating to any prequalification process, Bid submission, and contract performance (in the case of award), and to have them audited by auditors appointed by AFD.
- 4 Eligible Bidders**

 - 4.1 A Bidder may be a firm that is a private entity, a State-owned entity - subject to ITB 4.3 - 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. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the 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 bidding process and, in the event the JV is awarded the Contract, during contract execution. **Unless specified in the BDS**, there is no limit on the number of members in a JV.
 - 4.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this procurement process, if the Bidder:

 - a) Directly or indirectly controls, is controlled by or is under common control with another Bidder; or
 - b) Receives or has received any direct or indirect subsidy from another Bidder; or
 - c) Has the same legal representative as another Bidder; or

- d) Has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the Bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
- e) Participates in more than one Bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one Bid; or
- f) Has (or any of its affiliates has) participated as a consultant in the preparation of the design or technical specifications of the Works that are the subject of the Bid; or
- g) Has been hired, or is proposed to be hired (or any of its affiliates has been hired, or is proposed to be hired) by the Employer as Engineer for the Contract implementation; or
- h) Has a close business or family relationship with a professional staff of the Employer (or of the project implementing agency, or of a recipient of a part of the funds) who: (i) are directly or indirectly involved in the preparation of the Bidding Documents or specifications of the contract, and/or the Bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to AFD throughout the procurement process and execution of the contract.

4.3 AFD's eligibility criteria to Bid are described in Section V - Eligibility Criteria.

4.4 A Bidder shall not be under suspension from bidding by the Employer as the result of the execution of a Bid—Securing Declaration.

4.5 This Bidding is open only to prequalified Bidders unless **specified in the BDS**.

4.6 A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.

5 Eligible Materials, Equipment and Services

5.1 The materials, equipment and services to be supplied under the Contract and financed by AFD may have their origin in any country subject to the restrictions specified in Section V - Eligibility Criteria, and all expenditures under the Contract will not contravene such restrictions. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.

B. Contents of Bidding Documents

6 Sections of Bidding Documents

6.1 The Bidding Documents consist of Parts 1, 2, and 3, which include all the Sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITB 8.

PART 1: Bidding Procedures

- Section I - Instructions to Bidders (ITB)
- Section II – Bid Data Sheet (BDS)
- Section III - Evaluation and Qualification Criteria
- Section IV – Bidding Forms
- Section V – Eligibility Criteria

- Section VI - AFD Policy – Corrupt and Fraudulent Practices – Environmental and Social Responsibility

PART 2: Works Requirements

- Section VII – Works Requirements

PART 3: Conditions of Contract and Contract Forms

- Section VIII – General Conditions (GC)
- Section IX – Particular Conditions (PC)
- Section X – Contract Forms

6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Documents.

6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Bidding Documents, responses to requests for clarification, the minutes of the pre-Bid meeting (if any), or amendments to the Bidding Documents in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer shall prevail.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its Bid all information and documentation as is required by the Bidding Documents.

7 Clarification of Bidding Documents, Site Visit, Pre-Bid Meeting

7.1 A Bidder requiring any clarification of the Bidding Documents shall contact the Employer in writing at the Employer's address specified in the BDS or raise its enquiries during the pre-Bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than fourteen (14) days prior to the deadline for submission of Bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so specified in the BDS, the Employer shall also promptly publish its response at the web page identified in the BDS. Should the clarification result in changes to the essential elements of the Bidding Documents, the Employer shall amend the Bidding Documents following the procedure under ITB 8 and ITB 22.2.

7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7.4 If so specified in the BDS, the Bidder's designated representative is invited to attend a pre-Bid meeting. The purpose of the meeting will

be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.5 The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Employer not later than one week before the meeting.

7.6 Minutes of the pre-Bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3. Any modification to the Bidding Documents that may become necessary as a result of the pre-Bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to ITB 8 and not through the minutes of the pre-Bid meeting. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder

8 Amendment of Bidding Documents

8.1 At any time prior to the deadline for submission of Bids, the Employer may amend the Bidding Documents by issuing amendments.

8.2 Any amendment issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the amendment on the Employer's web page in accordance with ITB 7.1.

8.3 To give Bidders reasonable time in which to take an amendment into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids, pursuant to ITB 22.2.

C. Preparation of Bids

9 Cost of Bidding

9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

10 Language of Bid

10.1 The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Employer, shall be written in the language **specified in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language **specified in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.

11 Documents Comprising the Bid

11.1 The Bid shall comprise the following:

- a) Letter of Bid and the Bidding Forms in accordance with ITB 12;
- b) Completed schedules as required, including Price Schedules, in accordance with ITB 12 and 14 and as indicated in the BDS;
- c) Bid Security or Bid-Securing Declaration, in accordance with ITB 19.1;
- d) Alternative Bids, if permissible in accordance with ITB 13;
- e) Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
- f) Statement of Integrity, Eligibility and Social and Environmental Responsibility duly signed, in accordance with ITB 12;

- g) Documentary evidence in accordance with ITB 17 establishing the Bidder's continued qualified status or, if post-qualification applies, as specified in accordance with ITB 4.5, the Bidder's qualifications to perform the contract if its Bid is accepted;
 - h) Technical proposal in accordance with ITB 16;
 - i) Any other document **required in the BDS**.
- 11.2 In addition to the requirements under ITB 11.1, Bids 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 Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed Agreement.
- 11.3 The Bidder shall furnish information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.
- 12 Letter of Bid, Statement of Integrity, Bidding Forms and Schedules**
- 12.1 The Letter of Bid, the Statement of Integrity, the Bidding Forms and Schedules, including the Bill of Quantities for unit price contracts or the Schedule of Prices in case of lump sum contracts, shall be prepared using the relevant forms furnished in Section IV - Bidding Forms. The Letter of Bid and the Statement of Integrity must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.4. All blank spaces shall be filled in with the information requested.
- 13 Alternative Bids, Alternative Technical Solutions and Alternative Times for Completion of the Works**
- 13.1 **Unless otherwise specified in the BDS**, alternative Bids shall not be considered. If permitted, the method for their evaluation shall be described in Section III - Evaluation and Qualification Criteria.
- 13.2 **Unless otherwise specified in the BDS**, alternative technical solutions shall not be considered. If Bidders are permitted to submit alternative technical solutions and only for specified parts of the Works, such parts shall be identified in Section VII - Works Requirements. The methods for their evaluation shall be described in Section III - Evaluation and Qualification Criteria.
- 13.3 Bidders wishing to submit alternatives, if permitted under ITB 13.1 and/or ITB 13.2, shall provide all information necessary for a complete evaluation by the Employer, including but not limited to, drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology, evidence of meeting the qualification criteria, the benefits to the employer for selecting the alternative Bid and/or alternative technical solution and other relevant details.
- 13.4 Only one (1) alternative Bid per Bidder may be submitted and only one (1) alternative technical solution for each permitted part of the Works may be submitted.
- 13.5 **Unless otherwise specified in the BDS**, alternative times for completion of the Works shall not be considered. If permitted the method for their evaluation shall be described in Section III - Evaluation and Qualification Criteria.
- 14 Bid Prices and Discounts**
- 14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below.
- 14.2 The Bidder shall submit a Bid for the whole of the Works described in ITB 1.1, by filling in price(s) for all items of the Works, as identified in Section IV - Bidding Forms. In case of admeasurement contracts,

the Bidder 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 Bidder shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Bid, and provided that the Bid is determined substantially responsive notwithstanding this omission, the highest price of the item quoted by substantially responsive Bidders will be added to the Bid price and the equivalent total cost of the Bid so determined will be used for price comparison.

- 14.3 The price to be quoted in the Letter of Bid shall be the total price of the Bid, excluding any discounts offered.
- 14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid.
- 14.5 **Unless otherwise specified in the BDS** and the Contract, the rate(s) and price(s) quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Employer may require the Bidder to justify its proposed indices and weightings.
- 14.6 If so specified in ITB 1.1, Bids are being invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their Bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all lots (contracts) are opened at the same time.
- 14.7 **Unless otherwise specified in the BDS**, all duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of Bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.
- 15 Currencies of Bid and Payment**
- 15.1 The currency(ies) of the Bid and the currency(ies) of payments shall be **as specified in the BDS**.
- 15.2 Bidders may be required by the Employer to justify, to the Employer's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the prices shown in the Schedule of Adjustment Data in the Appendix to Bid are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.
- 16 Documents Comprising the Technical Proposal**
- 16.1 The Bidder shall furnish a technical proposal including a statement of work methods, equipment, personnel, Schedules and any other information as stipulated in Section IV - Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidder's proposal to meet the Work requirements and the completion time.
- 17 Documents Establishing the Qualifications of the Bidder**
- 17.1 In accordance with Section III - Evaluation and Qualification Criteria, to establish that the Bidder continues to meet the criteria used at the time of prequalification, the Bidder shall provide in the corresponding information sheets included in Section IV - Bidding Forms, updated information on any assessed aspect that changed from that time, or if post-qualification applies as specified in ITB 4.5, the Bidder shall

provide the information requested in the corresponding information sheets included in Section IV - Bidding Forms.

- 17.2 If a margin of preference applies as specified in accordance with ITB 33.1, domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITB 33.1.
- 17.3 Any change in the structure or formation of a Bidder after being prequalified and invited to Bid (including, in the case of a JV, any change in the structure or formation of any member thereto) shall be subject to the written approval of the Employer prior to the deadline for submission of Bids. Such approval shall be denied if (i) as a consequence of the change, the Bidder no longer substantially meets the qualification criteria set forth in Section III - Evaluation and Qualification Criteria; or (ii) in the opinion of the Employer, the change may result in a substantial reduction in competition. Any such change should be submitted to the Employer not later than fourteen (14) days after the date of the Invitation for Bids.

18 Period of Validity of Bids

- 18.1 Bids shall remain valid for the period **specified in the BDS** after the Bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A Bid valid for a shorter period shall be rejected by the Employer as non-responsive.
- 18.2 In exceptional circumstances, prior to the expiration of the Bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a Bid security is requested in accordance with ITB 19, it shall also be extended for twenty-eight (28) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its Bid security. A Bidder granting the request shall not be required or permitted to modify its Bid, except as provided in ITB 18.3.
- 18.3 If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial Bid validity, the Contract price shall be determined as follows:
- a) In the case of fixed price contracts, the Contract price shall be the Bid price adjusted by the factor specified in the BDS;
 - b) In the case of adjustable price contracts, no adjustment shall be made;
 - c) In any case, Bid evaluation shall be based on the Bid price without taking into consideration the applicable correction from those indicated above.

19 Bid Security

- 19.1 The Bidder shall furnish as part of its Bid, either a Bid-Securing Declaration or a Bid Security **as specified in the BDS**, in original form and, in the case of a Bid Security, in the amount and currency **specified in the BDS**.
- 19.2 A Bid-Securing Declaration shall use the form included in Section IV - Bidding Forms.
- 19.3 If a Bid Security is specified pursuant to ITB 19.1, the Bid Security shall be a demand guarantee in any of the following forms at the Bidder's option:
- a) An unconditional guarantee issued by a bank or financial institution (such as an insurance, bonding or surety company);

- b) An irrevocable letter of credit;
- c) A cashier's or certified check; or
- d) Another security specified in the BDS;

from a reputable source from an eligible country as specified in Section V - Eligibility Criteria. If the unconditional guarantee is issued by a financial institution located outside the Employer's Country, the issuing financial institution shall have a correspondent financial institution located in the Employer's Country to make it enforceable. In the case of a bank guarantee, the Bid security shall be submitted either using the Bid Security Form included in Section IV - Bidding Forms, or in another substantially similar format approved by the Employer prior to Bid submission. The Bid Security shall be valid for twenty-eight (28) days beyond the original validity period of the Bid, or beyond any period of extension if requested under ITB 18.2.

- 19.4 Any Bid not accompanied by a substantially responsive Bid Security or Bid-Securing Declaration shall be rejected by the Employer as non-responsive.
- 19.5 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the Contract and furnishing the Performance Security pursuant to ITB 42.
- 19.6 The Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required Performance Security.
- 19.7 The Bid Security may be forfeited or the Bid-Securing Declaration executed:
 - a) If a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Letter of Bid, or any extension thereto provided by the Bidder; or
 - b) If the successful Bidder fails to:
 - (i) Sign the Contract in accordance with ITB 41; or
 - (ii) Furnish a Performance Security in accordance with ITB 42.
- 19.8 The Bid Security or the Bid-Securing Declaration of a JV shall be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of Bidding, the Bid Security or the Bid-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.
- 19.9 If a Bid Security is **not required in the BDS** pursuant to ITB 19.1, and
 - a) If a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Letter of Bid or any extension thereto provided by the Bidder, or
 - b) If the successful Bidder fails to sign the Contract in accordance with ITB 41; or furnish a Performance Security in accordance with ITB 42;

the Employer may, **if provided for in the BDS**, declare the Bidder ineligible to be awarded a contract by the Employer for a period of time **as stated in the BDS**.

**20 Format and
Signing of Bid**

- 20.1 The Bidder shall prepare one original of the documents comprising the Bid as described in ITB 11 and clearly mark it "ORIGINAL". Alternative Bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE". In addition, the Bidder shall submit copies of the Bid, in the number **specified in the BDS** and clearly mark them "COPY". In the event of any discrepancy between the original and the copies, the original shall prevail.
- 20.2 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation **as specified in the BDS** and shall be attached to the Bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Bid where entries or amendments have been made shall be signed or initialed by the person signing the Bid.
- 20.3 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives. If the JV has not been legally constituted into a legally enforceable JV at the time of Bidding, then the Bid shall be signed by every member of the proposed JV.
- 20.4 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

D. Submission and Opening of Bids

**21 Sealing and
Marking of Bids**

- 21.1 The Bidder shall enclose the original and all copies of the Bid, including alternative Bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL", "ALTERNATIVE" and "COPY". These envelopes containing the original and the copies shall then be enclosed in one single envelope.
- 21.2 The inner and outer envelopes shall:
- a) Bear the name and address of the Bidder;
 - b) Be addressed to the Employer in accordance with ITB 22.1;
 - c) Bear the specific identification of this bidding process in accordance with ITB 1.1; and
 - d) Bear a warning not to open before the time and date for Bid opening.
- 21.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

**22 Deadline for
Submission of Bids**

- 22.1 Bids must be received by the Employer at the address and no later than the date and time **specified in the BDS. When so specified in the BDS**, Bidders shall have the option of submitting their Bids electronically. Bidders submitting Bids electronically shall follow the electronic Bid submission procedures **specified in the BDS**.
- 22.2 The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

- 23 Late Bids**
- 23.1 The Employer shall not consider any Bid that arrives after the deadline for submission of Bids, in accordance with ITB 22. Any Bid received by the Employer after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.
- 24 Withdrawal, Substitution and Modification of Bids**
- 24.1 A Bidder may withdraw, substitute, or modify its Bid 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 ITB 20.2. The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be:
- a) Prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL", "SUBSTITUTION", "MODIFICATION"; and
 - b) Received by the Employer prior to the deadline prescribed for submission of Bids, in accordance with ITB 22.
- 24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.
- 24.3 No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of the period of Bid validity specified by the Bidder on the Letter of Bid or any extension thereof.
- 25 Bid Opening**
- 25.1 Except in the cases specified in ITB 23 and 24, the Employer shall publicly open and read out in accordance with ITB 25 all Bids received by the deadline (regardless of the number of Bids received), at the date, time and place **specified in the BDS**, in public and in the presence of Bidders' designated representatives and anyone who choose to attend. Any specific electronic Bid opening procedures required if electronic Bidding is permitted in accordance with ITB 22.1, shall be **as specified in the BDS**.
- 25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding Bid shall not be opened but returned to the Bidder. No Bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Bid opening. Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Bid opening. Envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening. Only Bids that are opened and read out at Bid opening shall be considered further.
- 25.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the total Bid Price, per lot (contract) if applicable, including any discounts and alternative Bids; the presence or absence of a Bid security or Bid-securing declaration, if required; and any other details as the Employer may consider appropriate. Only discounts and alternative Bids read out at Bid opening shall be considered for evaluation. The Letter of Bid and the Schedules are to be initialed by a minimum of

three representatives of the Employer attending Bid opening. At Bid opening, the Employer shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with ITB 23.1).

- 25.4 The Employer shall prepare a record of the Bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts and alternative Bids; and the presence or absence of a Bid security or Bid-securing declaration, if one was required. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

E. Evaluation and Comparison of Bids

- 26 Confidentiality**
- 26.1 Information relating to the examination, evaluation, and comparison of the Bids, and qualification of the Bidders and recommendation of contract award shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process until information on Contract award is communicated to all Bidders in accordance with ITB 40.
- 26.2 Any attempt by a Bidder to influence the Employer in the examination, evaluation, and comparison of the Bids, and qualification of the Bidders, or Contract award decisions may result in the rejection of its Bid.
- 26.3 Notwithstanding ITB 26.2, from the time of Bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing.
- 27 Clarification of Bids**
- 27.1 To assist in the examination, evaluation, and comparison of the Bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid, given a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer'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 Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids, in accordance with ITB 31.
- 27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification, its Bid may be rejected.
- 28 Deviations, Reservations and Omissions**
- 28.1 During the evaluation of Bids, the following definitions apply:
- a) "Deviation" is a departure from the requirements specified in the Bidding Documents;
 - b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
 - c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Documents.
- 29 Determination of Responsiveness**
- 29.1 The Employer's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in ITB 11.

- 29.2 A substantially responsive Bid is one that meets the requirements of the Bidding Documents without material Deviation, Reservation, or Omission. A material Deviation, Reservation, or Omission is one that,
- a) If accepted, would:
 - (i) Affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
 - (ii) Limit in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the Bidder's obligations under the proposed Contract; or
 - b) If rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bid.
- 29.3 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, in particular, to confirm that all requirements of Section VII - Works Requirements have been met without any material Deviation, Reservation or Omission.
- 29.4 If a Bid is not substantially responsive to the requirements of the Bidding Documents, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material Deviation, Reservation, or Omission.
- 30 Non-material Non-conformities**
- 30.1 Provided that a Bid is substantially responsive, the Employer may waive any non-material non-conformity (a non-conformity being a Deviation, Reservation or Omission) in the Bid.
- 30.2 Provided that a Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify non-material non-conformities in the Bid related to documentation requirements. Requesting information or documentation on such non-conformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
- 30.3 Only for admeasurement contracts and provided that a Bid is substantially responsive, the Employer shall rectify quantifiable non-material non-conformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component.
- 31 Correction of Arithmetical Errors**
- 31.1 Provided that the Bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:
- a) Only for admeasurement contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;
 - b) Only for admeasurement contracts, if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
 - c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless, only for admeasurement contracts, the amount expressed in words is related to an

- arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- 31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1 shall result in the rejection of the Bid.
- 32 Conversion to Single Currency** 32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency **as specified in the BDS.**
- 33 Margin of preference** 33.1 **Unless otherwise specified in the BDS,** a margin of preference for domestic Bidders shall not apply.
- 34 Subcontractors** 34.1 **Unless otherwise stated in the BDS,** the Employer does not intend to execute any specific elements of the Works by subcontractors selected in advance by the Employer (nominated subcontractors).
- 34.2 A "specialized subcontractor" is a subcontractor hired for specialized work as defined by the Employer in Section III - 4.2 Experience. If no specialized work is specified by the Employer as such, subcontractors experience shall not be considered for Bids evaluation.
- 34.3 In case of Prequalification, the Bidder's Bid shall name the same specialized subcontractor as submitted in the prequalification application and approved by the Employer, or may name another specialized subcontractor meeting the requirements specified in the prequalification phase.
- 34.4 In case of Postqualification, the Employer may permit subcontracting for certain specialized works as indicated in Section III - 4.2 Experience. When sub-contracting is permitted by the Employer, the specialized subcontractor's experience shall be considered for the evaluation. Section III - Evaluation and Qualification Criteria, describes the qualification criteria for subcontractors.
- 35 Evaluation of Bids** 35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.
- 35.2 To evaluate a Bid, the Employer shall consider the following:
- a) The Bid price, excluding Provisional Sums unless priced competitively and the provision, if any, for contingencies in the Schedules, but including Daywork items, where priced competitively;
 - b) Price adjustment for correction of arithmetic errors in accordance with ITB 31.1;
 - c) Price adjustment due to missing items, missing rates, or discounts offered in accordance with ITB 14.2 and 14.4;
 - d) Price adjustment due to quantifiable non-material non-conformities in accordance with ITB 30.3;
 - e) Converting the amount resulting from applying (a) to (d) above, if relevant, to a single currency in accordance with ITB 32;
 - f) The additional evaluation factors as specified in Section III - Evaluation and Qualification Criteria.
- 35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.

- 35.4 If these Bidding Documents allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Bid, is specified in Section III - Evaluation and Qualification Criteria.
- 35.5 If the Bid is seriously unbalanced or front loaded in the opinion of the Employer and after evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.
- 35.6 Only the qualifications of the Bidder shall be considered. In particular, the qualifications of a parent or other affiliated company that is not party to the Bidder under a JV in accordance with ITB 4.1 shall not be considered.
- 35.7 In case of multiple contracts, Bidders should indicate in their Bids the individual contracts in which they are interested. The Employer shall qualify each Bidder for the maximum combination of contracts for which the Bidder has thereby indicated its interest and for which the Bidder meets the appropriate aggregate requirements. The Qualification Criteria and Requirements are mentioned in Section III - Evaluation and Qualification Criteria.
- 36 Abnormally low Bid** 36.1 If the Bid, which results in the lowest Evaluated Bid Price, is twenty per cent (20%) or more, lower than the Employer's estimate, and unless the Employer provides justification that the estimate is inaccurate, the Employer shall require the Bidder to produce detailed price analyses for any or all items of the Schedules, to demonstrate the internal consistency of those prices and priced quantities with the construction methods, resources and schedule proposed, as well as the Works Requirements. Notwithstanding the provisions of ITB 14.2 which shall not be applicable, if one or several inconsistencies are evidenced, the Bid shall be declared non-compliant and rejected.
- 37 Qualification of the Bidder** 37.1 Any change in the structure or formation of a Bidder after being prequalified and invited to bid (including, in the case of a JV, any change in the structure or formation of any member thereto) shall be subject to the written approval of the Employer. Such approval shall be denied if (i) as a consequence of the change, the Bidder no longer substantially meets the prequalification criteria; or (ii) in the opinion of the Employer, the change may result in a substantial reduction in competition. Any such change should be submitted to the Employer not later than fourteen (14) days after the date of the Invitation for Bids.
- 37.2 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive Bid either continues to meet (if prequalification applies) or meets (if postqualification applies) the qualifying criteria specified in Section III - Evaluation and Qualification Criteria.
- 37.3 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.
- 37.4 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the Bid, in which event the Employer shall proceed

to the next lowest evaluated Bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

38 Employer's Right to Reject all Bids

38.1 The Employer reserves the right to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, Bid securities, shall be promptly returned to the Bidders.

F. Award of Contract

39 Award Criteria

39.1 The Employer shall compare the evaluated prices of all substantially responsive Bids established in accordance with ITB 35.2 to determine the lowest evaluated Bid.

39.2 Subject to ITB 38.1, the Employer shall award the Contract to the Bidder whose Bid has been determined to be the lowest evaluated Bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

40 Notification of Award

40.1 Prior to the expiration of the period of Bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Employer will pay the Contractor in consideration of the execution and completion of the Works and the requirement for the Contractor to remedy any defects therein (hereinafter and in the Conditions of Contract and Contract Forms called the "Accepted Contract Amount"). At the same time, the Employer shall also notify all other Bidders of the results of the Bidding.

40.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

40.3 The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its Bid was not selected.

40.4 In exceptional circumstances, a contract negotiation may be needed. In such case, the Employer shall send to the successful Bidder a letter of invitation to negotiate which should not be mistaken as a Letter of Acceptance which, under FIDIC Conditions of Contract, triggers contractual obligations from both Parties. The Letter of Acceptance shall be sent once the contract negotiation ends successfully. Minutes of negotiation meetings, and agreements reached therein, shall be attached to the Letter of Acceptance.

41 Signing of Contract

41.1 Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement.

41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

42 Performance Security

42.1 Within twenty-eight (28) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the General Conditions of Contract, subject to ITB 36, using for that purpose the Performance Security Form included in Section X - Contract Forms, or another form acceptable to the Employer. If the performance security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign

institution providing a bond shall have a correspondent financial institution located in the Employer's Country.

- 42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid security or execution of the Bid-Securing Declaration. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

Section II – Bid Data Sheet

A. Introduction	
ITB 1.1	The number of the Invitation for Bids is: AWWDA/AFD/NWSP/W-02/2023
ITB 1.1	The Employer is: The Chief Executive Officer, Athi Water Works Development Agency
ITB 1.1	The name of the IPC is: Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project The identification number of the IPC is: AWWDA/AFD/NWSP/W-02/2023 The number and identification of lots (contracts) comprising this IPC is: Not Applicable
ITB 2.1	The name of the Project is: CKE1135-Nairobi Water and Sanitation Project
ITB 4.1	Maximum number of members in the JV shall be: Three (3)
ITB 4.5	This bidding process is not subject to prequalification
B. Bidding Documents	
ITB 7.1	For <u>clarification purposes</u> only, the Employer's address is: Attention: Chief Executive Officer, Athi Water Works Development Agency Athi Water Plaza, Muthaiga North Road, Off Kiambu Road Address: P.O. Box 45283 – 00100, Nairobi, Kenya Telephone: +254 20 2724292/3 Mobile: +254 715 688272 Electronic mail address: info@awwda.go.ke Web page: www.awwda.go.ke
ITB 7.4	A Pre-Bid meeting and Site Visit shall take place at the following date, time and place: Date: 28th March 2023 Time: 9:00 a.m. EAT Place: Athi Water Plaza, Muthaiga North Road, Off Kiambu Road A Site visit conducted by the Employer shall be organized.
C. Preparation of Bids	
ITB 10.1	The language of the Bid is: English All correspondence exchange shall be in the English language. Language for translation of supporting documents and printed literature is English .
ITB 11.1(b)	The following schedules shall be submitted with the Bid: 1. Duly filled and signed Bill of Quantities 2. Schedule of <u>suppliers and QUOTATIONS</u> of the following key materials <ul style="list-style-type: none">• HDPE, DWC, Steel or Ductile Iron Pipes and fittings• Valves and Meters• Reinforcement steel
ITB 11.1(i)	The Bidder shall submit with its Bid the following additional documents: 1. Certificates of statutory registration, 2. Letter of registration with National Construction Authority or Equivalent (NCA 1)

	<p>3. VAT & Tax Compliance Certificates,</p> <p>4. Duly filled forms of Statement of Integrity,</p> <p>5. Duly filled forms of Eligibility and Social and Environmental Responsibility</p> <p>6. Security Methodology that meets the requirements of the Security Specifications</p> <p>7. Joint Venture Agreement if applicable</p>
ITB 13.1	Alternative Bids shall not be permitted.
ITB 13.2	Alternative technical solutions shall not be permitted.
ITB 13.5	Alternative times for completion of the Works shall not be permitted.
ITB 14.5	<p>The prices quoted by the bidder shall Not be subject to Adjustment over the original Contract period. However, if an Extension of Time is granted in accordance with sub-clause 8.4 [Extension of Time for Completion] of the General Conditions of Contract (GCC), Price Adjustment shall be applicable on the balance of works that could not be carried out during the original Contract Period for reasons not attributable to the Contractor as assessed by the Engineer using the Adjustment for Changes in Cost formula given in sub-clause 13.8 of the GCC. .</p> <p>To minimize the risk of price escalation, the Contractor is required, within 2 months of receipt of Advance Payment, to place orders, pay deposit to suppliers and secure the following key materials:</p> <ul style="list-style-type: none"> • All Pipes and Fittings (Steel, Ductile Iron, HDPE and DWC Pipes), • Valves (Gate Valves, Butterfly Valves, Air Valves, Altitude Valves) • Flow Meters (Electromagnetic and Mechanical Meters) • Reinforcement Steel. <p>Contractor to submit to the Engineer documentary evidence of the secured orders, and deposits paid.</p>
ITB 14.7	<p>The Bidder shall identify in the Bid Price, as a separate amount, the total VAT payable under the Contract.</p> <p>Other taxes, duties and fees shall be deemed included in the Contract Prices and Bills of Quantities Rates.</p> <p>There will be No exemptions for Taxes, duties and fees as specified in clause 14.1 (b) of the Particular Conditions of Contract.</p>
ITB 15.1	<p>The currency(ies) of the Bid and the payment currency(ies) shall be as described below:</p> <p>Bidders to quote entirely in local currency:</p> <p>a) The unit rates and the prices shall be quoted by the Bidder in the Schedules, entirely in Kenya Shillings, the name of the currency of the Employer's country, and further referred to as "the local currency". A Bidder expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's country (referred to as "the foreign currency") shall indicate in the Appendix to Bid, the percentage(s) of the Bid Price (excluding Provisional Sums), needed by the Bidder for the payment of such foreign currency requirements, limited to Euros (€);</p> <p>b) The rates of exchange to be used by the Bidder in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Bidder in the Appendix to Bid, and shall apply for all payments under the Contract so that no exchange risk will be borne by the successful Bidder.</p>
ITB 18.1	The Bid Validity Period shall be 120 days.
ITB 18.3(a)	The Bid Price shall be adjusted as follows N/A

ITB 19.1	<p>A Bid Security shall be required. Only an Unconditional On-Demand Guarantee issued by a reputable Bank approved by Central Bank of Kenya.</p> <p>A Bid-Securing Declaration shall not be required.</p> <p>The amount and currency of the Bid security shall be: Kshs. 5,000,000.00 (Kenya Shillings Five Million)</p>
ITB 19.3(d)	Other types of acceptable securities: "None"
ITB 20.1	In addition to the original of the Bid, the number of copies is: Three (3) paper copies and one (1) digital copy (CD or flashdisk).
ITB 20.2	<p>The written confirmation of authorization to sign on behalf of the Bidder shall consist of:</p> <p>(a) Documentation required to demonstrate the authority of the signatory to sign the Bid such as a "Sealed" Power of Attorney; and</p> <p>(b) In the case of Bids submitted by an existing or intended JV an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, if so required in accordance with ITB 4.1 and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution</p>
D. Submission and Opening of Bids	
ITB 22.1	<p>For Bid submission purposes only, the Employer's address is:</p> <p>Attention: Chief Executive Officer, Athi Water Works Development Agency</p> <p>Address: Athi Water Plaza, Muthaiga North Road, Off Kiambu Road</p> <p>City: Nairobi</p> <p>Country: Kenya</p> <p>The deadline for Bid submission is:</p> <p>Date: 10th May 2023</p> <p>Time: 12:00 p.m. EAT</p> <p>Bids must be deposited in the Tender Box located at Athi Water Plaza, Muthaiga North Road off Kiambu Road</p> <p>Bidders shall not have the option of submitting their bids electronically.</p>
ITB 25.1	<p>The Bid opening shall take place at:</p> <p>Address: Athi Water Works Development Agency, Athi Water Plaza, Muthaiga North Road, Off Kiambu Road</p> <p>City: Nairobi</p> <p>Country: Kenya</p> <p>Date: 10th May 2023</p> <p>Time: 12:05 P.M EAT</p> <p>No minimum number of Bids is required in order to proceed to Bid opening.</p>

E. Evaluation and Comparison of Bids	
ITB 32.1	<p>The currency that shall be used for Bid evaluation and comparison purposes to convert all Bid price(s) expressed in various currencies into a single currency is: Kenya Shillings</p> <p>The source of exchange rate shall be: Central Bank of Kenya Selling Rate</p> <p>The date for the exchange rate shall be seven (7) days prior to the date of deadline for Bid submission.</p> <p>The currency(ies) of the Bid shall be converted into a single currency in accordance with the procedure that follows:</p> <p>Bidders quote entirely in local currency</p> <p>For comparison of Bids, the Bid Price, corrected pursuant to Clause 31, shall first be broken down into the respective amounts payable in various currencies by using the exchange rates specified by the Bidder in accordance with Sub-Clause 15.1.</p> <p>In the second step, the Employer will convert the amounts in various currencies in which the Bid Price is payable (excluding Provisional Sums but including Daywork where priced competitively) to the single currency identified above at the selling rates established for similar transactions by the authority specified and on the date stipulated above.</p>
ITB 33.1	A margin of preference shall not apply.
ITB 34.1	At this time the Employer "does not intend" to execute certain specific parts of the Works by subcontractors selected in advance (nominated subcontractors).
ITB 35.2	Evaluation of Bids will be done on the basis of prices excluding VAT.

Section III – Evaluation and Qualification Criteria

This Section contains all the criteria that the Employer shall use to evaluate Bids and qualify Bidders. In accordance with ITB 35, 36 and ITB 37, no other factors, methods or criteria shall be used. The Bidder shall provide all the information requested in the forms included in Section IV - Bidding Forms.

Wherever a Bidder is required to state a monetary amount, Bidders should indicate the EUR 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;
- Value of single contract - Exchange rate prevailing on the date of the contract.

Exchange rates shall be taken from the publicly available source identified in the ITB 32.1. Any error in determining the exchange rates in the Bid may be corrected by the Employer.

1 Evaluation

In addition to the criteria listed in ITB 35.2 a) - e), the following criteria shall apply:

1.1 Assessment of adequacy of technical proposal with requirements:

The assessment of the technical proposal submitted by a Bidder shall comprise (a) evaluation of the Bidder's technical capacity to mobilize key equipment and key personnel to carry out the Works, (b) construction method, (c) construction schedule and (d) sufficiently detailed supply sources, in accordance with requirements specified in Section VII - Works Requirements,

If the environmental and social risks are evaluated as high and/or impacts as significant, and therefore, the Bidding Documents include ESHS Specifications, then the technical proposal shall comprise an ESHS Methodology. The ESHS Methodology submitted by the Bidder shall be evaluated to determine whether it is substantially responsive (i.e. without material deviation, reservation or omission) to the requirements specified in Section VII - Works Requirements - ESHS Specifications. The Bidder shall use the ESHS Methodology Form provided for this purpose in Section IV - Bidding Forms - Technical Proposal. **A Bid not comprising an ESHS Methodology or a Bid for which the ESHS Methodology is not substantially responsive (i.e. with material deviation, reservation or omission) shall be rejected**

1.2 Acceptability of the security methodology

The Security Methodology will be evaluated to determine whether each admissibility requirement specified in the Security Specifications is met. Otherwise the bid will be rejected.

1.3 Multiple Contracts, if permitted under ITB 35.4, will be evaluated as follows:

Not Applicable

1.4 Alternative Bids, if permitted under ITB 13.1, shall be evaluated as follows:

Not Applicable

1.5 Alternative Technical Solutions, if permitted under ITB 13.2, shall be evaluated as follows:

Not Applicable

1.6 Alternative Times for Completion of the Works, if permitted under ITB 13.5, shall be evaluated as follows:

Not Applicable

1.7 Personnel:

The Bidder must demonstrate that it has the personnel for the key positions that meet the following requirements:

No.	Position	Requirements / Qualifications	Total Work Experience (years)	In Similar Works Experience (years)
1.	Project Manager	<ul style="list-style-type: none"> BSc. Civil Engineering Proof of Fluency in Written and Spoken English 	20	10
2.	Site Agent	<ul style="list-style-type: none"> BSc. Civil Engineering Proof of Fluency in Written and Spoken English 	15	10
3.	Site Engineer	<ul style="list-style-type: none"> BSc. Civil Engineering Proof of Fluency in Written and Spoken English 	10	5
4.	Engineering Surveyors - Three (3Nr)	BSc. Surveying or Higher National Diploma in Surveying or equivalent	10	5
5.	Foremen (Pipeline Works) – Three (3Nr)	Diploma in Civil Engineering / Building Construction or equivalent	10	8
6.	Foreman (Concrete Works)	Diploma in Civil Engineering / Building Construction or equivalent	10	8
7.	Environmental Expert	<ul style="list-style-type: none"> Degree in Environmental Science or related field Registered NEMA Lead Expert Proof of Fluency in Written and Spoken English 	10	5
8.	Social Expert	<ul style="list-style-type: none"> Degree in Sociology / Community Development or equivalent Proof of Fluency in Written and Spoken English 	10	5
9.	Health & Safety Expert	<ul style="list-style-type: none"> First Degree in a relevant field and a Course in Occupation Health and Safety Proof of Fluency in Written and Spoken English 	10	5

The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section IV - Bidding Forms.

1.8 Equipment:

The Bidder must demonstrate that it can obtain (purchase, lease or rent) the key equipment listed hereafter:

No.	Equipment Type and Characteristics	Minimum Number Required
1	Excavator with 1. 5m ³ Bucket & 1.5 Ton Hammer	5
2	Back Hoe Excavators	4
3	7 / 10 / 15 ton Tipper Lorries	4
4	Pick-Ups – 1 Ton	5
5	Plate Compactors	2
6	Compressors (5,000 l/min)	2
7	Total Station (for Surveying Works)	3
8	Portable De-Watering Pumps (capacity at least 15m ³ /hr at 20m head)	4
9	Mechanical Pressure Testing Equipment (for Pipelines upto PN25)	2
10	Generator – 15 kVA	2
11	Concrete Batching Plant – min capacity 15m ³ /hr	1
12	Concrete Poker Vibrators (25mm – 45mm)	6
13	Concrete Mixers – capacity 0.3m ³ to 1m ³ including batch weighing	2
14	Mobile Crane – 30T	1
15	Roller Compactor – 20T	1

The Bidder shall provide further details of proposed items of equipment using Form EQU in Section IV - Bidding Forms.

2 **Domestic Preference**

Not Applicable

3 **Qualification**

3.1 Subcontractors:

The general experience and financial resources of the subcontractors shall not be added to those of the Bidder for purposes of qualification of the Bidder.

3.2 Update of Information in case of Prequalification:

Not Applicable

3.3 Qualification if no Prequalification has taken place:

Bidder to provide the information required in the attached Forms.

Qualification Criteria

1. Eligibility						
Criterion	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
1.1 Nationality	Nationality in accordance with ITB 4.3	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Forms ELI-1.1 and ELI-1.2, with attachments
1.2 Conflict of Interest	No conflicts of interest in accordance with ITB 4.2	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Letter of Bid
1.3 AFD Eligibility	Not being ineligible to AFD financing, as described in ITB 4.3	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Statement of Integrity (appendix to Letter of Bid)
1.4 State-Owned Entity	Meet conditions of ITB 4.3	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Forms ELI-1.1 and ELI-1.2, with attachments

2. Historical Contract Non-Performance							
Criterion		Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
2.1	History of Non-Performing Contracts	Termination of a contract ¹ did not occur as a result of Bidder's default in the past five (5) years.	Must meet requirement ² .	Must meet requirement	Must meet requirement ²	N/A	Form CON-2
2.2	Suspension Based on Execution of Bid Securing Declaration by the Employer	Not under suspension based on execution of a Bid Securing Declaration pursuant to ITB 4.4.	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Letter of Bid
2.3	Pending Litigation	All pending litigation shall in total not represent more than one hundred percent (100%) of the Bidder's net worth and shall be treated as resolved against the Bidder.	Must meet requirement	N/A	Must meet requirement	N/A	Form CON-2

¹ Non-performance shall include all terminations of contracts where (a) non-performance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Non-performance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism.

² This requirement also applies to contracts executed by the Bidder as JV member.

3. Financial Situation and Performance						
Criterion	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
3.1 Financial Capabilities	(i) The Bidder 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 Kshs 300,000,000.00 (Kenyan Shillings three hundred Million) for the subject contract(s) net of the Bidder's other commitments	Must meet requirement	Must meet requirement	N/A	N/A	Forms FIN-3.1 and FIN-3.3
	(ii) The Bidder shall also demonstrate, to the satisfaction of the Employer, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments	Must meet requirement	Must meet requirement	N/A	N/A	Forms FIN-3.1 and FIN-3.4
	(iii) The audited balance sheets or, if not required by the laws of the Bidder's country, other financial statements acceptable to the Employer, for the last three (3) years shall be submitted and must demonstrate the current soundness of the Bidder's financial position. The Bidder's financial position will be deemed sound if at least two (2) of the following four (4) criteria are met:	Must meet requirement	N/A	Must meet requirement	N/A	Form FIN-3.1, with attachments

3. Financial Situation and Performance						
Criterion	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
	<p>a) Average earnings before interest, taxes, depreciation, and amortization (EBITDA) for the last three (3) years > 0;</p> <p>b) Total equity (net worth) for the last three (3) years > 0;</p> <p>c) Average liquidity ratio for the last three (3) years > 1 ((Current assets) / (Current liabilities) > 1);</p> <p>d) Average indebtedness ratio for the last three (3) years < 6 ((Total financial liabilities) / (EBITDA) < 6).</p>					
3.2 Minimum Annual Turnover	Minimum average annual turnover of Kshs 2,000,000,000.00 (Kenyan Shillings two billion) for the last 3 years.	Must meet requirement	Must meet requirement	Must meet twenty five per cent (25%) of the requirement	Must meet forty per cent (40%) of the requirement	Form FIN-3.2

4. Experience						
Criterion	Requirements	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
4.1 General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, subcontractor, or management contractor for at least the last five (5) years , starting 1st January 2018	Must meet requirement	N/A	Must meet requirement	N/A	Form EXP-4.1
4.2 (a) Specific Construction & Contract Management Experience	(i) A minimum number of similar ³ contracts specified below that have been satisfactorily and substantially ⁴ completed as a prime contractor, joint venture member ⁵ , management contractor or subcontractor between 1st January 2016 and application submission deadline: Two (2) contracts , each of minimum value Kshs 1,700,000,000.00 (Kenya Shillings One Billion and Seven Hundred Million) Note: Bidder to provide Legally Certified Completion Certificates for completed Contracts or Letter from the Employer for ongoing Works (see Note 4)	Must meet requirement	Must meet requirement ⁶	N/A	N/A	Form EXP-4.2(a)

³ The similarity shall be based on the physical size, complexity and technicity of the Works. Adding up small value contracts (less than the value specified under requirement) to meet the overall requirement will not be accepted.

⁴ Substantial completion shall be based on 80% or more works completed under the contract.

⁵ For contracts under which the Bidder participated as a joint venture member or subcontractor, only the Bidder's share, by value, shall be considered to meet this requirement.

⁶ In the case of a JV, the value of contracts completed by its members shall not be aggregated to determine whether the requirement of the minimum value of a single contract has been met. For instance, if the criterion mentions "two (2) contracts with a minimum value of 50M\$ each", a JV composed of 3 members and having carried out four (4) contracts of 30M\$ each shall not be qualified. On the other hand, if 2 of the 3 members of the JV each carried out one (1) contract of 50M\$, the criterion is met, even if the third member does not have any contract of this value.

4. Experience						
Criterion	Requirements	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
4.2 (b) Specific Experience	For the above and any other contracts completed and under implementation as prime contractor, joint venture member, management contractor or subcontractor ⁷ on or after the first day of the calendar year during the period stipulated in 4.2 (a) above, a minimum construction experience in the following key activities successfully completed ⁸ :					
	<p>i) Experience in Construction of Large Water Transmission Pipelines: Two (2) Contracts involving construction of large diameter Water Transmission Pipelines (Steel or Ductile Iron Pipeline with Push-On Joints) of size 600mm diameter and above and length 15km and above at a rate of at least 2.0km per month in a city / built-up urban area.</p> <p>ii) Experience in Construction of Water Distribution Pipelines and/or Reticulation Sewers in Urban Areas: Two (2) Contracts involving construction of Steel / Ductile Iron / HDPE / DWC Water Distribution Pipelines and/or Reticulation Sewers in highly built-up urban areas, sizes ranging from 63mm dia to 600mm dia at a rate of at least 6km per month in a city / built-up urban area.</p>	<p>Must meet requirement</p> <p>Must meet requirement</p>	<p>Must meet requirement</p> <p>Must meet requirement</p>	<p>N/A</p> <p>N/A</p>	<p>Must meet requirement</p> <p>Must meet requirement</p>	<p>Form EXP-4.2(b)</p> <p>Form EXP-4.2(b)</p>

⁷ For contracts under which the Bidder participated as a joint venture member or subcontractor, only the Bidder's share shall be counted to meet this requirement.

⁸ For example, experience of works while in operation may be required under this criterion. Volume, number or rate of production of any key activity can be demonstrated in one or more contracts combined if executed during same time period. The rate of production shall be the annual production rate for the key construction activity (or activities).

4. Experience						
Criterion	Requirements	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
	<p>iii) Experience in Concrete Works for Water Retaining Structures</p> <p>Two (2) Contracts involving construction of Reinforced Concrete Water Retaining Structures with capacity 5,000m³ and above (e.g. Water Storage Tanks) in a city / built-up urban area.</p> <p><i>Note: For all the above Key Activities, Bidder to give the name, location (country and city) and description of the urban area where the Works were carried out and a copy of Legally Certified Completion Certificate or Supporting Letter signed by the Employer.</i></p>	Must meet requirement	Must meet requirement	N/A	Must meet requirement	Form EXP-4.2(b)

5. Environmental, Social, Health and Safety (ESHS)						
Criterion	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
5.1 ESHS Certification(s)	<p>Availability of a valid ISO certification or internationally recognized equivalent (equivalency to be demonstrated by Bidder), and applicable to the worksite:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Quality management certificate ISO 9001⁹; <input checked="" type="checkbox"/> Environmental management certificate ISO 14001¹⁰; <input checked="" type="checkbox"/> Health and safety management certificate ISO 45001¹¹. 	Must meet requirement	N/A	N/A	Leader must meet requirement	<p>Form CER</p> <p>Form CER</p> <p>Form CER</p>
5.2 ESHS Documentation	<p>Availability of in house policies and procedures acceptable to the Employer for ESHS management:</p> <ol style="list-style-type: none"> 1. Existence of an Ethics Charter; 2. Existence of a system for monitoring compliance with ESHS commitments for the Bidder's subcontractors and all its partners; 	Must meet requirement	N/A	N/A	Leader must meet requirement	<ol style="list-style-type: none"> 1. The ESHS Ethics Charter of the company or equivalent must be provided. 2. A procedure or information on how the Bidder ensures that all members of the Joint Venture, subcontractors, suppliers and temporary labor (i) are aware and (ii) meet ESHS requirements must be provided.

⁹ The ISO 9001 certification covers the principles of quality management, including a strong customer focus, motivation and commitment of management, process approach and continuous improvement.

¹⁰ The ISO 14001 certification defines the criteria for an environmental management system.

¹¹ The ISO 45001 certification defines a management system for health and safety at work with the overall objective of preventing the occurrence of work related injuries and diseases among workers and providing safe and healthy workplaces.

5. Environmental, Social, Health and Safety (ESHS)						
Criterion	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
	<p>3. Existence of official company procedures for the management of the following relevant points:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> ESHS resources and facilities and ESHS monitoring organization; <input checked="" type="checkbox"/> Project Areas management (base camps, quarries, borrow pits, storage areas); <input checked="" type="checkbox"/> Health & Safety on worksites; <input checked="" type="checkbox"/> Local recruitment and ESHS trainings of local staff (capacity building), ESHS trainings of subcontractors and local partners (transfer of knowledge); <input checked="" type="checkbox"/> Traffic Management <input checked="" type="checkbox"/> Atmospheric emissions, noise and vibrations <input checked="" type="checkbox"/> Site rehabilitation and revegetation; 					<p>3. Official internal procedure documents on the topics indicated must be provided.</p>

5. Environmental, Social, Health and Safety (ESHS)						
Criterion	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
			All Parties Combined	Each Member	One Member	
5.3 Similar Experience	Experience of Two (2) construction contracts in developing and emerging countries over the last Ten (10) years, where major ESHS measures were carried out or are on progress satisfactorily and in compliance with international standards.	Must meet requirement	N/A	N/A	Leader must meet requirement	Form EXP-ESHS with supporting documents (the Bidder shall submit a piece of evidence supporting the ESHS implementation measures)
5.4 ESHS Dedicated Personnel	Availability of in-house personnel dedicated to ESHS issues: Environmental and Social Manager, and/or Health and Safety Manager.	Must meet requirement	N/A	N/A	Leader must meet requirement	Organizational chart evidencing filled ESHS position(s)

6. Security							
Criterion	Requirement	Single Entity	Joint Venture (existing or intended)			Documentation Required	
			All Parties Combined	Each Member ¹²	One Member		
6.1 Specific experience in areas with security risks	Experience of two (2) contracts involving a presence in the country and completed within the last ten (10) years in an area with a similar security risk requiring the implementation of a security plan	Must meet requirement	N/A	Must meet requirement	Leader must meet requirement	Form EXP-4.2(b): for each experience listed, the security plan, as well as proof of the implementation of security measures must be provided ¹³	
6.2 Security documentation	Having internal security management procedures and systems for business trips and on worksites	Must meet requirement	N/A	Must meet requirement	Leader must meet requirement	Supply of the following documents acceptable to the Employer: — Description of the monitoring and alert system — Crisis management procedure	
6.3 Repatriation	Subscription to an emergency repatriation assistance contract	Must meet requirement	N/A	Must meet requirement	Leader must meet requirement	Furnish a certificate from the company that will provide repatriation services	
6.4 Security preparation	Existence and implementation of procedures and tools for preparing employees likely to work or who are working in areas with security risks	Must meet requirement	N/A	Must meet requirement	Leader must meet requirement	Procedures and preparation tools provided at the time of departure with proof of implementation (proof of awareness-raising or training actions carried out)	
6.5 Dedicated security personnel	Availability of personnel dedicated to security issues: security officer or equivalent with a minimum of two (2) years of relevant experience within the last seven (7) years	Must meet requirement	N/A	N/A	Leader must meet requirement	Organisational chart highlighting a filled position dedicated to security and the security officer's CV	

¹² [With the exception of companies that have their registered office in the country of the Employer (except the Leader of the JV, which must meet each of the criteria).]

¹³ [Proof of acceptable implementation: contract or certification of a contract with security companies, proof of security training before departure on-site, security service provider invoices, proof of crisis simulation tests or an audit of the security plan.]

Section IV – Bidding Forms

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Letter of Bid

[The Bidder shall prepare his Letter of Bid on a Letterhead paper specifying his name and address.]

Date: _____

IPC No.: AWWDA/AFD/NWSP/W-02/2023

To: Chief Executive Officer
Athi Water Works Development Agency
P.O. Box 45283 – 00100
Nairobi, Kenya

We, the undersigned, declare that:

- a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8);
- b) We have no conflict of interest in accordance with ITB 4.2;
- c) We have not been suspended nor declared ineligible by the Employer based on execution of a Bid Securing Declaration in the Employer's country in accordance with ITB 4.4;
- d) We offer to execute in conformity with the Bidding Documents the following works: **Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project**
- e) The total price of our Bid, excluding VAT and excluding any discounts offered in item (f) below is:
 - (i) Total price excluding VAT of the Bid: **Kshs.** _____;
 - (ii) The total amount of VAT is: **Kshs.** _____
 - (iii) The total bid price including VAT is: **Kshs.** _____
- f) The discounts offered and the methodology for their application are:
 - (i) The discounts offered are: _____;
 - (ii) The exact method of calculations to determine the net price after application of discounts is shown below: _____.
- g) Our Bid shall be valid for a period of **120** days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- h) If our Bid is accepted, we commit to obtain a performance security in accordance with ITB 43 of the Bidding Documents;
- i) We are not participating, as a Bidder, in more than one Bid in this bidding process in accordance with ITB 4.2(e), other than alternative Bids submitted in accordance with ITB 13;
- j) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- k) We acknowledge and agree that the Employer reserves the right to annul the bidding process and reject all Bids at any time prior to contract award without thereby incurring any liability to us; and

- l) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption.

Name of the Bidder¹: _____

Name of the person duly authorized to sign the Bid on behalf of the Bidder²: _____

Title of the person signing the Bid: _____

Signature of the person named above: _____

Date signed: _____ day of: _____

¹ In the case of the Bid submitted by a JV specify the name of the JV as Bidder.

² Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid.

Appendix 1 to Bid – Schedule of Adjustment Data

Table of Weightings

Factor of description	Range of Values permitted (1)	Weightings for each payment currency (2)		Total (3)
		(national currency: Kshs.)	(foreign currency: € or US\$)	
X Non Adjustable	0.2			0.2
(a) Ferrous Materials (including Pipes, Fittings, Valves, Reinforcement Steel, etc.)	0.35 - 0.55			
(b) Fuels & Lubricants and petroleum based materials including HDPE and DWC Pipes	0.10 – 0.35			
(c) Cement and other Concrete Materials	0.05 – 0.10			
(d) Labour	0.05 – 0.10			
Totals				1.00

The Bidder shall indicate in Columns (2) the specific weightings for each factor and Bid currency, and in Column (3) the sub-totals for each factor, which must be within the range specified by the Employer in Column (1), respectively; furthermore, the sum of the sub-totals in Column (3) must be equal to 1 (one).

A formula shall be used for each payment currency, to be derived from the above Table as follows: the weightings to be used in each formula will be derived from the values in each currency column, respectively, by dividing each individual value by the sum of the values in the given column.

Table A: National Currency (Kenya Shillings)

Index Code	Index Description/ Identification	Publication Source for the Index	Base Value in [month] ¹
(T)	Ferrous Materials (including Pipes, Fittings, Valves, Reinforcement Steel etc.)	Metal Bulletin	
(S)	Fuels & Lubricants and petroleum based materials including HDPE and DWC Pipes	ERC	
(Q)	Cement and other Concrete Materials	KNBS	
(P)	Labour	KNBS	

Sources of Indices

- Metal Bulletin - Appropriate Index for Ferrous Materials to be selected from the appropriate category of the Metal Bulletin depending on the Country / Region of origin of the goods or equivalent approved source of Index.
- KNBS - Kenya National Bureau of Statistics (KNBS) Construction Cost Index or equivalent approved source of Index
- ERC - Ex Mombasa Depot Price published monthly by the Energy Regulatory Commission (ERC) or equivalent approved source of Index

¹ Insert the month of the Base Date, i.e. the month of the Deadline for Bid Submission in accordance with ITB Clause 22.

Table B: Foreign Currency

The Bidder shall fill a table similar to the following one for each foreign currency of payment, as appropriate.

Index Code	Index Description/ Identification	Publication Source for the Index	Base Value in [month] ²
(T)	Ferrous Materials (including Pipes, Fittings, Valves, Reinforcement Steel etc.)	Metal Bulletin	
(S)	Fuels & Lubricants and petroleum based materials including HDPE and DWC Pipes	ERC	
(Q)	Cement and other Concrete Materials	KNBS	
(P)	Labour	KNBS	

Sources of Indices

- Metal Bulletin - Appropriate Index for Ferrous Materials to be selected from the appropriate category of the Metal Bulletin depending on the Country / Region of origin of the goods or equivalent approved source of Index.
- KNBS - Kenya National Bureau of Statistics (KNBS) Construction Cost Index or equivalent approved source of Index
- ERC - Ex Mombasa Depot Price published monthly by the Energy Regulatory Commission (ERC) or equivalent approved source of Index

Bidder's Signature: _____

Example:

The following example shows a table of weightings and the corresponding price adjustment formula which are derived from it, on the basis of the following assumptions:

- Three weightings/factors are shown in this example: X is the non-adjustable portion and two adjustment factors (a and b) contribute to price adjustment through the variation of Indices T and S respectively, for which the respective ranges permitted by the Employer and values selected by the Bidder are shown in the table; these values are to be used in the price adjustment formula.
- Two payment currencies are shown in this example: the national currency (l) and a foreign currency (f), the indices T and S are the respective indices in the country of the currency.
- The data in bold are those specified by the Employer in the Bidding Documents, whereas the other data are provided either by the Bidder in its Bid or by the Contractor in the payment request.

Factor and Description	Range of Values permitted	Weightings for each payment currency		Totals
		n	e	
X	0,15	0,05	0,10	0,15
a	0,30 - 0,50	0,15	0,25	0,40
b	0,25 - 0,45	0,20	0,25	0,45
Totals		0,40	0,60	1,00

Formula to be used for calculation of adjustment of payments:

$$\text{Payment in national currency (n): } P_{ln} = \frac{0,05}{0,40} + \frac{0,15}{0,40} \frac{T_{ln}}{T_{lo}} + \frac{0,20}{0,40} \frac{S_{ln}}{S_{lo}}$$

$$\text{Payment in foreign currency (f): } P_{fn} = \frac{0,10}{0,60} + \frac{0,25}{0,60} \frac{T_{fn}}{T_{fo}} + \frac{0,25}{0,60} \frac{S_{fn}}{S_{fo}}$$

² Insert the month of the Base Date, i.e. the month of the Deadline for Bid Submission in accordance with ITB Clause 22.

Appendix 2 to Bid - Summary of Payment Currencies

For the whole of the Works

Name of payment currency	A) Amount of currency	B) Rate of exchange (local currency per unit of foreign	C) Local currency equivalent (C = A x B)	D) Percentage of Total Bid Price ($100 \times C /$ TPB)
Local currency: Kenya Shillings (Kshs.)		1.00		
Foreign currency: Euro (€)(Bidder to specify if required) _____		*		
Total Bid Price including Provisional Sums (Exclusive of VAT)				100.00

* Bidder to enter Exchange Rate applicable **14 days** before the deadline of submission of bids

Note:

- i) Amounts to be indicated in the Table above are portions of the Bid Price **Exclusive** of Value Added Tax (VAT)
- ii) The VAT component of all payments under the Contract shall be paid in the Local Currency, **Kenya Shillings**. All Foreign Contractors have to register with the Kenya Revenue Authority (KRA) for payment of VAT as required under the Laws of Kenya

Appendix 3 to Bid - Statement of Integrity, Eligibility and Environmental and Social Responsibility

Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project (the "Contract")

To: **The Chief Executive Officer, Athi Water Works Development Agency, P.O. Box 45283 - 00100, Nairobi, Kenya** (the "Contracting Authority")

1. We recognise and accept that *Agence Française de Développement* ("AFD") only finances projects of the Contracting Authority subject to its own conditions which are set out in the Financing Agreement which benefits directly or indirectly to the Contracting Authority. As a matter of consequence, no legal relationship exists between AFD and our company, our joint venture or our suppliers, contractors, subcontractors, consultants or subconsultants. The Contracting Authority retains exclusive responsibility for the preparation and implementation of the procurement process and performance of the contract. The Contracting Authority means the Purchaser, the Employer, the Client, as the case may be, for the procurement of goods, works, plants, consulting services or non-consulting services.
2. We hereby certify that neither we nor any other member of our joint venture or any of our suppliers, contractors, subcontractors, consultants or subconsultants are in any of the following situations:
 - 2.1 Being bankrupt, wound up or ceasing our activities, having our activities administered by the courts, having entered into receivership, reorganisation or being in any analogous situation arising from any similar procedure;
 - 2.2 Having been:
 - a) convicted, within the past five years by a court decision, which has the force of *res judicata* in the country where the Contract is implemented, of fraud, corruption or of any other offense committed during a procurement process or performance of a contract (in the event of such conviction, you may attach to this Statement of Integrity supporting information showing that this conviction is not relevant in the context of this Contract);
 - b) subject to an administrative sanction within the past five years by the European Union or by the competent authorities of the country where we are constituted, for fraud, corruption or for any other offense committed during a procurement process or performance of a contract (in the event of such sanction, you may attach to this Statement of Integrity supporting information showing that this sanction is not relevant in the context of this Contract);
 - c) convicted, within the past five years by a court decision, which has the force of *res judicata*, of fraud, corruption or of any other offense committed during the procurement process or performance of an AFD-financed contract;
 - 2.3 Being listed for financial sanctions by the United Nations, the European Union and/or France for the purposes of fight-against-terrorist financing or threat to international peace and security;
 - 2.4 Having been subject within the past five years to a contract termination fully settled against us for significant or persistent failure to comply with our contractual obligations during contract performance, unless this termination was challenged and dispute resolution is still pending or has not confirmed a full settlement against us;
 - 2.5 Not having fulfilled our fiscal obligations regarding payments of taxes in accordance with the legal provisions of either the country where we are constituted or the Contracting Authority's country;

- 2.6 Being subject to an exclusion decision of the World Bank and being listed on the website <http://www.worldbank.org/debar> (in the event of such exclusion, you may attach to this Statement of Integrity supporting information showing that this exclusion is not relevant in the context of this Contract);
- 2.7 Having created false documents or committed misrepresentation in documentation requested by the Contracting Authority as part of the procurement process of this Contract.
3. We hereby certify that neither we, nor any of the members of our joint venture or any of our suppliers, contractors, subcontractors, consultants or subconsultants are in any of the following situations of conflict of interest:
 - 3.1 Being an affiliate controlled by the Contracting Authority or a shareholder controlling the Contracting Authority, unless the stemming conflict of interest has been brought to the attention of AFD and resolved to its satisfaction;
 - 3.2 Having a business or family relationship with a Contracting Authority's staff involved in the procurement process or the supervision of the resulting Contract, unless the stemming conflict of interest has been brought to the attention of AFD and resolved to its satisfaction;
 - 3.3 Being controlled by or controlling another bidder or consultant, or being under common control with another bidder or consultant, or receiving from or granting subsidies directly or indirectly to another bidder or consultant, having the same legal representative as another bidder or consultant, maintaining direct or indirect contacts with another bidder or consultant which allows us to have or give access to information contained in the respective applications, bids or proposals, influencing them or influencing decisions of the Contracting Authority;
 - 3.4 Being engaged in a consulting services activity, which, by its nature, may be in conflict with the assignments that we would carry out for the Contracting Authority;
 - 3.5 In the case of procurement of goods, works or plants:
 - a) Having prepared or having been associated with a consultant who prepared specifications, drawings, calculations and other documentation to be used in the procurement process of this Contract;
 - b) Having been recruited (or being proposed to be recruited) ourselves or any of our affiliates, to carry out works supervision or inspection for this Contract.
4. If we are a state-owned entity, and to compete in a procurement process, we certify that we have legal and financial autonomy and that we operate under commercial laws and regulations.
5. We undertake to bring to the attention of the Contracting Authority, which will inform AFD, any change in situation with regard to points 2 to 4 here above.
6. In the context of the procurement process and performance of the corresponding contract:
 - 6.1 We have not and we will not engage in any dishonest conduct (act or omission) deliberately intended to deceive others, to intentionally conceal items, to violate or vitiate someone's consent, to make them circumvent legal or regulatory requirements and/or to violate their internal rules in order to obtain illegitimate profit;
 - 6.2 We have not and we will not engage in any dishonest conduct (act or omission) contrary to our legal or regulatory obligations or our internal rules in order to obtain illegitimate profit;
 - 6.3 We have not promised, offered or given and we will not promise, offer or give, directly or indirectly to (i) any Person who holds a legislative, executive, administrative or judicial mandate within the State of the Contracting Authority regardless of whether that Person was nominated or elected, regardless of the permanent or temporary, paid or unpaid nature of the position and regardless of the hierarchical level the Person occupies, (ii) any other Person who performs a public function, including for a State institution or a State-owned company, or who provides a public service, or (iii) any other person defined as a Public Officer by the national laws of the Contracting Authority's country, an undue advantage of any kind, for himself or for another Person or entity, for such Public Officer to act or refrain from acting in his official capacity;

- 6.4 We have not promised, offered or given and we will not promise, offer or give, directly or indirectly to any Person who occupies an executive position in a private sector entity or works for such an entity, regardless of the nature of his/her capacity, any undue advantage of any kind, for himself or another Person or entity for such Person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations;
- 6.5 We have not and we will not engage in any practice likely to influence the contract award process to the detriment of the Contracting Authority and, in particular, in any anti-competitive practice having for object or for effect to prevent, restrict or distort competition, namely by limiting access to the market or the free exercise of competition by other undertakings;
- 6.6 Neither we nor any of the members of our joint venture or any of our suppliers, contractors, subcontractors, consultants or subconsultants shall acquire or supply any equipment nor operate in any sectors under an embargo of the United Nations, the European Union or France;
- 6.7 We commit ourselves to comply with and ensure that all of our suppliers, contractors, subcontractors, consultants or subconsultants comply with international environmental and labour standards, consistent with laws and regulations applicable in the country of implementation of the Contract, including the fundamental conventions of the International Labour Organisation (ILO) and international environmental treaties. Moreover, we shall implement environmental and social risks mitigation measures when specified in the environmental and social commitment plan (ESCP) provided by the Contracting Authority.
7. We, as well as members of our joint venture and our suppliers, contractors, subcontractors, consultants or subconsultants authorise AFD to inspect accounts, records and other documents relating to the procurement process and performance of the contract and to have them audited by auditors appointed by AFD.

Name: _____ In the capacity of: _____

Duly empowered to sign in the name and on behalf of¹: _____

Signature: _____

Dated: _____

¹ In case of joint venture, insert the name of the joint venture. The person who will sign the application, bid or proposal on behalf of the applicant, bidder or consultant shall attach a power of attorney from the applicant, bidder or consultant.

Schedules

Bills of Quantities

Rates and prices in the Bills of Quantities shall exclude VAT. The VAT estimate will be indicated as a separate amount in the Grand Summary. Information on applicable tax exemptions is provided in Sub-Clause 14.1 (b) of the Particular Conditions of Contract.

The Bills of Quantities must be prepared in Kenya Shillings as per BDS – ITB 15.1.

The Schedule of Bills of Quantities is given below:

Bill No.	Bill Description
Section 1	Preliminaries and General Items
1	Preliminaries and General Items
Section 2	Kabete-Oleserani Pipeline
2.1	Kabete-Oleserani Pipeline (Supply of Pipes, Fittings, Valves and Ancillaries; DN 600, Total length 19.62 km)
2.2	Kabete-Oleserani Pipeline (Pipeline Construction; DN 600, Total length 19.62 km)
Section 3	Water Distribution Mains and Household Water Connections
3.1	Wilson Distribution Main, Line WL02 (DN 600; Total length 4.25 km)
3.2	Extension of Water Reticulation Network within Wilson Area (OD 63 - OD 250; Total length 2.86 km)
3.3	Extension of Water Reticulation Network within area around Ngong Forest (OD 63 - OD 250; Total length 2.53 km)
3.4	Extension of Water Reticulation Network within Karen Plains (OD 63 - OD 110; Total length 8.6 km)
3.5	Kabiria Distribution Main, Line KB01 (OD355; Total length 1.57 km)
3.6	Extension of Water Reticulation Network within Kangemi and Kawangware Area (OD 63 - OD 110; Total length 5.17 km)
3.7.1	Extension of Water Reticulation Network within Kirigu (OD 63 - OD 110; Total length 7.17 km)
3.7.2	Proposed Distribution Network for Kinoo Ward (OD 50 - OD 160; Supply and Installation 20 km)
3.8	Household Water Connections (560 Nr)
Section 4	Water Storage Reservoir
4.1	Karen Storage Reservoir (5,500 m ³ Capacity)
Section 5	Sewer Reticulation Network
5.1	Reticulation Sewers - Dagoretti (OD 200 - OD 300; Total Length - 14.4km)
5.2	Reticulation Sewers - Kawangware (OD 200 - OD 300; Total Length - 9.7km)
5.3	Reticulation Sewers - Riruta (OD 200 - OD 300; Total Length - 10.2km)
5.4	Reticulation Sewers - Ngando (OD 200; Total Length - 2.2km)
5.5	Reticulation Sewers - Uthiru (OD 200 - OD 300; Total Length - 24.5km)
5.6	Reticulation Sewers - Kangemi (OD 200; Total Length - 1.5km)
5.7	Tertiary Sewers (OD 160 - OD 200; Total Length - 12.0km)
5.8	Household Sewer Connections (640 Nr)

PREAMBLE AND NOTES TO BILLS OF QUANTITIES

1. These Bills of Quantities form part of the Contract Documents and are to be read in conjunction with the Conditions of Contract, Standard and Special Specifications and Drawings. The Particular Specifications overrides any Clauses / General Specifications given in the Preamble.
2. Whenever reference is made to "The Engineer " or "The Engineer's Representative" in the Bills of Quantities, it shall be construed to mean the person appointed by the Employer to act as the Project Manager or Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor.
3. The quantities set forth in the Bills of Quantities represent the character of the work to be carried out. There is no guarantee to the Contractor that he will be required to carry out the quantities of work indicated under any one particular item or group of items in the Bills of Quantities. Though on the Contract as a whole, the quantities are intended to represent the overall value of the work to be carried out.
4. The prices and rates inserted in the Bills of Quantities will be used for valuing the work executed and the Engineer will measure the whole of the works executed in accordance with the Contract.
5. The prices and rates inserted in the Bills of Quantities are to be the full inclusive costs of the works described under the items, complete in place and in accordance with the Specifications and Drawings, including setting out of the works, including costs and expenses which may be required in and for the construction of the works described, together with any temporary works and installations which may be necessary and all general risks, liabilities and obligations set forth or implied in the Documents on which the Contract is based.
6. The brief description of the items given in the Bills of Quantities are purely for the purpose of identification and in no way modify or supersede the detailed descriptions given in the Conditions of Contract, Specifications or Drawings. When pricing items, reference is to be made to the Conditions of Contract, Standard Specifications, Drawings and Special Specification for the full directions and description of work and materials.
7. A price or rate is to be inserted, in ink, against each item in the Bills of Quantities, whether quantities are stated or not, and if the Bidder includes the cost of a particular item elsewhere in his rates or prices, he shall insert the word "nil" against both the rate and extension of that particular item. Should the Bidder omit to price an item, then it will be assumed that he has included the cost of the item elsewhere in his rates or prices.
8. No alteration shall be made to the Bills of Quantities and no extra item shall be inserted. The Bidder shall satisfy himself that the Contract Sum arrived at by pricing the quantities and items given is sufficient compensation for constructing and maintaining the whole of the works in accordance with the Contract Documents.
9. For the purpose of payment by Interim Certificate of "Lump Sum" items the Engineer may assess the portion of the work completed on the "Lump Sum" item and allow for payment of the portion of the "Lump Sum" he deems fair and reasonable. The total of all portions allowed shall not exceed the "Lump Sum". All interim payments shall be subject to the retention stipulated in the Contract Documents.
10. During construction, the unit rate established for an item in one Bill of Quantities may be used as a basis for establishing a unit rate for similar work in another Bill of Quantities which contains no such item. No additional cost will be considered for such an eventuality.
11. The Contractor will be provided by the Employer with all that land occupied by the Permanent Works including the specified working width for pipe laying and other permanent construction works. The costs of compensation and entry upon land (if any) for the specified working width will be paid by the Employer. All other costs for temporary access to the works or additional working space shall be borne by the Contractor.
12. All costs related to strict adherence to all Health and Safety regulations stipulated in the National Legislation of Kenya as well acceptable international good practices for both temporary and

permanent works pertaining to nature of the works under this Contract, shall be deemed included in the Contractor's rates.

13. It shall be the responsibility of the Contractor to arrange for the removal of, or alteration to existing services where necessitated by the Works. Costs incurred will be paid under relevant items in the Bills of Quantities.
14. Quantities for site clearance, stripping and spreading shall be based on plan area cleared or stripped.
15. The rates for excavation items shall be deemed to include inter alia for setting aside spoil for reuse in the Works or disposing to approved tips identified by the Contractor in liaison with the Local Authority and approved by the Engineer, except where otherwise provided for in the Bills of Quantities.
16. Generally, excavation items are based on volumes for structures and on linear measurements for certain pipelines. The work may be covered by one or more items. The rates shall include as appropriate for:-
 - a) Breaking through surfaces, handling different classes of material separately; excavation beyond the net plan area of the foundations, for safe working space and for battering or timbering etc.
 - b) Timbering
 - c) Dealing with water from any source whatsoever
 - d) Backfilling as specified
 - e) Disposal of surplus spoil

Measurement of volume of excavation for structures shall be calculated from the plan dimensions of the structure without allowance for working space.

The depth of excavation in pipe trenches will be measured from stripped ground level to the invert of the pipe. Measurement for other excavations will be to the size which is required to accommodate the permanent works. A Bidder shall accordingly allow in his prices for any amount of extra excavation, which may be necessary for safe working space to complete the work to the satisfaction of the Engineer.

Items are included for "Extra Over for Rock" on a volume basis and within the specified trench dimensions. The rates shall include for breaking out, mucking and disposal by method(s) approved by the Engineer and any other additional costs for other works or special methods adopted for excavation and disposal by the Contractor, encountered within measured excavation.

Different rock classifications are defined in the Specifications and have been billed separately. Rock shall be measured as a volume calculated from the thickness encountered within the plan area of a mass excavation, within the plan dimensions of a structure, or within the nominal width of a trench. The decision of the Engineer on the classification of rock encountered in excavation shall be final and binding. **Note: Any excavation of murram in whatever form will be taken as common excavation.**

Timbering left in excavations shall only be measured for payment where it is specified or ordered by the Engineer.

17. Excavation by mechanical equipment may not be possible in some area due to restricted wayleaves, slopes/topographical features, ground water from whatsoever source, existing structures, drains, roads, trees, fences, walls, etc. The Contractor's rates for pipe trench excavation shall be deemed to cover mechanical and/or manual excavation. No claim for restricted space or double haulage will be entertained.

The Contractor shall indemnify the Employer against all claims for damage which in opinion of the Engineer may be caused by Excavation. This includes reinstatement of road surfaces, drains, fences, wall, culverts, etc., all in accordance to relevant authority.

18. When the site of any particular item of the Works has been sufficiently cleared of trees, undergrowth etc. and before any excavation or filling has been carried out, the Contractor shall carry out a survey

under the Supervision of the Engineer's Representative to take, record and agree upon an adequate number of original ground levels. The data so obtained shall be used as a basis for the computation of excavation and filling and preparation of "As-Built" Drawings by the Contractor. If for whatever reason the Contractor commences excavation without taking levels, the Engineer's decision on the original ground levels to be used for computation will be final.

19. The volume of fill will be measured net to the finished levels as shown on drawings or as amended by the Engineer.

20. METHOD RELATED CHARGES

- a) In order that the Contractor may cover his cost in executing specific portions of work, where those costs are not properly attributable to the quality of permanent works to be executed, he may cover such costs in the Bills of Quantities in accordance with the following provisions.
- b) For the purpose of these charges the following words and expressions shall have the meaning hereby assigned to them.
 - i. 'Method Related Charge' means the sum for an item inserted in the Bills of Quantities by a Bidder in accordance with paragraph 20 c).
 - ii. 'Time Related Charge' means a Method Related Charge for work the cost of which is to be considered as proportional to the length of time taken to execute the work.
 - iii. 'Fixed Charge' means a Method Related Charge which is not a Time Related Charge.
- c) A Bidder may insert in the Bills of Quantities, in the Bill provided, such items for Method Related Charges as he may decide to cover items of work relating to his intended method of executing the works, the costs of which are not to be considered as proportional to the quantities, rates and prices for the other items.
- d) Each item for a Method Related Charge inserted by the Bidder shall be fully described so as to define precisely the extent of work covered and to identify the constructional resources (plant, equipment, etc.) to be used and particular items of permanent or temporary works to which the items relate. The description shall include the type of charge (Time Related or Fixed) and in the case of a Time Related Charge, shall include also the expected duration, and the rate of charge.
- e) The insertion by a Bidder of an item for a Method Related Charge in the Bills of Quantities shall not bind him to adopt the method stated in the description of the item. However, in the case of a Time Related Charge, where the method is changed, a revised rate of charge shall be used taking account of the revised execution period to give the same total charge, had the original method, time and charge rate been adhered to.

If the charge is a Fixed Charge then payment to the Contractor for such an item shall be in equal installments spread evenly throughout the duration of that part of the works which is the subject of the Fixed Charge.

- f) Method Related Charges shall not be admeasured but shall be deemed to be prices for the purpose of Clause 36 of the Conditions of Contract and shall be paid in accordance with Clause 40.4 of the Conditions of Contract.
- g) In the event of the satisfactory execution of any part of the works which has been the subject of an item for a Method Related Charge using, whether in whole or in part, a method other than that described in the item, the Contractor shall nevertheless be entitled to payment of the Method Related Charge or the balance thereof, as the case may be, such instalments at such times and upon such events as may from time to time be agreed between the Engineer and the Contractor. In default of such agreement the Method Related Charge, or the balance then unpaid, shall be allowed to the Contractor by way of instalments in interim certificates at such times and upon such events as the Engineer shall decide.

The amount of Method Related Charge shall be neither increased nor decreased by reason of any change in method made by the Contractor, unless such change has been ordered by the Engineer, in which case the provisions of Clause 38 of the Conditions of Contract shall apply.

21. The rates for concrete shall include for fresh and hardened concrete tests prescribed in the Specifications including making and testing concrete cubes and forwarding the results to the Engineer. Testing to be carried out by a Test Laboratory approved by the Engineer. The Contractor shall maintain a written log of cubes prepared indicating date of testing and results achieved. The Contractor shall designate a qualified person for preparation and follow-up on cube tests in co-ordination with the Engineer / Engineer's Representative.
22. The rates for precast concrete paving shall include for all cutting, bedding, jointing and laying to falls.
23. The rates for precast concrete edging and kerbs shall include for formwork, concrete bed and backing, all cutting, jointing and laying.
24. All formwork must be cleaned and oiled prior to use. All exposed concrete edges shall have a 20 mm chamfer unless otherwise directed and costs deemed to be included in formwork rates. The formwork rates shall also be inclusive of all necessary box outs and cut outs for individual holes up to 1 square metre.

The rates for forming rebates in concrete walls etc. shall include for forming pockets for the fish tail fixing cleats where required.

Deductions from formwork quantities will be made for openings more than 1 square metre in area.

25. Formwork for upper surfaces inclined at 30 degrees or less to the horizontal is not measured and the cost of any such formwork used will be deemed to be included in the relevant concrete item rate.
26. Wrought formwork where specified will be measured to 150 mm below final ground levels.
27. Items required for Structural Joints and Construction Joints shown on drawings shall be paid for as per the rates in the Bills of Quantities; the rate for providing and fixing PVC water bar is deemed to be inclusive of all joints, overlaps, junctions, welding, etc. formwork not shown on drawings shall be deemed to be included in the unit rates for concrete work.
28. All rates and sums in the Bills of Quantities shall be in Kenya Shillings and Cents.
29. If possible a construction wayleave of up to 9m for the Transmission Mains and construction wayleave of up to 3m for Distribution Mains will generally be allowed. In the event the above mentioned wayleave widths are not available due to obstructions or restricted access, the Contractor will execute the works using suitable approved alternative methods. The costs for alternative methods are deemed to be covered by bid rates. No additional costs will be allowed.

Payment for site clearance will be based upon this width except that the Engineer reserves the right to restrict this width due to the presence of obstructions, roads, houses, footpaths, boundary walls, fences, trees and the like. Payment shall then be according to the actual area cleared. In case additional space is required this may be made available by the Contractor at his own cost.

No claim for additional space will be entertained by the Engineer. No claims for inconvenience and the like caused by obstruction will be entertained. The rates shall be deemed to include for reinstatement of fences, gates, etc.

30. All pipe diameters indicated in the Bills of Quantities and on Drawings are nominal. Fittings dimensions to suit size/type of pipes supplied by the Bidder and Bidder's rates are deemed to allow for this. No additional cost adjustment will be allowed.
31. Unless otherwise specified the method of measurement shall be in accordance with the Standard Method of Measurement of Civil Engineering Quantities (CESMM3) published by the Institution of Civil Engineers, London, 1991. In some cases variations to this method have been made to suit local practice. A Contractor shall be deemed to have priced the items accordingly and no claims

relating to variation from the method of measurement stated in these documents shall be considered.

32. Items for buildings, electrical and mechanical works are not described using CESMM3 for clarity purposes.
33. All quantities have been measured in Metric Units.
34. Explanation of abbreviations used in the Bills of Quantities are as follows:-

L.S.	-	Lump Sum
P.S.	-	Provisional Sum
P.C.	-	Prime Cost
E.O.	-	Extra Over
Avg.	-	Average
Max.	-	Maximum
Min.	-	Minimum
n.e.	-	Not Exceeding
Nr	-	Number
mm	-	Millimetre
m	-	Linear Metre
m ²	-	Square Metre
m ³	-	Cubic Metre
Ha.	-	Hectare
Drg.	-	Drawing
Kg.	-	Kilogramme
H.T.	-	High Tensile
M.S.	-	Mild Steel
B.L.	-	Bitumen Lined
Dia.	-	Diameter
E.C.	-	Epoxy Coated
E.L.	-	Epoxy Lined
S & S	-	Socket & Spigot
C.L.	-	Cement-mortar Lined
C.I.	-	Cast Iron
D.I.	-	Ductile Iron
uPVC	-	Unplasticised Polyvinyl Chloride
G.I.	-	Galvanised Iron
G.M.S.	-	Galvanised Mild Steel
P.E.H.	-	Palothene
PE	-	Polyethylene
Hr.	-	Hour
FE/Fe	-	Ferrous

35. The rates for metalwork shall include for bolts, nuts, washers and rag-bolts, fixing as specified or in accordance with the manufacturer's instructions and rectifying as specified any parts of the painted, coated or galvanised surface that may be damaged either before or after erection.
36. The rates for fixing penstocks and flap valves etc. shall include for bedding and grouting, testing for water tightness, greasing all working parts and leaving in good working order; where the item includes supply, the rates shall also include for supplying drawings for approval before manufacture is commenced.
37. Concrete Works

- a) Item : Concrete
Unit : m³ of each class

Concrete shall be measured by the cubic metre of each class calculated from the dimensions given on the drawings or as instructed by the Engineer.

No deduction shall be made in the measurement for:

- i) bolt holes, pockets, box outs and cast-in components provided that the volume of each is less than 0.15 cubic metres;
- ii) mortar beds, fillets, drip moulds, rebates, recesses, grooves, chamfers and the like of 100 mm total width or less;
- iii) reinforcement.

The rates for concrete shall include for the cost of:

- i) provision and transport of cement, aggregate and water;
- ii) admixtures and workability agents including submission of details unless otherwise specified;
- iii) batching, mixing, transporting, placing, compacting and curing;
- iv) class UF1 finish;
- v) laying to sloping surfaces not exceeding 15 degrees from the horizontal and laying to falls;
- vi) formwork to blinding concrete;
- vii) placing and compacting against excavated surfaces where required including any additional concrete to fill overbreak or working space;
- viii) complying with all the requirements of the Specifications.

- b) Item : Blinding Concrete
Unit : m²

Blinding concrete shall be measured by the square metre to specified thickness. No deduction shall be made for openings provided that the area of each is less than 0.5 square metres. Blinding concrete over hard material shall be measured as the volume used provided that the maximum thickness of 150 mm allowed for overbreak is not exceeded.

The rate for blinding concrete shall include for all costs itemised in Note 37(a) of this Preamble.

- c) Item : No Fines Concrete
Unit : m³

No fines concrete shall be measured by the cubic metre calculated from the dimensions given on the drawings or as instructed by the Engineer.

The rate for no fines concrete shall include for all costs stated in Note 37(a) of this Preamble.

- d) Item : Unformed Surface Finishes
Unit : m² of each class of finish

Unformed surface finishes shall be measured by the square metre from the dimensions given on the drawings or as instructed by the Engineer.

The rate for concrete in Notes 35(a), (b) and (c) shall include for class UF1 finish.

The rate for unformed surface finishes shall include for the cost of complying with Clause 410 of the Specification.

e) Item : Formwork for Formed Surface Finishes

Unit : m² of formwork for each class of finish for each range of inclinations

Except as stated below, formwork shall be measured by the square metre of formwork actually in contact with the finished face of the concrete. No deduction shall be made in the measurement for openings, pipes, ducts and the like, provided that the area of each is less than 0.50 square metres. Unless otherwise stated, if the volume or area of concrete has not been deducted when measuring the concrete in accordance with Notes 37(a), (b) and (c), formwork to form or box out the void shall not be measured.

Formwork less than 300 mm high to edges of slabs shall be measured by the linear metre in accordance with Note 37(f) of this Preamble.

Inclined formwork shall be measured in accordance with the following classifications:

- i) Horizontal: 85 to 90 degrees inclination from vertical
- ii) Sloping: 10 to 85 degrees inclination from vertical
- iii) Battered: 0 to 10 degrees inclination from vertical
- iv) Vertical: 0 degrees
- v) Sloping upper surfaces inclined at more than 15 degrees from the horizontal

Formwork required for blinding concrete, to form construction joints and shear keys for future concrete and other construction surfaces shall not be measured and the costs shall be included in the rates for other work.

Formwork to contraction and expansion joints shall be measured by the square metre on one face only. The rates shall include for the costs stated below and for forming recesses for sealant and channels for grout.

The rates for formwork shall include for the cost of submission of details, providing and transporting all materials for formwork and falsework, erection including provision of supports, fillets and chamfers 75 mm and less in width, bolts, ties, fixings, cutting to waste, drilling or notching the formwork for reinforcement where required, working around pipes, ducts, conduits and waterstops, temporary openings, cleaning, dressing, stripping, filling bolt holes and any remedial work and for complying with all the requirements of the Specifications.

f) Item : Formwork to Edges of Slabs

Unit : m of each class of finish

Formwork less than 300mm high to edges of slabs shall be measured by the linear metre.

The rate shall include for the costs stated in Note 37 (e) of this Preamble.

g) Item : Waterstops

Unit : m of each type

Waterstops shall be measured by the metre run of each type.

The rate for waterstops shall include for the provision, installation, jointing, any sealants required at the face of the concrete and for placing and compacting concrete around the waterstop.

- h) Item : Mortar
Unit : m²

Mortar used for bedding base plates and the like shall be measured by square metre as the area of the base plate at the specified nominal thickness of bedding.

Mortar used in filling bolts pockets and the like shall not be measured separately and the costs shall be included in the rates for the bolts.

The rates for mortar shall include for the cost of providing and placing the mortar and of complying with all the requirements of the Specifications.

- i) Item : Admixture Workability and Hardening Agents
Unit : As specified in the Special Specification

Where required by the Special Specification admixtures, workability and hardening agents shall be measured and paid for in accordance with the Special Specification.

- j) Item : Reinforcement
Unit : Kilograms or Tonnes

Steel fabric reinforcement shall be measured in accordance with Note 37(k) of this Preamble.

Steel (plain and deformed bars) reinforcement shall be measured by the tonne and shall be the calculated weight of the steel required including splice lengths shown on the drawings. No allowance shall be made in the measurement for rolling margins or cutting waste. The density of steel shall be taken as 7850 kilogrammes per cubic metre.

The rates for reinforcement shall include for cost of providing, cutting to length, splice lengths additional to those shown on the drawings, laps, bending, hooking, waste incurred by cutting, cleaning, spacer blocks, provision and fixing of chairs or other types of supports, welding, fixing the reinforcement in position including the provision of wire or other material for supporting and tying the reinforcement in place, being reinforcement aside temporarily and straightening, placing and compacting concrete around reinforcement and for complying with all the requirements of the Specifications.

- k) Item : Fabric Reinforcement
Unit : m² of each type

Steel fabric reinforcement shall be measured by the square metre and shall be the calculated area excluding any allowance for laps.

The rate for steel fabric reinforcement shall include for the costs stated in Note 37(j) of this Preamble.

Sewers, Drains and Pipelines

38. The rates for pipes, pipework and specials shall include for supply of all materials, setting of concrete blocks and hardwood wedges where specified, providing any temporary support that may be necessary, preparing ends of pipes for jointing and all labour in jointing, protection to detachable joints, cleaning pipelines and rectifying as specified any damage to surface coating. The rates shall also include for all cutting of pipes consequent upon structures, specials and fittings being constructed in the designated positions.
39. The rates for concrete surround, bed and haunching to pipes, concrete in anchor blocks to pipes, and to gully pots shall include for all formwork required and for any additional concrete the Contractor may place for his own convenience or by reason of the method of carrying out the work.

40. Pipes, Fittings and Valves –Specifications are given in Volume II, Section 1 – General Specifications and Particular Specifications or in applicable International Standards referred to SRNs listed in Volume II, Section 2:
- a) uPVC pipes and fittings as specified
 - b) Steel pipes and fittings as specified
 - c) Ductile Iron (DI) pipes and fittings as specified
 - d) Galvanised Iron (GI) pipes and fittings to SRN 203
 - e) Flexible joint spigot and socket precast concrete (PVC) pipes to SRN 409
Rigid joint spigot and socket pcc pipes to SRN 409
Ogee joint pcc pipes to SRN 407
 - f) All flanges as specified
 - g) Gate valves as specified
 - h) Double orifice air valves as specified
Single large orifice air valves as specified
Single small orifice air valves as specified
 - i) Fire hydrants to SRN 509
 - j) Butterfly valves as specified
 - k) Ball float valves as specified
 - l) All pipe, fittings and valve diameters indicated are nominal diameters
 - m) Supply of pipes and fittings to include for cost of supply of all jointing materials like bolts, nuts, washers, gaskets, packings, jointing glue, etc.
 - n) uPVC pipes to be supplied complete with compression joints
 - o) Galvanised Iron pipes to be with threaded coupling joints, or as specified
 - p) Precast concrete ogee pipes to be complete with all jointing materials

Shop Drawings

41. Detailed shop drawings, in triplicate, to be provided for all items where ferrous pipework, fittings and any metalwork i.e. penstocks, ladders etc., are indicated to be installed as outlined in the bills of quantities and drawings. These drawings to be submitted well in advance of ordering of the above materials and the billed rates are deemed to include for provision of these drawings, samples where requested, and inspection where fabricated by the Engineer or his Representative.

Prime Cost Items

42. Attendance on nominated Sub-Contractors shall include for all or any of the following as appropriate - labour, materials and plant required for taking delivery, carting, storing, hoisting and builder's work entailed in fixing, erecting and installing as specified or in accordance with the manufacturer's instructions and all overheads and profits.
43. When, in the opinion of the Engineer, it is reasonable to expect the Contractor to price the attendance item it will be so included in the Bills of Quantities. In all other cases it will form the subject of a

Provisional Sum to be expended on a Dayworks basis.

44. Profit shall include for establishment charges, profit and any other costs not included in the attendance item.
45. The rates for the supply of any mechanical and electrical equipment shall include for the submission of factory test results.
46. Definitions of Terms used in Bill of Quantities
 - a) **'Provide'** - shall mean all costs to cover purchase of materials in good condition, services for transaction with the supplier, supervision, transport to site of works all charges for rental, consumptions, overheads and profits throughout the Contract. It shall also include for all maintenance, insurance and handling and storage whenever applicable.
 - b) **'Excavate for'** - shall mean handling of any material from its incumbent position intended for specified work shown in the drawings or directed by the Project Manager and backfilling and compacting part of material after laying of pipes or erection of structures, and cart away remaining to tips to be provided by the Contractor. The cost for this work shall include all survey, supervision, labour, tools, machinery, protection of work, pumping, insurances and overheads and profits.
 - c) **'Laying'** - shall cover all work necessary for placing an object or material to true line and level specified in a drawing or as directed by the Engineer.
 - d) **'Jointing'** - shall mean process of fixing specified material, pipes, fittings and specials together using appropriate tools, material, labour and machinery. It should cover for all work necessary to provide matching of opposite parts in size, shape and position indicated and clamps, seatings and holders to hold firmly.
 - e) **'Testing'** - shall mean provision of all materials, apparatus, labour, machinery, charges for the media or chemical to be used and their transport, repair of object to be tested if required, re-testing, excavation of any part for visual inspection, erection of any type all until the object has been certified as having passed the required test satisfactorily.
 - f) **'Install'** - shall include for all work requirements stipulated for "laying" and "jointing". It will cover all expenses for the provision of labour, materials, removal from stores, complete erection, installation, supervision, site testing and commissioning as per the Specifications.
47. The unit rates for the various items listed in the BOQ shall include, except insofar as it is otherwise provided under the Contract, all labour, construction equipment, materials, erection, maintenance, supervision, insurances etc. set forth or implied in the Contract. These are all deemed to include all allowances for waste or surplus of any kind, which are not subject to measurement.
48. **The rates to be indicated in the Bills of Quantities shall be inclusive of all applicable Government duties and taxes except Value Added Tax (VAT). The VAT amount shall be added to the Overall Bills Total in the Grand Summary. The Grand Total from the Grand Summary (inclusive of VAT) shall be carried to the Letter of Bid.**

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****BILL No. 1 - PRELIMINARIES AND GENERAL ITEMS**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS A - GENERAL ITEMS</u>				
	<u>Contractual Requirements</u>				
A110.1	Performance Security (Clause 4.2 of Particular Conditions)	Item	L.S		
A110.2	Environmental, Social, Health and Safety (ESHS) Performance Security (Clause 4.2 of Particular Conditions)	Item	L.S		
A120.1	Insurance for Works and Contractor's Equipment (Clause 18.2 of General Conditions)	Item	L.S		
A120.2	Insurance against Injury to Third Party Persons and Damage to Property (Clause 18.3 of General Conditions)	Item	L.S		
A120.3	Insurance for Contractor's Personnel (Clause 18.4 of General Conditions)	Item	L.S		
	<u>Specified Requirements</u>				
A211.1	Excavate for foundations, provide all materials and construct offices for the Resident Engineer at site provided by the Employer as per Drg. No.M455/W-02/REO/01 to 04 and Clause 101 of the Technical Specifications, including water supply, sewerage, drainage, electrical supply and other facilities, all as specified. The Building, furniture and equipment to revert to Employer at the end of the Contract. Include for all water borne sanitation including waste pipes, inspection chambers, Septic Tank etc. Include for KPLC Power Supply with a Meter Board. Building to be constructed using permanent building materials as per Ministry of Public Works Building By-laws or approved equivalent. <u>Note: This is to be done as Priority Works within the first 16 Weeks after date of Mobilization. Floor area approx. 220m²</u>	Item	L.S.		
A211.2	Allow for provision of Rented or Pre-fab Offices for the Resident Engineer's Staff during the first 16 Weeks of the Contract Period as per Clause 101 of the Technical Specifications. Offices to include 3 Nr Offices, Conference Room, Tea Room, W.C and Parking Space for at least 3 Nr Vehicles. <u>Note: If Construction of the RE's Office under Item A211.1 above is delayed beyond the first 16 weeks of the Contract Period, the Contractor shall be liable to provide rented or Pre-fab offices for any additional period at his own cost</u>	Item	L.S.		
A211.3	Maintenance and Attendance to the Resident Engineer's Office as per Clause 101(a) of Technical Specifications including supply of provisions and consumables (stationery, refreshments, cleaning materials, etc.) and payment of bills (water, electricity, day and night security, etc.).	month	26		
A221	Provision, running and maintaining temporary Supervision Vehicles for use by Resident Engineer's Staff whilst the Project Vehicles under items A422.1 and A422.2 are being procured. The temporary vehicles to be of equivalent specifications to the Vehicles being procured.	km	10,000		
A233.1	Provision of Survey Equipment for sole use by the Resident Engineer for the duration of the Contract (1Nr Total Station, 1 Nr. RTK Machine, 2Nr Automatic Levels, 4Nr Metric Levelling Staffs, 15Nr 3m Ranging Rods and other equipment as per Specifications). All equipment shall be new and with carry cases, tripods, reflectors as necessary. All manuals in English Language and metric units. Equipment to revert to Contractor at the end of the Contract.	month	26		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****BILL No. 1 - PRELIMINARIES AND GENERAL ITEMS**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A233.2	Maintenance of Survey Equipment provided above.	month	26		
A233.3	Test Running of the Works: Contractor to Test-run the newly constructed facilities for a period of 4 weeks upon completion of the Works. Test Running to be carried out in close liaison with the Water Services Provider's Staff. The Contractor to allow for 'on job' training of Operation and Maintenance Staff, Tools, etc., and ensure that the operations are carried out full time on a 24 hour basis.	Item	L.S		
A233.4	Allow for provision of As-Built Drawings in accordance with Clause 147 of Technical Specifications.	Item	L.S		
A233.5	Allow for provision of Operation and Maintenance (O&M) Manuals in accordance with Clause 139 of Technical Specifications.	Item	L.S		
	<u>Attendance upon Resident Engineer's Staff</u>				
A241	Staff for Resident Engineer (salaries for staff under this item will be based on the latest Job Group Salary Scales for the Government of Kenya's Civil Service including Basic pay, overtime, hardship allowance, house allowance, per diems and other allowances). The Bidder should allow for annual increments in his rates. The rates for the following staff shall consider Nairobi County as a primary place of work.				
A241.1	Drivers (Government of Kenya Job Group 'J') - 4Nr Persons	Month	26		
A241.2	Secretary (Government of Kenya Job Group 'N') - 1Nr Person	Month	26		
A241.3	Office Assistant (Government of Kenya Job Group 'H') - 1Nr. Person	Month	26		
A242.1	Surveyors (Government of Kenya Job Group 'P') - 2Nr. Persons	Month	26		
A242.2	Chainmen (Government of Kenya Job Group 'G') - 2Nr. Persons	Month	26		
A242.3	ACAD Technician (Government of Kenya Job Group 'M') - 1Nr. Person	Month	26		
A242.4	Environment / Social Assistants (Government of Kenya Job Group 'P') - 2Nr. Persons	Month	26		
	<u>Testing of Materials and Works</u>				
A250.1	Allow for testing of materials as per Specifications	Item	L.S		
A260.1	Allow for testing of the Works as per Specifications	Item	L.S		
	<u>Project Signboards</u>				
A279	Provision, fixing, maintaining and removal of Project Signboards within the Project Areas. The rate to include for payment of all statutory charges to the relevant Authority. Details of the sign Board are shown on Drawing No. M455/W-02/SD/01	Nr	4		
	<u>Surveying and Setting Out</u>				
	Allow for Establishment of Level Datum, Topographical Survey, preparation of an updated Layout Plans with Contours at 1m interval, submission of Survey Drawings to the Resident Engineer and Setting Out of proposed Structures and Pipelines.				
A290.1	Water Storage Reservoir Sites	ha	1		
A290.2	Pipeline Routes	m	130,000		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****BILL No. 1 - PRELIMINARIES AND GENERAL ITEMS**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>Contractor's Camps, Offices, Stores, etc.</u>				
A310	Establish, maintain and remove Contractor's Camp(s) including offices, stores, laboratories, cabins, canteens etc. as the Contractor may require and all services including electricity, water, security, transport, staff welfare etc. (NB- The Employer has no land available for these Contractor's facilities. Identification and acquisition of suitable locations will be responsibility of the Contractor subject to the Engineer's Approval).	Item	L.S		
A4	<u>Provisional Sums</u>				
A41	<u>Daywork</u>				
A410.1	Provisional Sum for undertaking works on Daywork Basis as instructed by the Engineer (<i>Bidder to insert total of Daywork Bill from the Dayworks Summary</i>).	Item	P.S		6,660,000.00
A410.2	% Adjustment to the provisional sum for Item A410.1	%	6,660,000.00		
A421	<u>Furnishing and Equipping of the Resident Engineer's Office</u>				
A421.1	Provisional Sum for furnishing and equipping the R.E's offices to include furniture, computers, printers etc. (List of items to be provided by the Resident Engineer).	Item	P.S		4,000,000.00
A421.2	% Adjustment to the provisional sum for Item A421.1 above	%	4,000,000.00		
A422	<u>Project Supervision Vehicles</u>				
A422.1	Provisional Sum for purchase of 3Nr. Double Cabin Pick-up Vehicles (2800cc) for use by Resident Engineer's Staff (2Nr) and by Employer's Staff (1Nr). Specifications to be approved by the Engineer. Vehicles to revert to the Employer at the end of the Contract.	Item	P.S		17,000,000.00
A422.2	Provisional Sum for purchase of 2Nr Station Wagon Vehicles (2800cc) for use by the Resident Engineer (1Nr) and Employer's Staff (1Nr). Vehicle to revert to the Employer on at the end of the Contract.	Item	P.S		20,000,000.00
A422.3	Provisional Sum for provision of Comprehensive Insurance Cover for the Project Vehicles above for 3 years up to end of Defects Liability Period.	Item	P.S		4,000,000.00
A422.4	Provisional Sum for Running and Maintenance costs of the Project Vehicles including costs of transfer to the Employer at the end of the Contract.	Item	P.S		9,000,000.00
A422.5	% Adjustment to the provisional sum for Items A422.1 to A422.4	%	50,000,000.00		
A423	<u>Accommodation for the Supervision Staff</u>				
A423.1	Provisional Sum for provision of fully furnished rented accommodation for the Resident Engineer and his Staff, including provision of water, electricity, security, etc.	Item	P.S		15,000,000.00
A423.2	% Adjustment to the provisional sum for Item A423.1	%	15,000,000.00		
A429	<u>Other Provisional Sums</u>				
A429.1	Provisional Sum for fees charged by various authorities, road agencies, etc. for permits and relocation of services.	Item	P.S		15,000,000.00
A429.2	% Adjustment to the provisional sum for Item A429.1	%	15,000,000.00		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****BILL No. 1 - PRELIMINARIES AND GENERAL ITEMS**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
ESHS	<u>Environmental, Social, Health and Safety (ESHS) Cost Schedule</u>				
ESHS 1	Resources allocated to ESHS Management (Ref. Clause 4 of ESHS Specifications).	Item	L.S		
ESHS 2	Drafting and updating the ESHS Documentation, Reporting, Inspections (Ref. Clauses 1, 2, 3, 5, 6, 7 and 9 of ESHS Specifications). <i>[Note: Cost of ESHS 1 should exclude all or part of the costs of these Tasks]</i>	Item	L.S		
ESHS 3	Implementation of the Health and Safety Plan: Meetings, health care centre, medical check-ups, emergencies and evacuations, safety protective equipment, hygiene (Ref. Clauses 1, 9, 21 to 25, 27 to 35, 37 and 38 of ESHS Specifications). <i>[Note: Cost of ESHS 1 should exclude all or part of the costs of these Tasks]</i>	Item	L.S		
ESHS 4	Accommodation, Drinking Water, Meals and Transportation of Staff. (Ref. Clauses 36, 40 and 41 of ESHS Specifications). <i>[Note: The Bidder shall detail the financial conditions of the supply of accommodation, meals and transport to its staff. The cost for "Site Mobilization" should exclude all or part of the costs of these Tasks]</i>				
ESHS 4.1	Accommodation	Item	L.S		
ESHS 4.2	Meals	Item	L.S		
ESHS 4.3	Transport	Item	L.S		
ESHS 5	Training and Local Recruitment Management Costs (Ref. Clauses 8 and 39 of ESHS Specifications) <i>[Note: Cost of ESHS 1 should exclude all or part of the costs of these Tasks]</i>	Item	L.S		
ESHS 6	Protection of Adjacent Areas, Biodiversity, Prevention of Erosion and Wastewater Management (Ref. Clauses 10, 11, 12, 17 and 18 of ESHS Specifications).	Item	L.S		
ESHS 7	Traffic, Noise and Atmospheric Emissions Management, Land Take (Ref. Clauses 13, 14, 42, 43 and 44 of ESHS Specifications).	Item	L.S		
ESHS 8	Waste Management (Ref. Clause 15 of ESHS Specifications).	Item	L.S		
ESHS 9	Vegetation Clearing and Site Rehabilitation (Ref. Clauses 16, 19 and 20 of ESHS Specifications). <i>[Note: The cost for "Site Mobilization" should exclude all or part of the costs associated to these Tasks]</i>	Item	L.S		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

BILL No. 1 - PRELIMINARIES AND GENERAL ITEMS

Bill No. 1

BILL No. 1 COLLECTION SHEET

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

BILL No. 1 - PRELIMINARIES AND GENERAL ITEMS

	Amount (Kshs.)
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Bill No. 1 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SCHEDULE OF DAYWORK RATES**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE KShs.	AMOUNT KShs.
1	<u>LABOUR</u>				
	The rates inserted herein should include for all costs such as insurance, travelling time, overtime, accommodation, use and maintenance of small tools of trade and supervision. Only time engaged upon work will be paid for:				
1.1	Unskilled Labourer	Hrs	100		
1.2	Timberman	Hrs	50		
1.3	Stone Mason	Hrs	100		
1.4	Carpenter	Hrs	50		
1.5	Concreter	Hrs	50		
1.6	Blaster (Certified)	Hrs	10		
1.7	Plant Operator	Hrs	100		
1.8	Pipe Fitter	Hrs	100		
1.9	Electrician	Hrs	100		
1.10	Painter	Hrs	10		
1.11	Welder	Hrs	100		
1.12	Surveyor	Hrs	50		
1.13	Chainman	Hrs	50		
1.14	Foreman	Hrs	100		
1.11	Watchman (including use of firewood, lights, day, night, Sunday and Public Holiday watching)	Hrs	50		
TOTAL FOR DAYWORK: LABOUR CARRIED FORWARD TO DAYWORK SUMMARY					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SCHEDULE OF DAYWORK RATES**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE KShs.	AMOUNT KShs.
2	<u>PLANT</u>				
	The rates inserted herein should include for all operational and maintenance costs, fuel, oil, grease, operators, turnboys and supervision. Only the time actually employed on works will be paid for and the rates should include for idle, travelling and overtime				
2.1	Compressor (3.0 m ³ /minute)	Hrs	100		
2.2	Generator (15 KVA)	Hrs	100		
2.3	Backhoe Excavator	Hrs	100		
2.4	Excavator (0.75m ³ bucket) with 1.5 Tonne Hammer	Hrs	100		
2.5	Concrete Vibrator (Petrol or Diesel) - 40mm	Hrs	100		
2.6	Concrete Mixer - 1.0m ³	Hrs	100		
2.7	Dumper 0.75m ³	Hrs	50		
2.8	D7 Bulldozer	Hrs	100		
2.9	Tandem 3 wheels roller. Dead weight 9 tonnes	Hrs	50		
2.10	Mobile Crane - 30T	Hrs	100		
2.11	5 Tonne Lorry (Tipper)	Hrs	50		
2.12	10 Tonne Lorry (Tipper)	Hrs	50		
2.13	Portable water pump 100mm diameter (inclusive of hoses, couplings, etc.)	Hrs	50		
2.14	Oxy-Acetylene cutting and welding set, including oxygen and acetylene	Hrs	20		
2.15	Electric welding set including electrodes	Hrs	10		
TOTAL FOR DAYWORK: PLANT CARRIED FORWARD TO DAYWORK SUMMARY					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SCHEDULE OF DAYWORK RATES**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE KShs.	AMOUNT KShs.
3	<u>MATERIALS</u>				
	All materials are to comply with the specifications. The rates inserted herein are to include for delivery to site, storage and handling.				
3.1	Ordinary Portland Cement	Tonne	1		
3.2	Mild steel (any size from 8mm to 25mm dia.)	Kg	50		
3.3	High tensile steel (any size from 8mm to 25mm dia.)	Kg	50		
3.4	Fine aggregate for concrete	m ³	20		
3.5	Coarse aggregate for concrete	m ³	20		
3.6	Shuttering timber	m ²	10		
3.7	Hardcore	m ³	50		
3.8	Murram / Gravel	m ³	50		
3.9	150mm thick Stone / Concrete Blocks	Nr	500		
3.10	225mm thick Stone / Concrete Blocks	m	500		
3.11	300mm dia. Concrete Ogee Pipe	m	20		
3.12	Concrete Class 15/20	m ³	10		
3.13	Concrete Class 20/20	m ³	10		
3.14	Concrete Class 25/20	m ³	10		
TOTAL FOR DAYWORK: MATERIALS CARRIED FORWARD TO DAYWORK SUMMARY					

DAYWORK SUMMARY

Description	Amount in Kshs.
1 Total For Daywork: Labour	
2 Total For Daywork: Plant	
3 Total for Daywork: Materials	
Total for Daywork (Provisional Sum) carried to Bill No. 1 (Preliminaries and General), Item No. A410.1	

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

BILL NO. 2- KABETE-OLESERENI WATER TRANSMISSION PIPELINE (LINE KO)

INSTRUCTIONS TO BIDDERS

IMPORTANT:

THE BIDDER TO QUOTE FOR ANY ONE OF THE FOLLOWING OPTIONS FOR PIPES AND FITTINGS MATERIALS AND JOINTING. THE SELECTED OPTION TO BE TICKED IN THE SPACE PROVIDED.

OPTION	DESCRIPTION	INDICATE SELECTED OPTION BY TICKING ONE BOX BELOW
1	<u>Ductile Iron</u> Socket and Spigot Pipes and Fittings with <u>Self Anchored Joints</u> as specified	
2	<u>Steel</u> Pipes and Fittings with provision for <u>Field Butt Welded Joints</u> as specified.	

ONLY ONE BOX SHOULD BE TICKED

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.1: KABETE-OLESERENI PIPELINE (SUPPLY OF PIPES, FITTINGS, VALVES AND ANCILLARIES; DN 600, TOTAL LENGTH 19.62 KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.	<u>NOTES:</u> <u>THIS BILL ONLY COVERS RATES FOR PROCUREMENT OF PIPES AND FITTINGS, TRANSPORT TO CONTRACTOR'S SITE STORE AND STORAGE. INCLUDING SUPPLY OF JOINTING MATERIALS, BOLTS, NUTS, GASKETS, ETC.</u>				
2.	<u>RATES FOR TRANSPORT FROM SITE STORE AND INSTALLATION TO BE INCLUDED IN BILL No. 2.2</u>				
3.	<u>BIDDER TO PRICE EITHER FOR STEEL PIPES AND FITTINGS WITH PROVISION FOR FIELD BUTT-WELDED JOINTS AS SPECIFIED OR DUCTILE IRON SOCKET AND SPIGOT PIPES AND FITTINGS WITH STANDARD PUSH-ON JOINTS AS SPECIFIED</u>				
4.	<u>ALL RATES TO BE INCLUSIVE OF RELEVANT GOVERNMENT OF KENYA DUTIES AND TAXES, EXCEPT VALUE ADDED TAX (VAT) WHICH IS TO BE ADDED SEPARATELY IN THE GRAND SUMMARY.</u>				
5.	<u>ALL PIPES AND FITTINGS TO PRESSURE RATING AS INDICATED FOR EACH ITEM UNLESS OTHERWISE STATED</u>				
6.	<u>FOR STEEL PIPELINES, STEEL GRADE AND THICKNESS AS SPECIFIED</u>				
7.	<u>PIPELINE EXTERNAL COATING AND INTERNAL LINING AS SPECIFIED FOR THE SELECTED PIPELINE MATERIAL</u>				
8.	<u>BIDDERS QUOTING FOR DUCTILE IRON PIPES AND FITTINGS TO PRICE FOR SERIES X ITEMS : OTHER COSTS FOR DUCTILE IRON PIPES AND FITTINGS</u>				
9.	<u>IN VIEW OF THE LARGE PIPE DIAMETERS INVOLVED, BIDDERS TO ALLOW FOR REINFORCEMENT OF FITTINGS AS MAYBE REQUIRED, ALL AS PER THE AWWA MANUAL OF WATER SUPPLY PRACTICES (AWWA M11): REINFORCEMENT OF PIPE FITTINGS EITHER BY COLLAR PLATE, WRAPPER PLATE OR BY CROTCH-PLATE, AS MAY BE REQUIRED. BIDDER TO INCLUDE RATE FOR REINFORCEMENT OF FITTINGS IN THEIR RATES FOR RESPECTIVE FITTINGS</u>				
	<u>CLASS I: PIPE WORK - PIPES</u>				
14	<u>Ductile Iron Pipes or Steel Pipes; Joints as specified</u>				
	<u>Ductile Iron Socket and Spigot Pipes with Standard Push-On Joints (class as specified, cement mortar lining, zinc-aluminium coating) OR Socket and Spigot Steel Pipes (minimum yield strength 235 Mpa, minimum wall thickness as specified, cement mortar lining, 3-layer polyethylene coating)</u>				
143.1	<u>DN 600 mm, PN 16</u>	m	15,750		
143.2	<u>DN 600 mm, PN 25</u>	m	4,838		
<u>PAGE TOTAL CARRIED TO BILL COLLECTION SHEET</u>					

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.1: KABETE-OLESERENI PIPELINE (SUPPLY OF PIPES, FITTINGS, VALVES AND ANCILLARIES; DN 600, TOTAL LENGTH 19.62 KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
I5	High Density Polyethylene Pipes (HDPE)				
	Butt-fusion weld jointed HDPE Pipes - PN 16 & PN 20				
I51.1	Nominal Bore 110 mm, PN 16 (provisional length) for Chamber	m	720		
I52.1	Nominal Bore 200 mm PN 16 (provisional length) for Washout Drainage	m	240		
I52.2	Nominal Bore 200 mm PN 20 (provisional length) for Washout Drainage	m	80		
	<u>CLASS J: PIPE WORK - FITTINGS AND VALVES</u>				
J3	Ductile Iron Pipes and fittings or Steel Pipes and fittings; Joints as specified				
J31	Bends				
J311.1	Ductile Iron Socket and Spigot Bends OR Steel Socket and Spigot Bends; Nominal Bore ne 200mm				
J311.1.1	90° DN 200, PN 16 (provisional)	Nr	18		
J311.1.2	90° DN 200, PN 25 (provisional)	Nr	6		
J311.2	Double Flanged Bend; Nominal bore ne 200mm				
J311.2.1	90° DN 80, PN 16	Nr	3		
J313.1	Double Flanged Bend; Nominal Bore 600mm				
J313.1.1	45° DN 600, PN 16	Nr	9		
J313.1.2	45° DN 600, PN 25	Nr	5		
J313.2	Nominal Bore 600mm; Ductile Iron Socket and Spigot Bends OR Socket and Spigot Steel Bends				
J313.2.1	11.25° DN 600, PN 16	Nr	83		
J313.2.2	11.25° DN 600, PN 25	Nr	11		
J313.2.3	22.5° DN 600, PN 16	Nr	15		
J313.2.4	22.5° DN 600, PN 25	Nr	4		
J313.2.5	30° DN 600, PN 16	Nr	18		
J313.2.6	30° DN 600, PN 25	Nr	3		
J313.2.7	45° DN 600, PN 16	Nr	12		
J313.2.8	45° DN 600, PN 25	Nr	2		
J313.2.9	90° DN 600, PN 16	Nr	3		
J32	Junctions and Branches				
	<u>All Flanged Tee</u>				
J321.1	DN 150 x DN 150, PN 16	Nr	5		
J321.2	DN 200 x DN 200, PN 16	Nr	4		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.1: KABETE-OLESERENI PIPELINE (SUPPLY OF PIPES, FITTINGS, VALVES AND ANCILLARIES; DN 600, TOTAL LENGTH 19.62 KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J322.1	DN 250 x DN 150, PN 16	Nr	2		
J322.2	DN 250 x DN 250, PN 16	Nr	3		
J322.3	DN 300 x DN 300, PN 25	Nr	2		
J323.1	DN 600 x DN 80, PN 16	Nr	2		
J323.2	DN 600 x DN 150, PN 16	Nr	9		
J323.3	DN 600 x DN 150, PN 25	Nr	3		
J323.4	DN 600 x DN 200, PN 16	Nr	3		
J323.5	DN 600 x DN 250, PN 16	Nr	2		
J323.6	DN 600 x DN 300, PN 16	Nr	2		
J323.7	DN 600 x DN 300, PN 25	Nr	2		
J323.8	DN 600 x DN 600, PN 16	Nr	6		
J323.9	DN 600 x DN 600, PN 25	Nr	4		
J324.1	DN 800 x DN 600, PN 25	Nr	2		
J323.10	DN 600 x DN 500, PN 16 Special Tee for Air Valve	Nr	27		
J323.11	DN 600 x DN 500, PN 25 Special Tee for Air Valve	Nr	7		
	<u>All Flanged Level Invert Tee</u>				
J323.12	DN 600 x DN 200, PN 16 All Flanged Tee for Washout	Nr	18		
J323.13	DN 600 x DN 200, PN 25 All Flanged Tee for Washout	Nr	6		
J33	<u>Tapers</u>				
	<u>All Flanged Concentric Taper</u>				
J331	DN 150 x DN 80, PN 16	Nr	2		
J332	DN 300 x DN 80, PN 16	Nr	2		
J333	DN 600 x DN 150, PN 16	Nr	2		
J34	<u>Ferrous Couplings</u>				
J341.1	DN 80, PN 16 - Straight Coupling	Nr	3		
J341.2	DN 80, PN 16 - Stepped Coupling	Nr	2		
J341.3	DN 150, PN 16 - Stepped Coupling	Nr	5		
J341.4	DN 150, PN 16 - Straight Coupling	Nr	10		
J341.5	DN 150, PN 25 - Straight Coupling	Nr	3		
J341.6	DN 200, PN 16 - Straight Coupling	Nr	4		
J341.7	DN 200, PN 16 - Stepped Coupling	Nr	23		
J341.8	DN 200, PN 25 - Stepped Coupling	Nr	6		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.1: KABETE-OLESERENI PIPELINE (SUPPLY OF PIPES, FITTINGS, VALVES AND ANCILLARIES; DN 600, TOTAL LENGTH 19.62 KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J342.1	DN 250, PN 16 - Straight Coupling	Nr	2		
J342.2	DN 250, PN 16 - Stepped Coupling	Nr	3		
J342.3	DN 300, PN 25 - Stepped Coupling	Nr	3		
J342.4	DN 300, PN 25 - Straight Coupling	Nr	2		
J343.1	DN 600, PN 16 - Straight Coupling	Nr	123		
J343.2	DN 600, PN 25 - Straight Coupling	Nr	33		
J344.1	DN 800, PN 25 - Stepped Coupling	Nr	3		
J35	<u>Ferrous Flange Adaptor</u>				
J351.1	DN 80, PN 16	Nr	6		
J351.2	DN 150, PN 16	Nr	6		
J351.3	DN 200, PN 16	Nr	20		
J351.4	DN 200, PN 25	Nr	6		
J352.2	DN 250, PN 16	Nr	2		
J352.3	DN 300, PN 25	Nr	2		
J38	<u>Straight Specials</u>				
	<u>Plain Ended Pipes without Puddle Flanges</u>				
J381.1	DN 200, PN 16, length 1.2m (provisional)	Nr	18		
J381.2	DN 200, PN 25, length 1.2m (provisional)	Nr	6		
	<u>Plain Ended Pipes with Puddle Flanges</u>				
J381.3	DN 80, PN 16, length 1.2m with puddle flange (provisional)	Nr	4		
J381.4	DN 150, PN 16, length 1.2m with puddle flange (provisional)	Nr	2		
J381.5	DN 200, PN 16, length 1.2m with puddle flange (provisional)	Nr	3		
J382.1	DN 300, PN 25, length 6m with puddle flange (provisional)	Nr	2		
	<u>Flanged Spigot Pipes without Puddle Flanges</u>				
J381.6	DN 150, PN 16, length 1.2m	Nr	9		
J381.7	DN 200, PN 16, length 1.2m	Nr	6		
J381.8	DN 200, PN 16, length 1.5m	Nr	5		
J382.2	DN 250, PN 16, length 1.2m	Nr	3		
J382.3	DN 250, PN 16, length 1.5m	Nr	2		
J382.4	DN 300, PN 25, length 1.2m	Nr	4		
J383.1	DN 600, PN 16, length 1.5m	Nr	60		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.1: KABETE-OLESERENI PIPELINE (SUPPLY OF PIPES, FITTINGS, VALVES AND ANCILLARIES; DN 600, TOTAL LENGTH 19.62 KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J383.2	DN 600, PN 25, length 1.5m	Nr	16		
J383.3	DN 600, PN 25, length 3m	Nr	4		
J384.1	DN 800, PN 25, length 1.5m	Nr	3		
	<u>Flanged Spigot Pipes with Puddle Flanges</u>				
J381.9	DN 80, PN 16, length 1.2m with puddle flange	Nr	5		
J381.10	DN 150, PN 16, length 1.2m with puddle flange	Nr	2		
J382.5	DN 250, PN 16, length 1.2m with puddle flange	Nr	3		
J383.4	DN 600, PN 16, length 1.5m with puddle flange	Nr	67		
J383.5	DN 600, PN 25, length 1.5m with puddle flange	Nr	17		
J383.6	DN 600, PN 25, length 3m with puddle flange	Nr	2		
	<u>Double Flanged Pipes without Puddle Flanges</u>				
J381.11	DN 80, PN 16, length 1.2m	Nr	3		
J382.6	DN 250, PN 16, length 1.2m	Nr	3		
J383.7	DN 600, PN 25, length 1.2m	Nr	2		
	<u>Double Flanged Pipes with puddle flanges (location of Puddle Flange as specified in Drawings)</u>				
J381.12	DN 80, PN 16, length 1.2m with puddle flange	Nr	4		
J381.13	DN 150, PN 16, length 1.2m with puddle flange	Nr	5		
J381.14	DN 200, PN 16, length 1.2m with puddle flange	Nr	3		
J382.7	DN 300, PN 25, length 1.2m with puddle flange	Nr	2		
J383.8	DN 600, PN 16, length 3m with puddle flange	Nr	3		
J383.9	DN 600, PN 16, length 6m with puddle flange	Nr	3		
J383.10	DN 600, PN 25, length 3m with puddle flange	Nr	2		
J383.11	DN 600, PN 25, length 6m with puddle flange	Nr	2		
	<u>Special Fittings</u>				
J381.15	DN 150, PN 16, special double flanged pipe 325mm long with flange to suit 500mm dia. tee on one end and 150mm dia flange on the other end as per Drg Nr M455/W-02/SD/02 (Detail 1).	Nr	27		
J381.16	DN 150, PN 25, special double flanged pipe 325mm long with flange to suit 500mm dia. tee on one end and 150mm dia flange on the other end as per Drg Nr M455/W-02/SD/02 (Detail 1).	Nr	7		
J383.12	DN 600 PN 16 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	6		
J383.13	DN 600 PN 25 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	5		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.1: KABETE-OLESERENI PIPELINE (SUPPLY OF PIPES, FITTINGS, VALVES AND ANCILLARIES; DN 600, TOTAL LENGTH 19.62 KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J39	<u>Blank Flange</u>				
J391	DN 200, PN 16	Nr	2		
J392	DN 250, PN 16	Nr	2		
J393.1	DN 600, PN 16	Nr	4		
J393.2	DN 600, PN 25	Nr	4		
J8	<u>Valves and Penstocks</u>				
J81	<u>Flanged Gate Valve</u>				
J811.1	DN 80, PN 16, with handwheel for offtakes	Nr	4		
J811.2	DN 150, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	33		
J811.3	DN 150, PN 16, with handwheel for offtakes	Nr	4		
J811.4	DN 150, PN 25, with handwheel (Isolating Valve for Air Valves)	Nr	9		
J811.5	DN 200, PN 16, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	Nr	18		
J811.6	DN 200, PN 16, with handwheel for offtakes	Nr	3		
J811.7	DN 200, PN 25, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	Nr	6		
J812.1	DN 250, PN 16, with handwheel for offtakes	Nr	2		
J812.2	DN 300, PN 25, with handwheel for offtake	Nr	2		
J84	<u>Flanged Butterfly Valve complete with Gear Mechanism designed to slow down flow reduction at end of closure as specified and Hand Wheel as specified</u>				
J843.1	DN 600, PN 16	Nr	6		
J843.2	DN 600, PN 25	Nr	3		
J86	<u>Air Valve</u>				
J861	<u>Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified</u>				
J861.1	DN 150, PN 16	Nr	33		
J861.2	DN 150, PN 25	Nr	9		
J87	<u>Pressure Reducing Valve</u>				
J873	<u>Double Flanged Pressure Reducing Valve as specified</u>				
J871.1	DN 80, PN 16, with handwheel	Nr	2		
J871.2	DN 150, PN 16, with handwheel	Nr	4		
J871.3	DN 200, PN 16, with handwheel	Nr	3		
J872.1	DN 250, PN 16, with handwheel	Nr	2		
J873.1	DN 600, PN 25, with handwheel	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J9	Water Meters				
	Volumetric Flow Water Meters				
J991.1	DN 80, PN16 All Flanged Volumetric Flow Water Meter	Nr	3		
	Electromagnetic Water Meters				
J993.1	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	3		
J993.2	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 25 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	2		
J10	Water Meter Strainer				
J1091.1	DN 80, PN16, Double Flanged Strainer	Nr	3		
J11	Fire Hydrant				
J1191.1	DN 80, PN16, Fire Hydrant	Nr	3		
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BILL No. 2.1 COLLECTION SHEET

CKE1135- NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 2: KABETE-OLESERENI PIPELINE

BILL NO. 2.1: KABETE-OLESERENI PIPELINE (SUPPLY OF PIPES, FITTINGS, VALVES AND ANCILLARIES; DN 600, TOTAL LENGTH 19.62 KM)

	Amount (Kshs.)
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Bill No. 2.1 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.2: KABETE-OLESERENI PIPELINE (PIPELINE CONSTRUCTION; DN 600, TOTAL LENGTH 19.62KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	NOTES:				
1.	<p>The Kabete-Olesereni Water Transmission Pipeline traverses Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. Some sections pass through congested informal settlement areas, with numerous encroachments, Railway and Road Crossings, as well as River Crossing.</p> <p>The Pipeline is to be laid in Areas with numerous active Existing Services, both surface and buried; and along busy Streets/ Roads in Commercial and Residential areas spread over the entire length. The pipeline will be laid across major roads such as Waiyaki Way, James Gichuru, Ngong Road and the Nairobi - Mombasa Highway, including the Express Way.</p> <p>Specific conditions in execution of these works shall be deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement of execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted</p> <p>ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains</p> <p>iii) Pedestrians and Vehicular access to individual Shops/ Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided</p> <p>iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times.</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline route to establish locations and alignment of existing Water Mains, Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Water Mains, Sewer and Power lines, Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.</p>				
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
4.	All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).				
5.	Value Added Tax (VAT) to be added separately in the Grand Summary.				
	CLASS A: GENERAL ITEM				
A260	Testing of Works				
	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	DN 600mm, PN 16	m	15,750		
A260.1.2	DN 600mm, PN 25	m	4,838		
	Disinfection of Pipe lines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval.				
A260.2.1	DN 600mm, PN 16	m	15,750		
A260.2.2	DN 600mm, PN 25	m	4,838		
A38	Method Related Charges				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 4m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 200Nr.	Item	L.S		
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 200Nr	Item	L.S		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	L.S		
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 5,000,000 for Liaison, facilitation with local residents	Item	P.S		5,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 10,000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		10,000,000.00
	CLASS D: DEMOLITION AND SITE CLEARANCE				
D100.1	General site clearance along easement	ha	12		
D2	Tree Cutting				
	Cut down trees, grub up roots and cart away to tips				
D210.1	Girth: 0.5 m - 1.0 m	Nr	257		
D210.2	Girth: 1.0 m - 2 m	Nr	121		
D220.1	Girth 2.0 m - 3 m	Nr	149		
D220.2	Girth 3.0 m - 5 m	Nr	315		
D3	Removal and Disposal of Stumps				
D310	Remove stump dia. 0.5 - 1m	Nr	3		
D320	Remove stump dia. exceeding 1m	Nr	23		
	CLASS E: EARTHWORKS				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities.	m³	5,000		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS I: PIPE WORK - PIPES				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Trench Excavation, Preparation of Surfaces, Disposal of surplus Excavated Material, Shoring Sides of Excavation and Backfilling.</u>				
	Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.				
I4	Ductile Iron Pipes OR Steel Pipes; Joints as specified				
	Ductile Iron Socket and Spigot Pipes OR Steel Socket and Spigot Pipes				
I43	Nominal Bore 600mm in trenches				
I431	Nominal Bore 600mm not, in trenches (For aerial crossings)	m	50		
I432	Depth not exceeding 1.5 m	m	276		
I433	Depth 1.5m - 2.0m	m	624		
I434	Depth 2.0 m - 2.5 m	m	6,292		
I435	Depth 2.5 m - 3.0 m	m	7,319		
I436	Depth 3.0 m - 3.5 m	m	4,471		
I437	Depth 3.5m - 4.0 m	m	1,306		
I438	Depth exceeding 4.0 m	m	249		
I5	High Density Polyethylene Pipes (HDPE)				
	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 16 Nominal Bore 110mm in trenches (chambers)				
I51.1	Depth not exceeding 1.5 m	m	180		
I51.2	Depth 1.5m - 2.0 m	m	360		
I51.3	Depth exceeding 2.0 m	m	180		
	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 25 Nominal Bore 110mm in trenches (chambers)				
I51.4	Depth not exceeding 1.5 m	m	60		
I51.5	Depth 1.5m - 2.0 m	m	120		
I51.6	Depth exceeding 2.0 m	m	60		
I52.1	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 16 Nominal Bore 200mm in trenches				
I52.1.2	Depth not exceeding 1.5m	m	50		
I52.1.3	Depth 2.0m - 2.5m	m	30		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
I52.1.4	Depth 2.0m - 2.5m	m	20		
I52.1.5	Depth 2.5m - 3.0m	m	30		
I52.1.6	Depth 3.0m - 3.5m	m	30		
I52.1.7	Depth 3.5m - 4m	m	50		
I52.1.8	Depth exceeding 4m	m	30		
I52.1	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 25 Nominal Bore 200mm in trenches				
I52.1.2	Depth not exceeding 1.5m	m	10		
I52.1.3	Depth 2.0m - 2.5m	m	5		
I52.1.4	Depth 2.0m - 2.5m	m	5		
I52.1.5	Depth 2.5m - 3.0m	m	10		
I52.1.6	Depth 3.0m - 3.5m	m	10		
I52.1.7	Depth 3.5m - 4m	m	20		
I52.1.8	Depth exceeding 4m	m	20		
	CLASS J: PIPE WORK - FITTINGS AND VALVES				
	<p><u>Transport from Site Store, Lay and Joint Pipe Fittings in Trench/on Aerial Crossings, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling. Rate to include for Transport to Site and Installation of all Jointing Materials, Bolts, Nuts, Gaskets, etc.</u></p> <p><u>Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.</u></p>				
J3	Ductile Iron Pipes and fittings or Steel Pipes and fittings; Joints as specified				
J31	Bends				
J311.1	Ductile Iron Socket and Spigot Bends OR Steel Socket and Spigot Bends; Nominal Bore ne 200mm				
J311.1.1	90° DN 200, PN 16 (provisional)	Nr	18		
J311.1.2	90° DN 200, PN 25 (provisional)	Nr	6		
J311.2	Double Flanged Bend; Nominal bore ne 200mm				
J311.2.1	90° DN 80, PN 16	Nr	3		
J313.1	Double Flanged Bend; Nominal Bore 600mm				
J313.1.1	45° DN 600, PN 16	Nr	9		
J313.1.2	45° DN 600, PN 25	Nr	5		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J313.2	Nominal Bore 600mm; Ductile Iron Socket and Spigot Bends OR Socket and Spigot Steel Bends				
J313.2.1	11.25° DN 600, PN 16	Nr	83		
J313.2.2	11.25° DN 600, PN 25	Nr	11		
J313.2.3	22.5° DN 600, PN 16	Nr	15		
J313.2.4	22.5° DN 600, PN 25	Nr	4		
J313.2.5	30° DN 600, PN 16	Nr	18		
J313.2.6	30° DN 600, PN 25	Nr	3		
J313.2.7	45° DN 600, PN 16	Nr	12		
J313.2.8	45° DN 600, PN 25	Nr	2		
J313.2.9	90° DN 600, PN 16	Nr	3		
J32	<u>Junction and Branches</u>				
	<u>All Flanged Tee</u>				
J321.1	DN 150 x DN 150, PN 16	Nr	5		
J321.2	DN 200 x DN 200, PN 16	Nr	4		
J322.1	DN 250 x DN 150, PN 16	Nr	2		
J322.2	DN 250 x DN 250, PN 16	Nr	3		
J322.3	DN 300 x DN 300, PN 25	Nr	2		
J323.1	DN 600 x DN 80, PN 16	Nr	2		
J323.2	DN 600 x DN 150, PN 16	Nr	9		
J323.3	DN 600 x DN 150, PN 25	Nr	3		
J323.4	DN 600 x DN 200, PN 16	Nr	3		
J323.5	DN 600 x DN 250, PN 16	Nr	2		
J323.6	DN 600 x DN 300, PN 16	Nr	2		
J323.7	DN 600 x DN 300, PN 25	Nr	2		
J323.8	DN 600 x DN 600, PN 16	Nr	6		
J323.9	DN 600 x DN 600, PN 25	Nr	4		
J324.1	DN 800 x DN 600, PN 25	Nr	2		
J323.10	DN 600 x DN 500, PN 16 Special Tee for Air Valve	Nr	27		
J323.11	DN 600 x DN 500, PN 25 Special Tee for Air Valve	Nr	7		
	<u>All flanged Level Invert Tee</u>				
J323.12	DN 600 x DN 200, PN 16 All Flanged Level Invert Tee for Washout	Nr	18		
J323.13	DN 600 x DN 200, PN 25 All Flanged Level Invert Tee for Washout	Nr	6		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J33	<u>Tapers</u>				
	<u>All Flanged Concentric Taper</u>				
J331	DN 150 x DN 80, PN 16	Nr	2		
J332	DN 300 x DN 80, PN 16	Nr	2		
J333	DN 600 x DN 150, PN 16	Nr	2		
J34	<u>Ferrous Couplings</u>				
J341.1	DN 80, PN 16 - Straight Coupling	Nr	3		
J341.2	DN 80, PN 16 - Stepped Coupling	Nr	2		
J341.3	DN 150, PN 16 - Stepped Coupling	Nr	5		
J341.4	DN 150, PN 16 - Straight Coupling	Nr	10		
J341.5	DN 150, PN 25 - Straight Coupling	Nr	3		
J341.6	DN 200, PN 16 - Straight Coupling	Nr	4		
J341.7	DN 200, PN 16 - Stepped Coupling	Nr	23		
J341.8	DN 200, PN 25 - Stepped Coupling	Nr	6		
J342.1	DN 250, PN 16 - Straight Coupling	Nr	2		
J342.2	DN 250, PN 16 - Stepped Coupling	Nr	3		
J342.3	DN 300, PN 25 - Stepped Coupling	Nr	3		
J342.4	DN 300, PN 25 - Straight Coupling	Nr	2		
J343.1	DN 600, PN 16 - Straight Coupling	Nr	123		
J343.2	DN 600, PN 25 - Straight Coupling	Nr	33		
J344.1	DN 800, PN 25 - Stepped Coupling	Nr	3		
J35	<u>Ferrous Flange Adaptor</u>				
J351.1	DN 80, PN 16	Nr	6		
J351.2	DN 150, PN 16	Nr	6		
J351.3	DN 200, PN 16	Nr	20		
J351.4	DN 200, PN 25	Nr	6		
J352.2	DN 250, PN 16	Nr	2		
J352.3	DN 300, PN 25	Nr	2		
J38	<u>Straight Specials</u>				
	<u>Plain Ended Pipes without Puddle Flanges</u>				
J381.1	DN 200, PN 16, length 1.2m (provisional)	Nr	18		
J381.2	DN 200, PN 25, length 1.2m (provisional)	Nr	6		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>Plain Ended Pipes with Puddle Flanges</u>				
J381.3	DN 80, PN 16, length 1.2m with puddle flange (provisional)	Nr	4		
J381.4	DN 150, PN 16, length 1.2m with puddle flange (provisional)	Nr	2		
J381.5	DN 200, PN 16, length 1.2m with puddle flange (provisional)	Nr	3		
J382.1	DN 300, PN 25, length 6m with puddle flange (provisional)	Nr	2		
	<u>Flanged Spigot Pipes without Puddle Flanges</u>				
J381.6	DN 150, PN 16, length 1.2m	Nr	9		
J381.7	DN 200, PN 16, length 1.2m	Nr	6		
J381.8	DN 200, PN 16, length 1.5m	Nr	5		
J382.2	DN 250, PN 16, length 1.2m	Nr	3		
J382.3	DN 250, PN 16, length 1.5m	Nr	2		
J382.4	DN 300, PN 25, length 1.2m	Nr	4		
J383.1	DN 600, PN 16, length 1.5m	Nr	60		
J383.2	DN 600, PN 25, length 1.5m	Nr	16		
J383.3	DN 600, PN 25, length 3m	Nr	4		
J384.1	DN 800, PN 25, length 1.5m	Nr	3		
	<u>Flanged Spigot Pipes with Puddle Flanges (location of Puddle Flange as specified in Drawings)</u>				
J381.9	DN 80, PN 16, length 1.2m with puddle flange	Nr	5		
J381.10	DN 150, PN 16, length 1.2m with puddle flange	Nr	2		
J382.5	DN 250, PN 16, length 1.2m with puddle flange	Nr	3		
J383.4	DN 600, PN 16, length 1.5m with puddle flange	Nr	67		
J383.5	DN 600, PN 25, length 1.5m with puddle flange	Nr	17		
J383.6	DN 600, PN 25, length 3m with puddle flange	Nr	2		
	<u>Double Flanged Pipes without Puddle Flanges</u>				
J381.11	DN 80, PN 16, length 1.2m	Nr	3		
J382.6	DN 250, PN 16, length 1.2m	Nr	3		
J383.7	DN 600, PN 25, length 1.5m	Nr	2		
	<u>Double Flanged Pipes with puddle flanges (location of Puddle Flange as specified in Drawings)</u>				
J381.12	DN 80, PN 16, length 1.2m with puddle flange	Nr	4		
J381.13	DN 150, PN 16, length 1.2m with puddle flange	Nr	5		
J381.14	DN 200, PN 16, length 1.2m with puddle flange	Nr	3		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J382.7	DN 300, PN 25, length 1.2m with puddle flange	Nr	2		
J383.8	DN 600, PN 16, length 3m with puddle flange	Nr	3		
J383.9	DN 600, PN 16, length 6m with puddle flange	Nr	3		
J383.10	DN 600, PN 25, length 3m with puddle flange	Nr	2		
J383.11	DN 600, PN 25, length 6m with puddle flange	Nr	2		
	Special Fittings				
J381.15	DN 150, PN 16, special double flanged pipe 325mm long with flange to suit 600mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	Nr	27		
J381.16	DN 150, PN 25, special double flanged pipe 325mm long with flange to suit 600mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	Nr	7		
J383.12	DN 600 PN 16 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	6		
J383.13	DN 600 PN 25 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	8		
J39	Blank Flange				
J391	DN 200, PN 16	Nr	2		
J392	DN 250, PN 16	Nr	2		
J393.1	DN 600, PN 16	Nr	4		
J393.2	DN 600, PN 25	Nr	4		
J8	Valves and Penstocks				
J81	Flanged Gate Valve				
J811.1	DN 80, PN 16, with handwheel for offtakes	Nr	4		
J811.2	DN 150, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	33		
J811.3	DN 150, PN 16, with handwheel for offtakes	Nr	4		
J811.4	DN 150, PN 25, with handwheel (Isolating Valve for Air Valves)	Nr	9		
J811.5	DN 200, PN 16, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	Nr	18		
J811.6	DN 200, PN 16, with handwheel for offtakes	Nr	3		
J811.7	DN 200, PN 25, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	Nr	6		
J812.1	DN 250, PN 16, with handwheel for offtakes	Nr	2		
J812.2	DN 300, PN 25, with handwheel for offtakes	Nr	2		
J84	Flanged Butterfly Valve complete with Gear Mechanism designed to slow down flow reduction at end of closure as specified and Hand Wheel as specified				
J843.1	DN 600, PN 16	Nr	6		
J843.2	DN 600, PN 25	Nr	3		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J86	Air Valve				
J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
J861.1	DN 150, PN 16	Nr	33		
J861.2	DN 150, PN 25	Nr	9		
J87	Pressure Reducing Valve				
J873	Double Flanged Pressure Reducing Valve as specified				
J871.1	DN 80, PN 16, with handwheel	Nr	2		
J871.2	DN 150, PN 16, with handwheel	Nr	4		
J871.3	DN 200, PN 16, with handwheel	Nr	3		
J873.1	DN 250, PN 16, with handwheel	Nr	2		
J873.2	DN 600, PN 25, with handwheel	Nr	2		
J9	Water Meters				
	Volumetric Flow Water Meters				
J991.1	DN 80, PN16 All Flanged Volumetric Flow Water Meter	Nr	3		
	Electromagnetic Water Meters				
J992.1	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	3		
J992.2	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 25 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	2		
J10	Water Meter Strainer				
J1091.1	DN 80, PN16, All Flanged Strainer	Nr	3		
J11	Fire Hydrant				
J1191.1	DN 80, PN16, Fire Hydrant	Nr	3		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS K: PIPE WORK : CHAMBERS AND PIPE WORK ANCILLARIES</u>				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and others pipe works and ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. - Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes, to detail. - Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K231	Depth not exceeding 1.5m				
K231.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	5		
K232	Depth 1.5 - 2 m				
K232.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	15		
K233	Depth 2-2.5 m				
K233.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	7		
K233.2	Provide all materials and construct Reinforced Concrete LINE VALVE Chambers internal dimensions not exceeding 2400mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system etc . All as specified and as detailed Drawing No. M455/W-02/SD/04-1	Nr	1		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K234	Depth 2.5-3 m				
K234.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	2		
K234.2	Provide all materials and construct Reinforced Concrete ELECTROMAGNETIC FLOW METER Chambers internal dimensions 2000mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc . All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	1		
K234.3	Provide all materials and construct Reinforced Concrete LINE VALVE Chambers internal dimensions not exceeding 2400mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system etc . All as specified and as detailed Drawing No. M455/W-02/SD/04-1	Nr	3		
K235	Depth 3-3.5 m				
K235.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	3		
K235.2	Provide all materials and construct Reinforced Concrete ELECTROMAGNETIC FLOW METER Chambers internal dimensions 2000mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc . All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	1		
K235.3	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	2		
K236	Depth 3.5-4 m				
K236.1	Provide all materials and construct Reinforced Concrete LINE VALVE Chambers internal dimensions not exceeding 2400mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system etc . All as specified and as detailed Drawing No. M455/W-02/SD/04-1	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K236.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	2		
K236.3	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	5		
K236.4	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K236.5	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 2400mm x 2400mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K25	PRECAST CONCRETE CHAMBERS				
K254	Depth 2.5-3m				
K254.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-1	Nr	1		
K255	Depth 3-3.5m				
K255.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-1	Nr	7		
K256	Depth 3.5-4m				
K256.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-1	Nr	7		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K257	Depth exceeding 4m				
K257.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-1	Nr	7		
K6	CROSSINGS				
K63	Under-River Crossings, Width exceeding 10m				
	Details as per Dwg No. M455/W-02/SD/09				
	Note: Items for work shall include: Excavation for foundation in river/stream beds depth n.e 4.0m, preparation of surfaces, disposal of excavated material, upholding sides of excavation, backfilling and removal of redundant services, all as per Dwg No. M455/W-02/SD/09				
K632.1	Under River Crossing on Pipe Nominal Bore 300mm - 900mm	m	60		
K632.2	Extra over item K632.1 for excavation in rock, depth n.e. 4.0m including preparation of trenches (No blasting permitted) (Provisional)				
K632.2.1	Class 'A'	m ³	30		
K632.2.2	Class 'B'	m ³	30		
K632.2.3	Class 'C'	m ³	110		
	Gabion Works at Crossings				
K633.8	Provide all materials and carry out laying of 2m x 1m x 1m Gabion Boxes, wire minimum size 5mm or as specified. Gabion boxes to be laid in stretches with 0.5m overlap, mesh wire to be galvanized and minimum diameter 5mm. Include for tying of adjacent Gabions with approved wire and 16mm dia anchor rods to suit site conditions (Provisional)	Nr	100		
K633.9	Provide all materials and carry out laying of 0.25 - 0.5m deep Gabion Mattresses, mesh wire to be galvanized and of minimum diameter 5mm. Include for tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions (Provisional)	m ²	140		
K633.10	Provide and place rockfill to gabions and mattresses	m ³	60		
K633.11	Extra over for provision of all materials and infilling of gabions with Class 15 mass concrete	m ³	10		
K633.13	Method Related Charges				
K633.13.1	Allow for diverting River/Stream including construction of cofferdam etc., for river crossing works and reinstate after construction. The River/Stream to be kept operational during construction, width exceeding 10m	Nr	2		
K633.13.2	Allow for keeping excavation free of water which may occur through ground water seepage, rain or other means.	Item	L.S		

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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K633.13.3	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item.				
	i)	Item	LS		
	ii)	Item	LS		
K7	Reinstatement				
	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murrum, and any other associated works. Nominal pipe bore n.e. 600mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works. Pipe Nominal Bore 300mm - 900mm	m	2,000		
K732.2	- Ditto - but for CONCRETE BLOCK PAVED roads, Nominal Bore 300mm - 900mm	m	2,630		
K732.3	- Ditto - but for CONCRETE PAVED roads, Nominal Bore 300mm - 900mm	m	500		
K732.4	- Ditto - but for AGGREGATE PAVED roads, Nominal Bore 300mm - 900mm	m	160		
K732.5	Breaking up, temporary and permanent reinstatement of MURRAM roads with 300mm thick well graded stabilized gravel with 3% cement base compacted in 150mm thick layers using an 8-10 tonne roller and 150mm deep approved compacted hardcore to the satisfaction of the Engineer. Nominal pipe bore n.e. 1800mm. all as per Dwg No. M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.; Pipe nominal bore 300mm - 900mm	m	870		
K742.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, cabro, tarmac, etc.). Pipe bore 300mm - 900mm all as per Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18	m	8,000		
K742.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS . Pipe bore 300mm - 900mm all as per Dwg No. M455/W-02/SD/18	m	1,000		
K751.1	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	5,500		
K772	Allow for removal and reinstatement of gabions along the alignment, all to the satisfaction of the engineer	m	1,000		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K8	Other Pipework Ancillaries				
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts for water main route, road crossings, change of direction, air valves, washouts, and valve chambers. All in accordance with drawings and specifications	Nr	250		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP.				
K861	To pipes nominal bore ne 200mm	Nr.	6		
K863	To pipes nominal bore: 300 - 600 mm	Nr.	6		
	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in drg. No. M455/W-02/SD/03-1. Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr.	30		
	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.2	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	1,250		
K870.3	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is completed.	m	1,700		
K870.4	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	150		
K870.5	Allow for breaking up of existing CONCRETE DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/19.)	m	2,000		
K870.6	-Ditto - but for existing INVERT BLOCK DRAINS. (See Drg. No. M455/W-02/SD/19)	m	470		
K870.7	-Ditto - but for existing INVERT BLOCK DRAINS + 2 COURSES.	m	500		
K870.8	-Ditto - but for existing INVERT BLOCK DRAINS + 3 COURSES.	m	670		
K870.9	-Ditto - but for existing INVERT BLOCK DRAINS + 4 COURSES.	m	100		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS L:- PIPEWORK : SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in trench for rock class "A"	m ³	4,000		
L111.2	Excavation in trench for rock class "B"	m ³	8,000		
L111.3	Excavation in trench for rock class "C"	m ³	20,000		
	Note:- Blasting is NOT permitted for Item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L523	To pipes nominal bore: 300 - 600 mm	m	8,000		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L533	To pipes nominal bore: 300 - 600 mm	m	12,000		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L543	To pipes nominal bore: 300 - 600 mm	m	3,000		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks				
	Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	Class 20/20 Mass Concrete				
	NOTE:- The work includes pipe and fitting fixing				
L73	Volume:- 0.2 - 0.5 m³				
L733	To pipes nominal bore: 300 -600mm	Nr	26		
L74	Volume:- 0.5 - 1 m³				
L743	To pipes nominal bore: 300 -600mm	Nr	10		
L75	Volume:- 1 - 2 m³				
L753	To pipes nominal bore: 300 -600mm	Nr	18		
L76	Volume:- 2 - 4 m³				
L763	To pipes nominal bore: 300 -600mm	Nr	20		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
L77	Volume:- 4 - 6 m³				
L773	To pipes nominal bore: 300 -600mm	Nr	24		
L783.1	Volume:- 6- 10 m³				
L783.1.1	To pipes nominal bore: 300 -600mm	Nr	6		
L783.2	Volume:- exceeding 10m³				
L783.2.1	To pipes nominal bore: 300 -600mm	Nr	50		
	<u>CLASS V: PAINTING</u>				
V310	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	1,500		
	<u>CLASS X:-MISCELLANEOUS WORKS</u>				
X4	<u>Gabion Works</u>				
X411	Supply and Install approved Gabion Boxes, size 2m x 1m x 1m mesh wire minimum size 5mm diameter laid in cascading stacks around R.C. piers on aerial crossings, and or as specified, Gabion boxes to be instructed by the Engineer on site, all as directed. Rate to include for supply and packing of approved hardcore into gabion boxes, all to Engineer's approval, as shown on Drg. No. M455/W-02/SD/09.	Nr	102		
X421	Ditto - but Gabion Mattresses, thickness 500mm mesh wire 5mm diameter	m ²	140		
<u>X990</u>	<u>EROSION CONTROL AND PROTECTION MEASURES (PROVISIONAL)</u>				
X990.1	Provide all materials and construct mass concrete EROSION CHECKS on steep sloped as specified and according to details given in Drg. No. M455/W-02/SD/09.	Nr.	120		
X990.2	Supply and plant approved grass on slopes and maintenance until it takes root to the satisfaction of the Engineer. Rate to include for excavation of cut-off drains to divert run-off water from pipe trench alignment.	m ²	2,940		
<u>X991</u>	<u>HEADWALLS, CASCADES AND OUTFALL CHAMBERS</u>				
	Details as per Dwg No. M455/W-02/SD/03-1 - 03-2 (Provisional)				
X991.1	<u>Excavation</u>				
	The rates shall include for all strutting, shuttering, stabilizing the excavation and preparation of excavated surfaces to receive permanent work.				
	Excavate for pier footings, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Engineer. Tips to be identified by the Contractor in liaison with the Local Authority.				
X991.1.1	Maximum depth n.e. 1.0m	m ³	70		
X991.1.2	-Ditto - depth 1.0 to 1.5m	m ³	110		
X991.1.3	-Ditto - depth exceeding 1.5m	m ³	45		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
X991.1.4	E.O. excavation items for excavation in rock Class 'A' (Provisional)	m ³	25		
X991.1.5	-Ditto - for excavation in rock Class 'B' (Provisional)	m ³	35		
X991.1.6	-Ditto - for excavation in rock Class 'C' (Provisional)	m ³	55		
X991.2	Concrete Works				
	Provide, mix and place concrete as directed				
X991.2.1	Plain concrete Class 15/20 in 50mm blinding layer under bases/treads.	m ²	170		
X991.2.2	Vibrated, Reinforced Concrete Class 25/20 in:-				
X991.2.2.1	Footings	m ³	4		
X991.2.2.2	Bases	m ³	21		
X991.2.2.3	Walls	m ³	22		
X991.2.2.4	Treads	m ³	2		
X991.2.2.5	Risers	m ³	4		
X991.2.2.6	Roof Slabs	m ³	8		
X991.3	Reinforcement				
	Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, propping, with spacers and tying as specified.				
X991.3.1	All diameters	kg	7,930		
X991.4	Formwork				
	Provide and fix shuttering including propping, strutting and striking all as specified.				
	(i) Vertical Formwork - Class F1 Finish				
X991.4.1	Sides of 200mm treads/ bases/ risers	m ²	352		
X991.4.2	Sides of footings - width n.e. 0.2m	m ²	21		
X991.4.3	Sides of footings - width exceeding 0.2m	m ²	11		
X991.4.4	External faces of chamber walls/ headwalls - width exceeding 0.2m	m ²	250		
	(ii) Vertical Formwork - Class F2 Finish				
X991.4.5	Sides of 200mm roof slabs and walls	m ²	171		
X991.4.6	Internal faces of chamber walls/ headwalls etc	m ²	214		
	(iii) Horizontal Formwork - Class F2 Finish				
X991.4.7	Soffits of roof slabs and walls	m ²	27		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
X991.5	<u>Walling.</u>				
	<u>Natural Stone Block Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Alternate Course, and Bedded, Jointed and Pointed in Cement Mortar (1:4):-</u>				
X991.5.1	200 mm Walling	m ²	90		
X991.6	<u>Plastering</u>				
	<u>12.5mm Thick Gauged Cement Plaster as per specifications on:-</u>				
X991.6.1	Natural stone block walling and other surfaces	m ²	180		
X991.7	<u>Miscellaneous Works</u>				
X991.7.1	Provide for and fix plastic coated step irons in rising outfall chambers for Washouts as specified by the Engineer. Details of chamber are in Dwg Nr. M455/W-02/SD/03-2	Nr	70		
X991.7.2	Provide Precast Reinforced Concrete Covers size 600 x 600 x 50mm thick to the rising outlet Chambers.	Nr	8		
X991.8	<u>Method Related Charges for Construction of Outfall Structures</u>				
X991.8.1	Allow for River diversion, for construction of W.O outfall structures including construction of cofferdam etc., for River crossing works and reinstate after construction. The River / Waterway to be kept operational during construction. The Bidder to submit method statement with Bid for execution of these works.	Item	L.S		
X991.8.2	Method related charges for keeping excavation free of water which may occur through ground water seepage, rain or other means.	Item	L.S		
X991.8.3	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item.				
	i)	Item	L.S		
	ii)	Item	L.S		
X992	<u>TRENCHLESS ROAD CROSSINGS</u>				
	Provide all equipment and materials, tunnel below road surface in common material (soil/murram), including any requisite shoring and strutting during tunnelling, provide and install precast Reinforced Concrete lining segments to tunnel faces, blanking of tunnel ends with mass concrete/masonry walls upon pipework installation, all as detailed in drg. No. M455/W-02/SD/10 or using any other Trenchless method, subject to Engineer's approval and in accordance to specifications. Rate to include for all necessary grouting. All works to be executed in close liaison with relevant road authorities. Rates to include for facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works. The bidder may quote for alternative method of Trenchless Road/Railway Crossing. Details of alternative method to be submitted with the Bid. Nominal pipe bore not exceeding 600mm.				
X992.1.1	Manyani Road Crossing	m	15		
X992.1.2	Kabarsiran Avenue (Musa Gitau) Road Crossing	m	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
X992.1.3	Mzima Springs Road Crossing	m	12		
X992.1.4	St.Mary's School Private Road Crossing	m	12		
X992.1.5	James Gichuru Road Crossing	m	40		
X992.1.6	Olenguruone Road Crossing	m	25		
X992.1.7	Ndoto Access Road Crossing	m	12		
X992.1.8	Access Road Crossing at Motorzone	m	12		
X992.1.9	Margaret Wambui Road Crossing	m	16		
X992.1.10	Shell Access Road Crossing (2Nr)	m	25		
X992.1.11	Kolloh Road Crossing	m	15		
X992.1.12	Jacaranda Avenue Road Crossing	m	15		
X992.1.13	Muthangari Road Crossing	m	12		
X992.1.14	Muthangari Garden Access Road Crossing	m	15		
X992.1.15	Othaya Road Crossing	m	12		
X992.1.16	Oloitoktok Road Crossing	m	25		
X992.1.17	Argwings Kodhek Road Crossing	m	22		
X992.1.18	Ole Dume Road Crossings (2Nr)	m	45		
X992.1.19	Kilimani Road Crossing	m	18		
X992.1.20	Ngong Road Crossing	m	45		
X992.1.21	Suna Road Crossing	m	15		
X992.1.22	Ngong Lane Road Crossing	m	12		
X992.1.23	Mugo Kabiru Drive Road Crossing	m	12		
X992.1.24	Kabarnet Close Road Crossing	m	40		
X992.1.25	Kabarnet Road Crossing	m	30		
X992.1.26	Sheikh Mahmoud Road Crossing	m	12		
X992.1.27	Langata Road Crossing	m	60		
X992.1.28	Turn off to Southern Bypass Road Crossing	m	15		
X992.1.29	Access Road to Langata Link Road Crossing	m	30		
X992.1.30	Swaminarayan Street Road Crossing	m	15		
X992.1.31	Access to CALE and service lane Crossing	m	30		
X992.1.32	Access to Olesereni underpass Crossing	m	12		
X992.1.33	Nairobi - Mombasa Highway	m	90		
X992.1.34	Other unclassified/unnamed Roads	m	100		
X992.2	Extra over the Road/Railway Crossing, items X992.1.1 to X992.1.32 for tunnelling in rock, all classes (Provisional)	m ³	1,500		
X992.3	Transport from site store, install and joint ferrous pipework in tunnel, including all fixing and jointing as specified, nominal bore 300 - 600mm	m	650		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
X992.4	Allow for any Method Related Charges for Trenchless pipe crossing under roads/ railway tracks for item X992.1.1 to X992.2 above that the Bidder feels may be required. These should be indicated below with pricing of each item. (Bidder may add Additional items here below if required).	Item	L.S		
	i)				
	ii)				
X993	<u>AERIAL CROSSINGS ON PIERS - 3Nr</u>				
	Details as per Dwg Nos. M455/W-02/SD/12				
	Pipe Bore n.e 600mm				
X993.1	<u>Excavation</u>				
	The rates shall include for all strutting, shuttering, stabilizing the excavation and preparation of excavated surfaces to receive permanent work.				
	Excavate for pier footings and Under-River Crossings, part backfill after construction and remainder, cart away to approved tips or use as fill on site, all as directed by the Engineer. Tips to be identified by the Contractor in liaison with the Local Authority.				
X993.1.1	Maximum depth n.e. 1.5m	m ³	71		
X993.1.2	-Ditto - depth 1.5 to 2.0m	m ³	32		
X993.1.3	-Ditto - depth exceeding 2.0m	m ³	8		
X993.1.4	E.O. excavation items for excavation in rock Class 'A' (Provisional) - Blasting not permitted	m ³	18		
X993.1.5	-Ditto - for excavation in rock Class 'B' (Provisional) - Blasting not permitted	m ³	27		
X993.1.6	-Ditto - for excavation in rock Class 'C' (Provisional) - Blasting not permitted	m ³	45		
X993.2	<u>Concrete Works</u>				
	Provide, mix and place concrete as directed				
X993.2.1	Plain concrete Class 15/20 in 75mm blinding layer under pier footings.	m ²	47		
X993.2.2	-Ditto- but 75mm thick, on exposed surface of gabions	m ²	51		
X993.2.3	<u>Vibrated, Reinforced Concrete Class 25/20 in:-</u>				
X993.2.3.1	Footings	m ³	24		
X993.2.3.2	Piers	m ³	57		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
X993.3	<u>Reinforcement</u>				
	Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, propping, with spacers and tying as specified.				
X993.3.1	12mm and under	kg	4,600		
X993.3.2	16mm and over	kg	6,900		
X993.4	<u>Formwork</u>				
	Provide and fix shuttering including propping, strutting and striking all as specified.				
	(i) Vertical Formwork - Class F1 Finish				
X993.4.1	Sides of 500mm footings	m ²	50		
X993.4.2	Sides of piers in foundations	m ²	150		
	(ii) Vertical Formwork - Class F2 Finish				
X993.4.3	Outer faces of column piers - width 1.0m - 3.0m	m ²	100		
	(iii) Sloping Formwork - Class F2 Finish				
X993.4.4	Sloping face of column head	m ²	180		
X993.5	<u>Pipe Support Details</u>				
	Provide all materials, fabricate and install 75mm wide x 15mm thick flat GMS Strap on pipes on piers at Aerial Crossings; Rate to include for supply and installation of Rag Bolts, Rubberoid layers, etc. all as detailed in Drg. No. M455/W-02/SD/12 to Engineer's approval.				
X993.5.1	DN 600	Nr	12		
X993.6	<u>Method Related Charges (Applicable to all River Crossings)</u>				
X993.6.1	Allow for River Diversion Works, including construction of cofferdams etc., for river crossing works and reinstate after construction. The Rivers / Waterways to be kept operational during construction. Bidder to submit method statement with Bid for execution of these works.	Item	L.S		
X993.6.2	Method related charges for keeping excavations free of water which may occur through ground water seepage, rain or other means.	Item	L.S		
X993.6.3	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item.				
	i)	Item	L.S		
	ii)	Item	L.S		
X994	<u>Miscellaneous Works (Provisional)</u>				
X994.1	Provisional Sum for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S	5,000,000.00	5,000,000.00

PAGE TOTAL CARRIED TO BILL COLLECTION SHEET

BILL No. 2.2 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 2: KABETE-OLESERENI PIPELINE****BILL NO. 2.2: KABETE-OLESERENI PIPELINE (PIPELINE CONSTRUCTION; DN 600, TOTAL LENGTH 19.62KM)**

	Amount (Kshs.)
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Bill No. 2.2 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

BILL No. 3 - WILSON DISTRIBUTION MAIN, LINE WL01 (DN 600)

INSTRUCTIONS TO BIDDERS

IMPORTANT:

THE BIDDER TO QUOTE FOR ANY ONE OF THE FOLLOWING OPTIONS FOR PIPES AND FITTINGS MATERIALS AND JOINTING. THE SELECTED OPTION TO BE TICKED IN THE SPACE PROVIDED.

OPTION	DESCRIPTION	INDICATE SELECTED OPTION BY TICKING ONE BOX BELOW
1	<u>Ductile Iron</u> Socket and Spigot Pipes and Fittings with <u>Self Anchored Joints</u> as specified	
2	<u>Steel Pipes</u> and Fittings with provision for <u>Field Butt Welded Joints</u> as specified.	

ONLY ONE BOX SHOULD BE TICKED

CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	NOTES:				
1.	<p>The proposed works are to be carried out within Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. The pipeline is proposed to be laid largely along the busy Langata Road with numerous Road Crossings in busy roads.</p> <p>The Pipeline alignment is characterized by numerous active Existing Services, both surface and buried; and busy Streets/Roads in Commercial and Residential areas spread over the entire length.</p> <p>Specific conditions in execution of these works are deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted</p> <p>ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains</p> <p>iii) Pedestrians and Vehicular access to individual Shops/Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided</p> <p>iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times.</p> <p>v) Immediate Reinstatement of Access Roads and</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline route to establish locations and alignment of existing Water Mains, Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Water Mains, Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.</p>				
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
4.	All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).				
5.	Value Added Tax (VAT) to be added separately in the Grand Summary.				
	<u>CLASS A: GENERAL ITEM</u>				
A260	Testing of Works				
	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	DN 600mm, PN 16	m	778		
A260.1.2	DN 600mm, PN 25	m	3,685		
	Disinfection of Pipe lines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's				
A260.2.1	DN 600mm, PN 16	m	778		
A260.2.2	DN 600mm, PN 25	m	3,685		
A38	<u>Method Related Charges</u>				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 3m depth on approx. 6m wide corridor, estimate No. of pilot holes along the Pipeline route is 25Nr.	Item	L.S		
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 80Nr	Item	LS		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	L.S		
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	<u>Provisional Sums for Defined Works</u>				
A42.1	Allow Provisional Sum of Kshs. 5,000,000 for Liaison, facilitation with	Item	P.S		5,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 2,000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		2,000,000.00
	<u>CLASS D: DEMOLITION AND SITE CLEARANCE</u>				
D100.1	General site clearance along easement	ha	3		
D2	<u>Tree Cutting</u>				
	Cut down trees, grub up roots and cart away to tips				
D210.1	Girth: 0.5 m - 1.0 m	Nr	9		
D210.2	Girth: 1.0 m - 2 m	Nr	22		
D220.1	Girth 2.0 m - 3 m	Nr	13		
D220.2	Girth 3.0 m - 5 m(provisional)	Nr	2		
D3	<u>Removal and Disposal of Stumps</u>				
D310	Remove stump dia. 0.5 - 1m	Nr	4		
D320	Remove stump dia. exceeding 1m	Nr	1		
	<u>CLASS E: EARTHWORKS</u>				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities.	m ³	2,000		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS I: PIPE WORK - PIPES				
A-I4	Ductile Iron Pipes or Steel Pipes; Joints as specified				
	Ductile Iron Socket and Spigot Pipes with Standard Push-On Joints (class as specified, cement mortar lining, zinc-aluminium coating) OR Steel Pipes with provision for Field Lap-Welded Joints (minimum yield strength 235 Mpa, minimum wall thickness as specified, cement mortar lining, 3-layer polyethylene coating)				
A-I43.1	DN 600 mm, PN 16	m	778		
A-I43.2	DN 600 mm, PN 25	m	3,685		
A-I7	High Density Polyethylene Pipes (HDPE)				
	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 16 & PN 20				
A-I71.1	Nominal Bore 110 mm PN 16 (provisional length) for Chamber Drainage	m	170		
A-I71.2	Nominal Bore 110 mm PN 20 (provisional length) for Chamber Drainage	m	50		
A-I71.3	Nominal Bore 200 mm, PN 20 (provisional length) for Washout	m	80		
	CLASS I: PIPE WORK - PIPES				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling.</u>				
	<u>Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc... all as specified.</u>				
B-I4	Ductile Iron Pipes OR Steel Pipes; Joints as specified				
	Ductile Iron Socket and Spigot Pipes OR Steel Socket and Spigot Pipes				
B-I43	Nominal Bore 600mm in trenches				
B-I443	Depth 1.5m - 2.0m	m	1,506		
B-I444	Depth 2.0 m - 2.5 m	m	1,625		
B-I445	Depth 2.5 m - 3.0 m	m	722		
B-I446	Depth 3.0 m - 3.5 m	m	554		
B-I447	Depth 3.5m - 4.0 m	m	56		
B-I7	High Density Polyethylene Pipes (HDPE)				
	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 16 & PN 20 OD 110mm				
B-I712.1	Depth not exceeding 1.5 m	m	55		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-I713.1	Depth 1.5m - 2.0 m	m	110		
B-I714.1	Depth exceeding 2.0 m	m	55		
	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 16 & PN 20 OD 200mm in trenches (washouts)				
B-I712.2	Depth not exceeding 1.5m	m	5		
B-I713.2	Depth 1.5m - 2.0m	m	5		
B-I714.2	Depth 2.0m - 2.5m	m	10		
B-I715.2	Depth 2.5m - 3.0m	m	5		
B-I716.2	Depth 3.0m - 3.5m	m	10		
B-I717.2	Depth 3.5m - 4m	m	20		
B-I718.2	Depth exceeding 4m	m	20		
	CLASS J: PIPE WORK - FITTINGS AND VALVES				
A	Supply, Transport to Site and Store				
A-J3	Ductile Iron Pipes or Steel Pipes; Joints as specified				
A-J31	Bends				
A-J311.1	Nominal Bore not exceeding 200mm; Ductile Iron Socket and Spigot Bends OR Steel Socket and Spigot Bends				
A-J311.1.1	90° DN 200, PN 16 (provisional)	Nr	1		
A-J311.1.2	90° DN 200, PN 25 (provisional)	Nr	4		
A-J313.1	Nominal bore 300-600mm; Double Flanged Bend				
A-J313.1.1	45° DN 600, PN 16	Nr	5		
A-J313.1.2	90° DN 400, PN 25	Nr	5		
A-J313.2	Nominal bore 300-600mm; Flanged Spigot Bend				
A-J313.2.1	45° DN 600, PN 16	Nr	2		
A-J313.2.2	90° DN 400, PN 25	Nr	3		
A-J313.3	Nominal Bore 600mm; Socket and Spigot Bends				
A-J313.3.1	11.25° DN 600, PN 16	Nr	4		
A-J313.3.2	11.25° DN 600, PN 25	Nr	16		
A-J313.3.3	22.5° DN 600, PN 16	Nr	2		
A-J313.3.4	22.5° DN 600, PN 25	Nr	4		
A-J313.3.5	30° DN 600, PN 25	Nr	4		
A-J313.3.6	45° DN 600, PN 16	Nr	2		
A-J313.3.7	45° DN 600, PN 25	Nr	8		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J32	Junctions and Branches				
	<u>All Flanged Tee</u>				
A-J323.1	DN 600 x DN 150, PN 25	Nr	2		
A-J323.2	DN 600 x DN 200, PN 16	Nr	2		
A-J323.3	DN 600 x DN 400, PN 25	Nr	3		
A-J323.4	DN 600 x DN 600, PN 25	Nr	3		
A-J323.5	DN 600 x DN 500, PN 16 Special Tee for Air Valve	Nr	2		
A-J323.6	DN 600 x DN 500, PN 25 Special Tee for Air Valve	Nr	5		
	<u>All Flanged Level Invert Tee</u>				
A-J323.7	DN 600 x DN 200, PN 25 All Flanged Level Invert Tee for Washout	Nr	5		
A-J34	Ferrous Couplings				
A-J341.1	DN 200, PN 25 - Stepped Coupling	Nr	5		
A-J343.1	DN 400, PN 25 - Straight Coupling	Nr	3		
A-J343.2	DN 600, PN 16 - Straight Coupling	Nr	7		
A-J343.3	DN 600, PN 25 - Straight Coupling	Nr	28		
A-J35	Ferrous Flange Adaptor				
A-J351.1	DN 200, PN 25	Nr	5		
A-J38	Straight Specials				
	<u>Plain Ended Pipes without Puddle Flanges</u>				
A-J381.1	DN 200, PN 25, length 1.2m (provisional)	Nr	5		
	<u>Flanged Spigot Pipes without Puddle Flanges</u>				
A-J383.1	DN 400, PN 25, length 1.2m	Nr	3		
A-J383.2	DN 400, PN 25, length 6m	Nr	3		
A-J383.3	DN 600, PN 16, length 1.5m	Nr	5		
A-J383.4	DN 600, PN 25, length 1.5m	Nr	17		
	<u>Flanged Spigot Pipes with Puddle Flanges (location of Puddle Flange as specified in Drawings)</u>				
A-J383.5	DN 400, PN 25, length 1.2m with puddle flange	Nr	3		
A-J383.6	DN 600, PN 16, length 1.5m with puddle flange	Nr	4		
A-J383.7	DN 600, PN 25, length 1.5m with puddle flange	Nr	11		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>Double Flanged Pipes with puddle flanges (location of Puddle Flange as specified in Drawings)</u>				
A-J383.8	DN 400, PN 25, length 1.2m with puddle flange	Nr	5		
A-J383.9	DN 600, PN 16, length 6m with puddle flange	Nr	2		
A-J383.10	DN 600, PN 16, length 3m with puddle flange	Nr	2		
	<u>Special Fittings</u>				
A-J381.2	DN 150, PN 16, special double flanged pipe 325mm long with flange to suit 500mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	Nr	2		
A-J381.3	DN 150, PN 25, special double flanged pipe 325mm long with flange to suit 500mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	Nr	5		
A-J383.11	DN 400 PN 25 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	5		
A-J383.12	DN 600 PN 16 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	3		
A-J383.13	DN 600 PN 25 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	2		
A-J39	<u>Blank Flange</u>				
A-J393.1	DN 600, PN 25	Nr	4		
A-J8	<u>Valves and Penstocks</u>				
A-J81	<u>Flanged Gate Valve</u>				
A-J811.1	DN 150, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	2		
A-J811.2	DN 150, PN 25, with handwheel (Isolating Valve for Air Valves)	Nr	6		
A-J811.3	DN 200, PN 25, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	Nr	5		
A-J813.1	DN 400, PN 16, with handwheel	Nr	3		
A-J84	<u>Flanged Butterfly Valve complete with Gear Mechanism designed to slow down flow reduction at end of closure as specified and Hand Wheel as specified</u>				
A-J843.1	DN 600, PN 16	Nr	2		
A-J843.2	DN 600, PN 25	Nr	2		
A-J86	<u>Air Valve</u>				
A-J861	<u>Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified</u>				
A-J861.1	DN 150, PN 16	Nr	2		
A-J861.2	DN 150, PN 25	Nr	6		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J9	Water Meters				
	Electromagnetic Water Meters				
A-J992.1	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	1		
A-J992.2	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 25 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	1		
B	<u>CLASS J: PIPE WORK - FITTINGS AND VALVES</u>				
	<u>Transport from Site Store, Lay and Joint Pipe Fittings in Trench/on Aerial Crossings, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling. Rate to include for Transport to Site and Installation of all Jointing Materials, Bolts, Nuts, Gaskets, etc.</u>				
	<u>CLASS J: PIPE WORK - FITTINGS AND VALVES</u>				
BJ3	Ductile Iron Pipes or Steel Pipes; Joints as specified				
B-J31	Bends				
B-J311.1	Nominal Bore not exceeding 200mm; Ductile Iron Socket and Spigot Bends OR Steel Socket and Spigot Bends				
B-J311.1.1	90° DN 200, PN 16 (provisional)	Nr	1		
B-J311.1.2	90° DN 200, PN 25 (provisional)	Nr	4		
B-J313.1	Nominal bore 300-600mm; Double Flanged Bend				
B-J313.1.1	45° DN 600, PN 16	Nr	2		
B-J313.1.2	90° DN 400, PN 25	Nr	5		
B-J313.2	Nominal bore 300-600mm; Flanged Spigot Bend				
B-J313.2.1	45° DN 600, PN 16	Nr	5		
B-J313.2.1	90° DN 400, PN 25	Nr	3		
B-J313.3	Nominal Bore 600mm; Socket and Spigot Bends				
B-J313.3.1	11.25° DN 600, PN 16	Nr	4		
B-J313.3.2	11.25° DN 600, PN 25	Nr	16		
B-J313.3.3	22.5° DN 600, PN 16	Nr	2		
B-J313.3.4	22.5° DN 600, PN 25	Nr	4		
B-J313.3.5	30° DN 600, PN 25	Nr	4		
B-J313.3.6	45° DN 600, PN 16	Nr	2		
B-J313.3.7	45° DN 600, PN 25	Nr	8		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J32	Junctions and Branches				
	<u>All Flanged Tee</u>				
B-J323.1	DN 600 x DN 150, PN 25	Nr	2		
B-J323.2	DN 600 x DN 200, PN 16	Nr	2		
B-J323.3	DN 600 x DN 400, PN 25	Nr	3		
B-J323.4	DN 600 x DN 600, PN 25	Nr	3		
B-J323.5	DN 600 x DN 500, PN 16 Special Tee for Air Valve	Nr	2		
B-J323.6	DN 600 x DN 500, PN 25 Special Tee for Air Valve	Nr	5		
	<u>All Flanged Level Invert Tee</u>				
B-J323.7	DN 600 x DN 200, PN 25 All Flanged Level Invert Tee for Washout	Nr	5		
B-J34	<u>Ferrous Couplings</u>				
B-J341.1	DN 200, PN 25 - Stepped Coupling	Nr	5		
B-J343.1	DN 400, PN 25 - Straight Coupling	Nr	3		
B-J343.2	DN 600, PN 16 - Straight Coupling	Nr	7		
B-J343.3	DN 600, PN 25 - Straight Coupling	Nr	28		
B-J35	<u>Ferrous Flange Adaptor</u>				
B-J351.1	DN 200, PN 25	Nr	5		
B-J38	<u>Straight Specials</u>				
	<u>Plain Ended Pipes without Puddle Flanges</u>				
B-J381.1	DN 200, PN 25, length 1.2m (provisional)	Nr	5		
	<u>Flanged Spigot Pipes without Puddle Flanges</u>				
B-J383.1	DN 400, PN 25, length 1.2m	Nr	3		
B-J383.2	DN 400, PN 25, length 6m	Nr	3		
B-J383.3	DN 600, PN 16, length 1.5m	Nr	5		
B-J383.4	DN 600, PN 25, length 1.5m	Nr	17		
	<u>Flanged Spigot Pipes with Puddle Flanges (location of Puddle Flange as specified in Drawings)</u>				
B-J383.5	DN 400, PN 25, length 1.2m with puddle flange	Nr	3		
B-J383.6	DN 600, PN 16, length 1.5m with puddle flange	Nr	4		
B-J383.7	DN 600, PN 25, length 1.5m with puddle flange	Nr	11		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>Double Flanged Pipes with puddle flanges (location of Puddle Flange as specified in Drawings)</u>				
B-J383.8	DN 400, PN 25, length 1.2m with puddle flange	Nr	5		
B-J383.9	DN 600, PN 16, length 6m with puddle flange	Nr	2		
B-J383.10	DN 600, PN 16, length 3m with puddle flange	Nr	2		
	<u>Special Fittings</u>				
B-J381.2	DN 150, PN 16, special double flanged pipe 325mm long with flange to suit 500mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	Nr	2		
B-J381.3	DN 150, PN 25, special double flanged pipe 325mm long with flange to suit 500mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	Nr	5		
B-J381.11	DN 400 PN 25 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	5		
B-J381.12	DN 600 PN 16 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	3		
B-J381.13	DN 600 PN 25 Dismantling Joint (Viking Johnson dismantling joint, nominal length 307mm or approved equivalent)	Nr	2		
B-J39	<u>Blank Flange</u>				
B-J393.1	DN 600, PN 25	Nr	4		
B-J8	<u>Valves and Penstocks</u>				
B-J81	<u>Flanged Gate Valve</u>				
B-J811.1	DN 150, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	2		
B-J811.2	DN 150, PN 25, with handwheel (Isolating Valve for Air Valves)	Nr	6		
B-J811.3	DN 200, PN 25, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	Nr	5		
B-J813.1	DN 400, PN 16, with handwheel	Nr	3		
B-J84	<u>Flanged Butterfly Valve complete with Gear Mechanism designed to slow down flow reduction at end of closure as specified and Hand Wheel as specified</u>				
B-J843.1	DN 600, PN 16	Nr	2		
B-J843.2	DN 600, PN 25	Nr	2		
B-J86	<u>Air Valve</u>				
B-J861	<u>Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified</u>				
B-J861.1	DN 150, PN 16	Nr	2		
B-J861.2	DN 150, PN 25	Nr	6		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J9	Water Meters				
	Electromagnetic Water Meters				
B-J992.1	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	2		
B-J992.2	DN 600 All Flanged Battery Powered Electromagnetic Water Meter to PN 25 complete with accessories as specified; Minimum Battery Life 6 Years.	Nr	2		
	<u>CLASS K: PIPE WORK - CHAMBERS AND PIPE WORK ANCILLARIES</u>				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and others pipe works and ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. - Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes, to detail. - Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K233	Depth 2-2.5 m				
K233.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K233.2	Provide all materials and construct Reinforced Concrete LINE VALVE Chambers internal dimensions not exceeding 2400mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system etc . All as specified and as detailed Drawing No. M455/W-02/SD/04-1	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K234	Depth 2.5-3 m				
K234.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	3		
K235	Depth 3-3.5 m				
K235.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	2		
K236	Depth 3.5-4 m				
K236.1	Provide all materials and construct Reinforced Concrete ELECTROMAGNETIC FLOW METER Chambers internal dimensions 2000mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc . All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	2		
K236.2	Provide all materials and construct Reinforced Concrete BUTTERFLY VALVE Chambers internal dimensions 2400mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc . All as specified and as detailed Drawing No. M455/W-02/SD/04-01	Nr	2		
K236.2	Provide all materials and construct Reinforced Concrete GATE VALVE Chambers internal dimensions 2000mm x 2000mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc . All as specified and as detailed Drawing No. M455/W-02/SD/04-2	Nr	3		
K236.3	Provide all materials and construct Reinforced Concrete WASHOUT VALVE Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc . All as specified and as detailed Drawing No. M455/W-02/SD/03-1	Nr	1		
K25	PRECAST CONCRETE CHAMBERS				
K253	Depth 2-2.5m				
K253.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-2	Nr	1		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K255	Depth 3-3.5m				
K255.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-2	Nr	1		
K256	Depth 3.5-4m				
K256.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-2	Nr	1		
K257	Depth exceeding 4m				
K257.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing . No. M455/W-02/SD/03-2	Nr	1		
K7	Reinstatement				
K732.1	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murram, and any other associated works. Nominal pipe bore n.e. 600mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.	m	100		
K732.2	- Ditto - but for CONCRETE BLOCK PAVED roads, Nominal Bore n.e. 600mm(provisional)	m	50		
K732.5	Breaking up, temporary and permanent reinstatement of MURRAM roads with 300mm thick well graded stabilized gravel with 3% cement base compacted in 150mm thick layers using an 8-10 tonne roller and 150mm deep approved compacted hardcore to the satisfaction of the Engineer. Nominal pipe bore n.e. 1800mm. all as per Dwg No. M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.; Pipe nominal bore n.e. 600mm	m	50		
K742.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, carbro, tarmac, etc.). Pipe bore n.e. 600mm all as per Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18	m	3,000		
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CKE1135 NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL01 (DN600; TOTAL LENGTH 4.2KM)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K742.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS . Pipe bore 300mm - 900mm all as per Dwg No. M455/W-02/SD/18	m	200		
K751.1	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	1,063		
K8	Other Pipework Ancillaries				
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts for water main route, road crossings, change of direction, air valves, washouts, and valve chambers. All in accordance with drawings and specifications	Nr	40		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP.				
K863	To pipes nominal bore: 300 - 600 mm (provisional)	Nr.	4		
K870	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in drg. No. M455/W-02/SD/03-1. Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr.	6		
	Wash-out Outfall Structure				
K870.2	Provide all materials and construct Reinforced Concrete outfall structures on reinforced concrete plinths at washout drain pipe outlets as per details in drg no. M455/W-02/SD/03-02	Nr	6		
	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.3	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	400		
K870.4	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is completed.	m	400		
K870.5	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	600		
K870.6	Allow for breaking up of existing CONCRETE DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/19)	m	1,000		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K870.7	-Ditto - but for existing INVERT BLOCK DRAINS. (See Drg. No. M455/W-02/SD/19)	m	100		
K870.8	-Ditto - but for existing INVERT BLOCK DRAINS + 2 COURSES.	m	100		
K870.9	-Ditto - but for existing INVERT BLOCK DRAINS + 3 COURSES.	m	200		
K870.10	-Ditto - but for existing INVERT BLOCK DRAINS + 4 COURSES.	m	100		
	<u>CLASS L:- PIPEWORK - SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in trench for rock class "A"	m ³	1,200		
L111.2	Excavation in trench for rock class "B"	m ³	1,800		
L111.3	Excavation in trench for rock class "C"	m ³	3,200		
	Note:- Blasting is NOT permitted for Item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L523	To pipes nominal bore: 300 - 600 mm	m	2,814		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L533	To pipes nominal bore: 300 - 600 mm	m	1,650		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L543	To pipes nominal bore: 300 - 600 mm	m	200		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks				
	Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	<u>Class 20/20 Mass Concrete</u>				
	<u>NOTE:-</u> The work includes pipe and fitting fixing				
L74	Volume:- 0.5 - 1 m³				
L743	To pipes nominal bore: 300 -600mm	Nr	25		
L75	Volume:- 1 - 2 m³				
L753	To pipes nominal bore: 300 -600mm	Nr	20		
L76	Volume:- 2 - 4 m³				
L763	To pipes nominal bore: 300 -600mm	Nr	22		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS V: PAINTING</u>				
V780	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	400		
	<u>Class X: MISCELLANEOUS WORKS</u>				
	<u>TRENCHLESS ROAD CROSSINGS</u>				
X990	Provide all equipment and materials, tunnel below road surface in common material (soil/murram), including any requisite shoring and strutting during tunnelling, provide and install precast Reinforced Concrete lining segments to tunnel faces, blanking of tunnel ends with mass concrete/masonry walls upon pipework installation, all as detailed in drg. No. M455/W-02/SD/10 or using any other Trenchless method, subject to Engineer's approval and in accordance to specifications. Rate to include for all necessary grouting. All works to be executed in close liaison with relevant road authorities. Rates to include for facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works. The bidder may quote for alternative method of Trenchless Road/Railway Crossing. Details of alternative method to be submitted with the Bid. Nominal pipe bore not exceeding 600mm.				
X990.1	Tarmac Paved Roads , width ne. 40m	m	200		
X990.2	Extra over the Road, items X990.1 to X990.3 for tunnelling in rock, all classes (Provisional)	m ³	50		
X990.3	Transport from site store, install and joint ferrous pipework in tunnel, including all fixing and jointing as specified, nominal bore 300 - 600mm	m	200		
X990.4	Allow for any Method Related Charges for Trenchless pipe crossing under roads for item X992.1.1 to X992.2 above that the Bidder feels may be required. These should be indicated below with pricing of each item. (Bidder may add Additional items here below if required).	Item	L.S		
	i)				
	ii)				
X991	<u>Miscellaneous Works (Provisional)</u>				
X991.1	Provisional Sum of Kshs. 1,000,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the	Item	P.S		1,000,000.00
X992	<u>Additional Works on Installation of new Inlet Pipework to Existing Reservoirs</u>				
X992.1	Allow for removal of existing Inlet pipework to the existing R.C Reservoirs and replacement with new fittings. Supply and installation of the required new fittings is measured separately under class J. Rate under this item to include for Cutting into existing R.C Tank and chamber walls, thickness 250mm, excavation to expose buried pipework, cutting and removal of existing pipe fittings, fitting of formwork and reinstatement of R.C walls upon installation of pipework. Existing pipework to be handed over to NCWSC after removal and transported to NCWSC designated storage	Item	L.S		
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BILL No. 3.1 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL 3.1: WILSON DISTRIBUTION MAIN, LINE WL02 (DN600; TOTAL LENGTH 4.2KM)**

	Amount (Kshs.)
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	NOTES:				
1.	<p>The proposed works are to be carried out within Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. A section of the pipeline is to be laid across the busy Langata Road Link near Uchumi Hyper Market. The Pipeline alignments are characterized by numerous active Existing Services, both surface and buried; Specific conditions in execution of these works are deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains iii) Pedestrians and Vehicular access to individual Shops/ Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) Immediate Reinstatement of access roads and Stabilization of Slopes upon laying of the Pipeline.</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline routes to establish locations and alignment of existing Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.</p>				
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
4.	All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).				
5.	Value Added Tax (VAT) to be added separately in the Grand Summary.				
	CLASS A: GENERAL ITEMS				
A2	Specified Requirements				
A260	Testing of Works				
A260.1	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	OD 90mm	m	355		
A260.1.2	OD 250mm	m	2,650		
A260.2	Disinfection of Pipe lines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. Rate to include for supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval upon satisfactory disinfection.				
A260.2.1	OD 90mm	m	355		
A260.2.2	OD 250mm	m	2,650		
A38	Method Related Charges				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 4m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 200Nr.	Item	L.S		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 200Nr	Item	LS		
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	LS		
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 500,000 for Liaison, facilitation with local residents	Item	P.S		500,000.00
A42.2	Allow a Provisional Sum of Kshs. 1,000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed	Item	P.S		1,000,000.00
	CLASS D: DEMOLITION AND SITE CLEARANCE				
	<u>The Employer has no available land to offer for dumping of spoil materials. Identification of and all accruing costs related to securing suitable area of land for dumping is the responsibility of the Contractor. Dumping and spreading is to be done in accordance with existing National Legislation and Local Authority's by-laws.</u>				
	<u>The Contractor is deemed to have allowed for this aspect of Work in their excavation and cart away to tips rates.</u>				
D1	Site Clearance				
D110	General clearance along the pipeline alignment.	ha	2		
D2	Tree Cutting				
	Cut down trees, grab up roots and cart away to tips				
D210.1	Girth 0.5m - 1.0m	Nr	10		
D210.2	Girth 1.0m - 2.0m	Nr	9		
D220.1	Girth 2.0m - 3.0m	Nr	15		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
D3	Removal and Disposal of Tree Stumps				
D310	Stump dia. not exceeding 1m	Nr	3		
D320	Stump dia. exceeding 1m	Nr	3		
	CLASS E: EARTHWORKS				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities (provisional).	m³	501		
	CLASS I: PIPE WORK - PIPES				
	Supply, Transport to Site and Store				
A-I7	High Density Polyethylene Pipes (HDPE) SDR 9 (PN 20)				
	Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 20				
A-I71.1	OD 63mm (provisional length) for Washout Drainage	m	20		
A-I71.2	OD 90mm	m	355		
A-I71.3	OD 110mm (provisional length) for Chamber Drainage	m	185		
A-I72.1	OD 250mm	m	2,650		
	CLASS I: PIPE WORK - PIPES				
	Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation trenches, Backfilling and final Reinstatement.				
	Trench width and minimum cover to pipes is as per specifications. This cost shall include for all Strutting, Shuttering, Stabilizing the excavation faces and keeping the trenches free of water from whatever source either by pumping or other means and cost of use of selected use from excavated material for compaction in bed and surround to backfilling of trenches, etc.: all as specified				
B-I7	High Density Polyethylene Pipes (HDPE) SDR 9 (PN 20)				
	Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 20				
B-I71.1	OD 63 mm in trenches				
B-I712.1	Depth not exceeding 1.5 m	m	10		
B-I714.1	Depth 2.0 m - 2.5 m	m	5		
B-I715.1	Depth 2.5 m - 3.0 m	m	5		
B-I71.2	OD 90 mm in trenches				
B-I712.2	Depth not exceeding 1.5 m	m	284		
B-I713.2	Depth 1.5 m - 2.0 m	m	35		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-I714.2	Depth 2.0 m - 2.5 m	m	18		
B-I715.2	Depth 2.5 m - 3.0 m	m	18		
B-I71.3	OD 110 mm in trenches				
B-I712.3	Depth not exceeding 1.5 m	m	65		
B-I713.3	Depth 1.5 m - 2.0 m	m	46		
B-I714.3	Depth 2.0 m - 2.5 m	m	46		
B-I715.3	Depth 2.5 m - 3.0 m	m	19		
B-I716.3	Depth exceeding 4 m	m	9		
B-I72.1	OD 250 mm in trenches				
B-I722.1	Depth not exceeding 1.5 m	m	1,140		
B-I723.1	Depth 1.5 m - 2.0 m	m	993		
B-I724.1	Depth 2.0 m - 2.5 m	m	230		
B-I725.1	Depth 2.5 m - 3.0 m	m	53		
B-I726.1	Depth 3.0 m - 3.5 m	m	200		
B-I727.1	Depth 3.5 m - 4.0 m	m	34		
	CLASS J: PIPE WORK - FITTINGS AND VALVES - PN 25				
A	Supply, Transport to Site and Store				
AJ3	Ductile Iron or Steel Fittings; Joints as specified				
A-J31	Bends				
A-J311.1	Nominal bore 80mm; All Flanged Bend				
A-J311.1.1	90° DN 80, PN 25	Nr	10		
A-J311.2	Nominal bore 200mm; All Flanged Bend				
A-J311.2.1	45° DN 200, PN 25	Nr	5		
A-J32	Junction and Branches				
	All Flanged Tee				
A-J321.1	DN 80 x DN 50, PN 25 All Flanged Tee for offtakes	Nr	2		
A-J321.2	DN 200 x DN 50, PN 25 All Flanged Tee for offtakes	Nr	9		
A-J321.3	DN 200 x DN 80, PN 25 All Flanged Tee for offtakes	Nr	2		
A-J321.4	DN 200 x DN 100, PN 25 All Flanged Tee for Air Valves	Nr	6		
A-J321.5	DN 200 x DN 100, PN 25 All Flanged Tee for offtakes	Nr	10		
	All Flanged Level Invert Tee				
A-J321.6	DN 80 x DN 50, PN 25 All Flanged Level Invert Tee for Washouts	Nr	2		
A-J321.7	DN 200 x DN 80, PN 25 All Flanged Level Invert Tee for Washouts	Nr	4		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J33	Tapers				
	All Flanged Concentric Taper				
A-J331.1	DN 100 x DN 50, PN 25	Nr	6		
A-J331.2	DN 100 x DN 80, PN 25	Nr	10		
A-J34	Ferrous Couplings				
A-J341.1	DN 50, PN 25 - Straight Coupling	Nr	10		
A-J341.2	DN 50, PN 25 - Stepped Coupling	Nr	2		
A-J341.3	DN 80, PN 25 - Straight Coupling	Nr	10		
A-J341.4	DN 80, PN 25 - Stepped Coupling	Nr	10		
A-J341.5	DN 200, PN 25 - Stepped Coupling	Nr	60		
A-J35	Ferrous Flange Adaptors				
A-J351.1	DN 50, PN 25	Nr	15		
A-J351.2	DN 80, PN 25	Nr	25		
A-J351.3	DN 200, PN 25	Nr	3		
A-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
A-J381.1	DN 50, PN 25, length 1.2m	Nr	10		
A-J381.2	DN 80, PN 25, length 1.2m	Nr	11		
	Plain Ended Pipes without Puddle Flanges				
A-J381.3	DN 50, PN 25, length 1.2m	Nr	2		
A-J381.4	DN 80, PN 25, length 1.2m	Nr	4		
	Flanged Spigot Pipes without Puddle Flanges				
A-J381.5	DN 80, PN 25, length 1.2m	Nr	5		
A-J381.6	DN 200, PN 25, length 1.0m	Nr	2		
A-J381.7	DN 200, PN 25, length 1.2m	Nr	46		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
A-J381.8	DN 80, PN 25, length 1.2m	Nr	19		
A-J381.9	DN 200, PN 25, length 1.2m	Nr	12		
	Double Flanged Pipes without Puddle Flanges				
A-J381.10	DN 80, PN 25, length 1.2m	Nr	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
A-J381.11	DN 50, PN 25, length 1.2m	Nr	10		
A-J381.12	DN 80, PN 25, length 1.2m	Nr	11		
A-J381.13	DN 200, PN 25, length 1.2m	Nr	2		
A-J381.14	DN 200, PN 25, length 2m	Nr	2		
A-J39	End Cap				
A-J391.1	DN 50, PN 25	Nr	10		
A-J391.2	DN 80, PN 25	Nr	2		
A-J391.3	DN 200, PN 25	Nr	2		
A-J6	High Density Polyethylene Fittings (HDPE) SDR 9 (PN 20) including provision for Butt-fusion/Electrofusion Welded				
A-J61	Bends				
A-J612.1	OD 250mm; Plain Ended Bend				
A-J612.1.1	11.25° OD 250, PN 20	Nr	8		
A-J612.1.2	30° OD 250, PN 20	Nr	9		
A-J612.1.3	45° OD 250, PN 20	Nr	5		
A-J8	Valves and Penstocks				
A-J81	All Flanged Gate Valve				
A-J811.1	DN 50, PN 25 with handwheel (for offtake)	Nr	10		
A-J811.2	DN 50, PN 25, with handwheel (Isolating Valve for Air Valves)	Nr	6		
A-J811.3	DN 80, PN 25, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	4		
A-J811.4	DN 80, PN 25, with handwheel (for offtake)	Nr	11		
A-J811.5	DN 200, PN 25, with handwheel (for offtake)	Nr	2		
A-J86	Air Valve				
A-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
A-J861.1	DN 50, PN 25	Nr	6		
A-J9	Water Meters				
	Electromagnetic Flow Water Meters				
A-J991.1	DN 200 All Flanged Battery Powered Electromagnetic Water Meter to PN 25, complete with accessories; Minimum Battery Life 6	Nr	2		
	Volumetric Flow Water Meters				
A-J991.2	DN 80, PN 25 All Flanged Volumetric Flow Water Meter	Nr	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J10	Water Meter Strainer				
A-J1091.1	DN 80, PN 25 All Flanged Strainer	Nr	10		
A-J11	Fire Hydrant				
A-J1191.1	DN 80, PN 25 All Flanged Fire Hydrant	Nr	10		
B	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation trenches, Backfilling and final Reinstatement.</u> <u>Trench width and minimum cover to pipes is as per specifications. This cost shall include for all Strutting, Shuttering, Stabilizing the excavation faces and keeping the trenches free of water from whatever source either by pumping or other means and cost of use of selected use from excavated material for compaction in bed and surround to backfilling of trenches, etc.: all as specified</u>				
BJ3	Ductile Iron or Steel Fittings; Joints as specified				
B-J31	Bends				
B-J311.1	Nominal bore 80mm; All Flanged Bend				
B-J311.1.1	90° DN 80, PN 25	Nr	10		
B-J311.2	Nominal bore 200mm; All Flanged Bend				
B-J311.2.1	45° DN 200, PN 25	Nr	5		
B-J32	Junction and Branches				
	All Flanged Tee				
B-J321.1	DN 80 x DN 50, PN 25 All Flanged Tee for offtakes	Nr	2		
B-J321.2	DN 200 x DN 50, PN 25 All Flanged Tee for offtakes	Nr	9		
B-J321.3	DN 200 x DN 80, PN 25 All Flanged Tee for offtakes	Nr	2		
B-J321.4	DN 200 x DN 100, PN 25 All Flanged Tee for Air Valves	Nr	6		
B-J321.5	DN 200 x DN 100, PN 25 All Flanged Tee for offtakes	Nr	10		
	All Flanged Level Invert Tee				
B-J321.6	DN 80 x DN 50, PN 25 All Flanged Level Invert Tee for Washouts	Nr	2		
B-J321.7	DN 200 x DN 80, PN 25 All Flanged Level Invert Tee for Washouts	Nr	4		
B-J33	Tapers				
	All Flanged Concentric Taper				
B-J331.1	DN 100 x DN 50, PN 25	Nr	6		
B-J331.2	DN 100 x DN 80, PN 25	Nr	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J34	Ferrous Couplings				
B-J341.1	DN 50, PN 25 - Straight Coupling	Nr	10		
B-J341.2	DN 50, PN 25 - Stepped Coupling	Nr	2		
B-J341.3	DN 80, PN 25 - Straight Coupling	Nr	10		
B-J341.4	DN 80, PN 25 - Stepped Coupling	Nr	10		
B-J341.5	DN 200, PN 25 - Stepped Coupling	Nr	60		
B-J35	Ferrous Flange Adaptors				
B-J351.1	DN 50, PN 25	Nr	15		
B-J351.2	DN 80, PN 25	Nr	25		
B-J351.3	DN 200, PN 25	Nr	3		
B-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
B-J381.1	DN 50, PN 25, length 1.2m	Nr	10		
B-J381.2	DN 80, PN 25, length 1.2m	Nr	11		
	Plain Ended Pipes without Puddle Flanges				
B-J381.3	DN 50, PN 25, length 1.2m	Nr	2		
B-J381.4	DN 80, PN 25, length 1.2m	Nr	4		
	Flanged Spigot Pipes without Puddle Flanges				
B-J381.5	DN 80, PN 25, length 1.2m	Nr	5		
B-J381.6	DN 200, PN 25, length 1.0m	Nr	2		
B-J381.7	DN 200, PN 25, length 1.2m	Nr	46		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
B-J381.8	DN 80, PN 25, length 1.2m	Nr	19		
B-J381.9	DN 200, PN 25, length 1.2m	Nr	12		
	Double Flanged Pipes without Puddle Flanges				
B-J381.10	DN 80, PN 25, length 1.2m	Nr	10		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
B-J381.11	DN 50, PN 25, length 1.2m	Nr	10		
B-J381.12	DN 80, PN 25, length 1.2m	Nr	11		
B-J381.13	DN 200, PN 25, length 1.2m	Nr	2		
B-J381.14	DN 200, PN 25, length 2m	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J39	End Cap				
B-J391.1	DN 50, PN 25	Nr	10		
B-J391.2	DN 80, PN 25	Nr	2		
B-J391.3	DN 200, PN 25	Nr	2		
B-J6	High Density Polyethylene Fittings (HDPE) SDR 9 (PN 20) including provision for Butt-fusion/Electrofusion Welded				
B-J61	Bends				
B-J612.1	OD 250mm; Plain Ended Bend				
B-J612.1.1	11.25° OD 250, PN 20	Nr	8		
B-J612.1.2	30° OD 250, PN 20	Nr	9		
B-J612.1.3	45° OD 250, PN 20	Nr	5		
B-J8	Valves and Penstocks				
B-J81	All Flanged Gate Valve				
B-J811.1	DN 50, PN 25, with handwheel (for offtake)	Nr	10		
B-J811.2	DN 50, PN 25, with handwheel (Isolating Valve for Air Valves)	Nr	6		
B-J811.3	DN 80, PN 25, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	4		
B-J811.4	DN 80, PN 25, with handwheel (for offtake)	Nr	11		
B-J811.5	DN 200, PN 25, with handwheel (for offtake)	Nr	2		
B-J86	Air Valve				
B-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
B-J861.1	DN 50, PN 25	Nr	6		
B-J9	Water Meters				
	Electromagnetic Flow Water Meters				
B-J991.1	DN 200 All Flanged Battery Powered Electromagnetic Water Meter to PN 25, complete with accessories; Minimum Battery Life 6	Nr	2		
B-J991.2	DN 80, PN 25 All Flanged Volumetric Flow Water Meter	Nr	10		
B-J10	Water Meter Strainer				
B-J1091.1	DN 80, PN 25 All Flanged Strainer	Nr	10		
B-J11	Fire Hydrant				
B-J1191.1	DN 80, PN 25 All Flanged Fire Hydrant	Nr	10		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS K: PIPE WORK - CHAMBERS AND PIPE WORK				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and other pipework ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. - Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes, to detail. - Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K231	Depth not exceeding 1.5m				
K231.1	Provide all materials and construct Reinforced Concrete WASHOUT VALVE Chambers (PROVISIONAL) internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/03-1	Nr	2		
K232	Depth 1.5 - 2.0 m				
K232.1	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	2		
K232.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	3		
K233	Depth 2.0 - 2.5 m				
K233.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	2		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K233.2	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	6		
K233.3	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	12		
K234	Depth 2.5 - 3.0 m				
K234.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K234.2	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K234.3	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	3		
K235	Depth 3.0 - 3.5 m				
K235.1	Provide all materials and construct Reinforced Concrete ELECTROMAGNETIC METER Chamber internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	1		
K237	Depth exceeding 4.0 m				
K237.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K237.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	1		
K237.3	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K25	PRECAST CONCRETE CHAMBERS				
K251	Depth not exceeding 1.5 m				
K251.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	5		
K251.2	Provide all materials and construct precast concrete FIRE HYDRANT Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	10		
K6	Crossings				
K671	Allow for crossing existing drains and sewers, and reinstate these after construction of the water line has been completed. Pipe bore n.e. 200mm	Nr	15		
K681	Allow for crossing existing underground services (waterlines, sewer lines, telecommunication/internet cables, electric cables etc.), including reinstatement to original state and liaison with the relevant body for the inspection/approval during execution of the works. Nominal pipe bore n.e. 200mm	Nr	30		
K7	Reinstatement				
K731.1	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore/ murrum, and any other associated works. Nominal pipe bore n.e. 200mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.	m	50		
K731.2	- Ditto - but for CONCRETE BLOCK PAVED road, Nominal Bore n.e 200mm	m	500		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K741.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, cabro, tarmac, etc.). Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18	m	500		
K741.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS . Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/18	m	200		
K751.1	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	1,720		
K8	Other Pipework Ancillaries				
K810	Allow for diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of the water line has been completed. All waterways to be kept	Item	L.S		
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts along water main route, at road crossings, changes in direction, air valves, washouts, and at valve chambers. All in accordance with drawings and specifications	Nr	40		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP				
K861	To pipes nominal bore: n.e 200 mm	Nr.	1		
K870	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in drg. No. M455/W-02/SD/03-1. Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr.	4		
	Wash-out Outfall Structure				
K870.2	Provide all materials and construct Reinforced Concrete outfall structures on reinforced concrete plinths at washout drain pipe outlets as per details in drg no. M455/W-02/SD/03-2	Nr	4		
	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.3	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	200		
K870.4	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with reinforced concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is	m	170		
K870.5	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	320		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K870.6	Allow for breaking up of existing UNLINED EARTH DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/17)	m	200		
K870.7	-Ditto - but for existing STONE-PITCHED OPEN DRAINS with courses, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/17)	m	100		
K870.8	-Ditto - but for existing INVERT BLOCK DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/19)	m	600		
	CLASS L: PIPEWORK : ANCILLARIES TO LAYING AND EXCAVATION				
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in rock Class "A"	m ³	350		
L111.2	-Ditto- but rock Class "B"	m ³	550		
L111.3	-Ditto- but rock Class "C"	m ³	1,000		
	Note:- Blasting is NOT permitted for item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L521	To pipes nominal bore: n.e 200 mm	m	1,800		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L531	To pipes nominal bore: n.e 200 mm	m	1,200		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L541	To pipes nominal bore: n.e 200 mm	m	65		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks				
	Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	Class 20/20 Mass Concrete				
	NOTE:- The work includes pipe and fitting fixing				
L71	Volume not exceeding 0.1 m³				
L711	To pipes nominal bore not exceeding 200mm	Nr	20		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
L72	Volume:- 0.1 - 0.2m ³				
L721	To pipes nominal bore not exceeding 200mm	Nr	15		
L73	Volume:- 0.2 - 0.5m ³				
L731	To pipes nominal bore not exceeding 200mm	Nr	15		
	CLASS V: PAINTING				
V78	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	70		
	CLASS X: MISCELLANEOUS WORK				
	Trenchless Road Crossings				
X990	Provide all equipment and materials and construct trenchless micro tunnel below road surface in common material (soil/murram). Rate to include for any requisite shoring and strutting during tunnelling. Micro-tunnelling to be carried out by Pipe Jacking, Horizontal Drilling or any other approved method. Contractor to submit detailed Method Statement for review and approval prior to Commencement of the works. All works to be executed in close liaison with the relevant road authorities. Rates to include for facilitation of the same.				
X990.1	Pipe Nominal Bore ne. 300mm, Maximum width of road 20m	m	50		
X990.2	Extra over trenchless road crossing for excavating/drilling in rock	m ³	11		
X991	Provide and Install steel pipe sleeve in micro-tunnel, including for all jointing, jacking, grouting, etc. Nominal Bore ne. 300mm	m	50		
X992	Allow for Any Method Related charges for Trenches pipe crossing under roads for Item X990 to X991 above that the bidder feels maybe required. These must be indicated below with pricing of each item (Bidder may now add Additional Items here below if required)	Item	L.S		
	i)				
	ii)				
X993	Provisional Sum of Kshs. 500,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		500,000.00
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BILL No. 3.2 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.2 - EXTENSION OF WATER RETICULATION NETWORK WITHIN WILSON AREA (OD 63 - OD 250; Total Length 2.6km)**

		Amount (Kshs)
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Bill No. 3.2 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet		

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	NOTES:				
1.	<p>The proposed works are to be carried out within Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. The proposed pipelines are largely within narrow access roads around Ngong forest areas.</p> <p>The Pipeline alignments are characterized by numerous active Existing Services, both surface and buried;</p> <p>Specific conditions in execution of these works are deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted</p> <p>ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains</p> <p>iii) Pedestrians and Vehicular access to individual Shops/ Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided</p> <p>iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times.</p> <p>v) Immediate Reinstatement of access roads and Stabilization</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline routes to establish locations and alignment of existing Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.</p>				
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
4.	All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).				
5.	Value Added Tax (VAT) to be added separately in the Grand Summary.				
	<u>CLASS A: GENERAL ITEMS</u>				
A2	<u>Specified Requirements</u>				
A260	<u>Testing of Works</u>				
A260.1	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	OD 63mm	m	180		
A260.1.2	OD 110mm	m	735		
A260.1.3	OD 250mm	m	1,743		
A260.2	Disinfection of Pipe lines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. Rate to include for supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval upon satisfactory disinfection.				
A260.2.1	OD 63mm	m	180		
A260.2.2	OD 110mm	m	735		
A260.2.3	OD 250mm	m	1,743		
A38	<u>Method Related Charges</u>				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 4m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 200Nr.	Item	L.S		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 200Nr	Item	LS		
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	LS		
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	<u>Provisional Sums for Defined Works</u>				
A42.1	Allow Provisional Sum of Kshs. 500,000 for Liaison, facilitation with I	Item	P.S		500,000.00
A42.2	Allow a Provisional Sum of Kshs. 1,000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed	Item	P.S		1,000,000.00
	<u>CLASS D: DEMOLITION AND SITE CLEARANCE</u>				
	<u>The Employer has no available land to offer for dumping of spoil materials. Identification of and all accruing costs related to securing suitable area of land for dumping is the responsibility of the Contractor. Dumping and spreading is to be done in accordance with existing National Legislation and Local Authority's by-laws.</u>				
	<u>The Contractor is deemed to have allowed for this aspect of Work in their excavation and cart away to tips rates.</u>				
D1	Site Clearance				
D110	General clearance along the pipeline alignment.	ha	1.5		
D2	Tree Cutting				
	Cut down trees, grab up roots and cart away to tips				
D210.1	Girth 0.5m - 1.0m	Nr	10		
D210.2	Girth 1.0m - 2.0m	Nr	10		
D220.1	Girth 2.0m - 3.0m	Nr	15		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
D3	Removal and Disposal of Tree Stumps				
D310	Stump dia. not exceeding 1m	Nr	7		
D320	Stump dia. exceeding 1m	Nr	8		
	<u>CLASS E: EARTHWORKS</u>				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities.	m ³	300		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Supply, Transport to Site and Store</u>				
A-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u>				
	<u>Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16</u>				
A-I71.1	OD 63mm	m	240		
A-I71.2	OD 110mm	m	835		
A-I72.1	OD 250mm	m	1,743		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation trenches, Backfilling and final Reinstatement.</u>				
	<u>Trench width and minimum cover to pipes is as per specifications. This cost shall include for all Strutting, Shuttering, Stabilizing the excavation faces and keeping the trenches free of water from whatever source either by pumping or other means and cost of use of selected use from excavated material for compaction in bed and surround to backfilling of trenches, etc.; all as specified</u>				
B-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u>				
	<u>Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16</u>				
B-I71.1	<u>OD 63 mm in trenches</u>				
B-I712.1	Depth not exceeding 1.5 m	m	168		
B-I713.1	Depth 1.5 m - 2.0 m	m	60		
B-I714.1	Depth 2.0 m - 2.5 m	m	12		
B-I71.2	<u>OD 110 mm in trenches</u>				
B-I712.2	Depth not exceeding 1.5 m	m	610		
B-I713.2	Depth 1.5 m - 2.0 m	m	110		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-I714.2	Depth 2.0 m - 2.5 m	m	38		
B-I715.2	Depth 2.5 m - 3.0 m	m	60		
B-I716.2	Depth 3.0 m - 3.5 m	m	17		
B-I72.1	OD 250 mm in Trenches				
B-I722.1	Depth not exceeding 1.5 m	m	709		
B-I723.1	Depth 1.5 m - 2.0 m	m	826		
B-I724.1	Depth 2.0 m - 2.5 m	m	59		
B-I725.1	Depth 2.5 m - 3.0 m	m	79		
B-I726.1	Depth 3.0 m - 3.5 m	m	70		
	<u>CLASS J: PIPE WORK - FITTINGS AND VALVES - PN 16</u>				
A	<u>Supply, Transport to Site and Store</u>				
AJ3	Ductile Iron or Steel Fittings; Joints as specified				
A-J31	Bends				
A-J311.1	Nominal bore 80mm; All Flanged Bend				
A-J311.1.1	90° DN 80, PN 16	Nr	10		
A-J311.2	Nominal bore 200mm; All Flanged Bend				
A-J311.2.1	45° DN 200, PN 16	Nr	5		
A-J32	Junction and Branches				
	All Flanged Tee				
A-J321.1	DN 100 x DN 50, PN 16 All Flanged Tee	Nr	4		
A-J321.2	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	2		
A-J321.3	DN 100 x DN 80, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J321.4	DN 200 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	9		
A-J321.5	DN 200 x DN 100, PN 16 All Flanged Tee for Air Valves	Nr	5		
A-J321.6	DN 200 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	7		
A-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for Interconnection	Nr	2		
A-J322.2	DN 300 x DN 200, PN 16 All Flanged Tee for Interconnection	Nr	2		
	All Flanged Level Invert Tee				
A-J321.7	DN 50 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	2		
A-J321.8	DN 100 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	3		
A-J321.9	DN 200 x DN 80, PN 16 All Flanged Level Invert Tee for Washouts	Nr	3		
A-J33	Tapers				
	All Flanged Concentric Taper				
A-J331.1	DN 80 x DN 50, PN 16	Nr	2		
A-J331.2	DN 100 x DN 50, PN 16	Nr	5		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J331.3	DN 100 x DN 80, PN 16	Nr	7		
A-J34	Ferrous Couplings				
A-J341.1	DN 50, PN 16 - Straight Coupling	Nr	13		
A-J341.2	DN 50, PN 16 - Stepped Coupling	Nr	8		
A-J341.3	DN 80, PN 16 - Straight Coupling	Nr	10		
A-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	3		
A-J341.5	DN 100, PN 16 - Straight Coupling	Nr	2		
A-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	21		
A-J341.7	DN 200, PN 16 - Stepped Coupling	Nr	46		
A-J342.1	DN 300, PN 16 - Stepped Coupling	Nr	6		
A-J35	Ferrous Flange Adaptors				
A-J351.1	DN 50, PN 16	Nr	27		
A-J351.2	DN 80, PN 16	Nr	20		
A-J351.3	DN 100, PN 16	Nr	4		
A-J351.4	DN 200, PN 16	Nr	5		
A-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
A-J381.1	DN 50, PN 16, length 1.2m	Nr	24		
A-J381.2	DN 80, PN 16, length 1.2m	Nr	10		
A-J381.3	DN 100, PN 16, length 1.2m	Nr	4		
	Plain Ended Pipes without Puddle Flanges				
A-J381.4	DN 50, PN 16, length 1.2m	Nr	4		
A-J381.5	DN 80, PN 16, length 1.2m	Nr	3		
	Flanged Spigot Pipes without Puddle Flanges				
A-J381.6	DN 50, PN 16, length 1.2m	Nr	3		
A-J381.7	DN 100, PN 16, length 1.2m	Nr	15		
A-J381.8	DN 200, PN 16, length 1.2m	Nr	35		
A-J382.1	DN 300, PN 16, length 1.2m	Nr	6		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
A-J381.9	DN 50, PN 16, length 1.2m	Nr	13		
A-J381.10	DN 80, PN 16, length 1.2m	Nr	18		
A-J381.11	DN 100, PN 16, length 1.2m	Nr	5		
A-J381.12	DN 200, PN 16, length 1.0m	Nr	2		
A-J381.13	DN 200, PN 16, length 1.2m	Nr	12		
	Double Flanged Pipes without Puddle Flanges				
A-J381.14	DN 80, PN 16, length 1.2m	Nr	10		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
A-J381.15	DN 50, PN 16, length 1.2m	Nr	13		
A-J381.16	DN 80, PN 16, length 1.2m	Nr	10		
A-J381.17	DN 100, PN 16, length 1.2m	Nr	2		
A-J381.18	DN 200, PN 16, length 1.2m	Nr	2		
A-J381.19	DN 200, PN 16, length 2m	Nr	2		
A-J39	End Cap				
A-J391.1	DN 50, PN 16	Nr	13		
A-J391.2	DN 100, PN 16	Nr	2		
A-J391.3	DN 200, PN 16	Nr	2		
A-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded				
A-J61	Bends				
A-J611.1	OD 63mm; Plain Ended Bend				
A-J611.1.1	45° OD 63, PN 16	Nr	3		
A-J611.2	OD 110mm; Plain Ended Bend				
A-J611.2.1	11.25° OD 110, PN 16	Nr	12		
A-J611.2.2	22.5° OD 110, PN 16	Nr	4		
A-J611.2.3	30° OD 110, PN 16	Nr	3		
A-J612.1	OD 250mm; Plain Ended Bend				
A-J612.1.1	11.25° OD 250, PN 16	Nr	9		
A-J612.1.2	22.5° OD 250, PN 16	Nr	4		
A-J612.1.3	30° OD 250, PN 16	Nr	2		
A-J612.1.4	45° OD 250, PN 16	Nr	3		
A-J612.1.5	90° OD 250, PN 16	Nr	2		
A-J8	Valves and Penstocks				
A-J81	All Flanged Gate Valve				
A-J811.1	DN 50, with handwheel (for offtake)	Nr	13		
A-J811.2	DN 50, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	4		
A-J811.3	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	7		
A-J811.4	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	3		
A-J811.5	DN 80, PN 16, with handwheel (for offtake)	Nr	10		
A-J811.6	DN 100, PN 16, with handwheel (for offtake)	Nr	3		
A-J811.7	DN 200, PN 16, with handwheel (for offtake)	Nr	3		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J86	Air Valve				
A-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
A-J861.1	DN 50, PN 16	Nr	7		
A-J9	Water Meters				
	Electromagnetic Flow Water Meters				
A-J991.1	DN 200 All Flanged Battery Powered Electromagnetic Water Meter to PN 16, complete with accessories; Minimum Battery Life 6 Years.	Nr	2		
	Volumetric Flow Water Meters				
A-J991.2	DN 50, PN 16 All Flanged Volumetric Flow Water Meter	Nr	13		
A-J991.3	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	10		
A-J991.4	DN 100, PN 16 All Flanged Volumetric Flow Water Meter	Nr	2		
A-J10	Water Meter Strainer				
A-J1091.1	DN 50, PN 16 All Flanged Strainer	Nr	13		
A-J1091.2	DN 80, PN 16 All Flanged Strainer	Nr	10		
A-J1091.3	DN 100, PN 16 All Flanged Strainer	Nr	2		
A-J11	Fire Hydrant				
A-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	10		
B	<u>Transport From Site Store, Lay and Joint Pipes in Trench. Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling.</u>				
	Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.				
BJ3	Ductile Iron or Steel Fittings; Joints as specified				
B-J31	Bends				
B-J311.1	Nominal bore 80mm; All Flanged Bend				
B-J311.1.1	90° DN 80, PN 16	Nr	10		
B-J311.2	Nominal bore 200mm; All Flanged Bend				
B-J311.2.1	45° DN 200, PN 16	Nr	5		
B-J32	Junction and Branches				
	All Flanged Tee				
B-J321.1	DN 100 x DN 50, PN 16 All Flanged Tee	Nr	4		
B-J321.2	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J321.3	DN 100 x DN 80, PN 16 All Flanged Tee for offtakes	Nr	3		
B-J321.4	DN 200 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	9		
B-J321.5	DN 200 x DN 100, PN 16 All Flanged Tee for Air Valves	Nr	5		
B-J321.6	DN 200 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	7		
B-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for Interconnection	Nr	2		
B-J322.2	DN 300 x DN 200, PN 16 All Flanged Tee for Interconnection	Nr	2		
	All Flanged Level Invert Tee				
B-J321.7	DN 50 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	2		
B-J321.8	DN 100 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	3		
B-J321.9	DN 200 x DN 80, PN 16 All Flanged Level Invert Tee for Washouts	Nr	3		
B-J33	Tapers				
	All Flanged Concentric Taper				
B-J331.1	DN 80 x DN 50, PN 16	Nr	2		
B-J331.2	DN 100 x DN 50, PN 16	Nr	5		
B-J331.3	DN 100 x DN 80, PN 16	Nr	7		
B-J34	Ferrous Couplings				
B-J341.1	DN 50, PN 16 - Straight Coupling	Nr	13		
B-J341.2	DN 50, PN 16 - Stepped Coupling	Nr	8		
B-J341.3	DN 80, PN 16 - Straight Coupling	Nr	10		
B-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	3		
B-J341.5	DN 100, PN 16 - Straight Coupling	Nr	2		
B-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	21		
B-J341.7	DN 200, PN 16 - Stepped Coupling	Nr	46		
B-J342.1	DN 300, PN 16 - Stepped Coupling	Nr	6		
B-J35	Ferrous Flange Adaptors				
B-J351.1	DN 50, PN 16	Nr	27		
B-J351.2	DN 80, PN 16	Nr	20		
B-J351.3	DN 100, PN 16	Nr	4		
B-J351.4	DN 200, PN 16	Nr	5		
B-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
B-J381.1	DN 50, PN 16, length 1.2m	Nr	24		
B-J381.2	DN 80, PN 16, length 1.2m	Nr	10		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J381.3	DN 100, PN 16, length 1.2m	Nr	4		
	Plain Ended Pipes without Puddle Flanges				
B-J381.4	DN 50, PN 16, length 1.2m	Nr	4		
B-J381.5	DN 80, PN 16, length 1.2m	Nr	3		
	Flanged Spigot Pipes without Puddle Flanges				
B-J381.6	DN 50, PN 16, length 1.2m	Nr	3		
B-J381.7	DN 100, PN 16, length 1.2m	Nr	15		
B-J381.8	DN 200, PN 16, length 1.2m	Nr	35		
B-J382.1	DN 300, PN 16, length 1.2m	Nr	6		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
B-J381.9	DN 50, PN 16, length 1.2m	Nr	13		
B-J381.10	DN 80, PN 16, length 1.2m	Nr	18		
B-J381.11	DN 100, PN 16, length 1.2m	Nr	5		
B-J381.12	DN 200, PN 16, length 1.0m	Nr	2		
B-J381.13	DN 200, PN 16, length 1.2m	Nr	12		
	Double Flanged Pipes without Puddle Flanges				
B-J381.14	DN 80, PN 16, length 1.2m	Nr	10		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Drawings)				
B-J381.15	DN 50, PN 16, length 1.2m	Nr	13		
B-J381.16	DN 80, PN 16, length 1.2m	Nr	10		
B-J381.17	DN 100, PN 16, length 1.2m	Nr	2		
B-J381.18	DN 200, PN 16, length 1.2m	Nr	2		
B-J381.19	DN 200, PN 16, length 2m	Nr	2		
B-J39	End Cap				
B-J391.1	DN 50, PN 16	Nr	13		
B-J391.2	DN 100, PN 16	Nr	2		
B-J391.3	DN 200, PN 16	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded Jointing				
B-J61	Bends				
B-J611.1	OD 63mm; Plain Ended Bend				
B-J611.1.1	45° OD 63, PN 16	Nr	3		
B-J611.2	OD 110mm; Plain Ended Bend				
B-J611.2.1	11.25° OD 110, PN 16	Nr	12		
B-J611.2.2	22.5° OD 110, PN 16	Nr	4		
B-J611.2.3	30° OD 110, PN 16	Nr	3		
B-J612.1	OD 250mm; Plain Ended Bend				
B-J612.1.1	11.25° OD 250, PN 16	Nr	9		
B-J612.1.2	22.5° OD 250, PN 16	Nr	4		
B-J612.1.3	30° OD 250, PN 16	Nr	2		
B-J612.1.4	45° OD 250, PN 16	Nr	3		
B-J612.1.5	90° OD 250, PN 16	Nr	2		
B-J8	Valves and Penstocks				
B-J81	All Flanged Gate Valve				
B-J811.1	DN 50, with handwheel (for offtake)	Nr	13		
B-J811.2	DN 50, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	4		
B-J811.3	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	7		
B-J811.4	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	3		
B-J811.5	DN 80, PN 16, with handwheel (for offtake)	Nr	10		
B-J811.6	DN 100, PN 16, with handwheel (for offtake)	Nr	3		
B-J811.7	DN 200, PN 16, with handwheel (for offtake)	Nr	3		
B-J86	Air Valve				
B-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
B-J861.1	DN 50, PN 16	Nr	7		
B-J9	Water Meters				
	Electromagnetic Flow Water Meters				
B-J991.1	DN 200 All Flanged Battery Powered Electromagnetic Water Meter to PN 16, complete with accessories; Minimum Battery Life 6 Years.	Nr	2		

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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	Volumetric Flow Water Meters				
B-J991.2	DN 50, PN 16 All Flanged Volumetric Flow Water Meter	Nr	13		
B-J991.3	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	10		
B-J991.4	DN 100, PN 16 All Flanged Volumetric Flow Water Meter	Nr	2		
B-J10	Water Meter Strainer				
B-J1091.1	DN 50, PN 16 All Flanged Strainer	Nr	13		
B-J1091.2	DN 80, PN 16 All Flanged Strainer	Nr	10		
B-J1091.3	DN 100, PN 16 All Flanged Strainer	Nr	2		
B-J11	Fire Hydrant				
B-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	10		
	ANCILLARIES				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and other pipework ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. - Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes to detail. - Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K231	Depth not exceeding 1.5m				
K231.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K231.2	Provide all materials and construct Reinforced Concrete WASHOUT VALVE Chambers (PROVISIONAL) internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	2		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K232	Depth 1.5 - 2.0 m				
K232.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K232.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	7		
K232.3	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	6		
K233	Depth 2.0 - 2.5 m				
K233.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	2		
K233.2	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	13		
K233.3	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	12		
K234	Depth 2.5 - 3.0 m				
K234.1	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1500mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K235	Depth 3.0 - 3.5 m				
K235.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K235.2	Provide all materials and construct Reinforced Concrete ELECTROMAGNETIC METER Chamber internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	1		
K235.3	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	12		
K235.4	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	2		
K236	Depth 3.5 - 4.0 m				
K236.1	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K25	PRECAST CONCRETE CHAMBERS				
K251	Depth not exceeding 1.5 m				
K251.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	5		
K251.2	Provide all materials and construct precast concrete FIRE HYDRANT Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K6	Crossings				
K671	Allow for crossing existing drains and sewers, and reinstate these after construction of the water line has been completed. Pipe bore n.e. 200mm	Nr	15		
K681	Allow for crossing existing underground services (waterlines, telecommunication/internet cables, electric cables etc.), including reinstatement to original state and liaison with the relevant body for the inspection/approval during execution of the works. Nominal pipe bore n.e. 200mm	Nr	28		
K7	Reinstatement				
K731.1	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilised gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore/ murram, and any other associated works. Nominal pipe bore n.e. 200mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.	m	100		
K731.2	- Ditto - but for CONCRETE BLOCK PAVED roads, Nominal Bore n.e 200mm	m	200		
K731.3	Breaking up, temporary and permanent reinstatement of MURRAM roads with 300mm thick well graded stabilised gravel with 3% cement base compacted in 150mm thick layers using an 8-10 tonne roller and 150mm deep approved compacted hardcore to the satisfaction of the Engineer. Nominal pipe bore n.e. 1800mm. all as per Dwg No. M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.; Pipe nominal bore n.e 300mm	m	500		
K741.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, cabro, tarmac, etc.). Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18	m	500		
K741.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS . Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/18	m	100		
K751.1	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	1,258		
K8	Other Pipework Ancillaries				
K81	Allow for diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of the water line has been completed. All waterways to be kept operational during construction.	Item	L.S		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts along water main route, at road crossings, changes in direction, air valves, washouts, and valve chambers. All in accordance with drawings and specifications	Nr	45		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP				
K863	To pipes nominal bore: 300 - 600 mm	Nr.	2		
K870	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in drg. No. M455/W-02/SD/03-1. Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr.	8		
	Wash-out Outfall Structure				
K870.2	Provide all materials and construct Reinforced Concrete outfall structures on reinforced concrete plinths at washout drain pipe outlets as per details in drg no. M455/W-02/SD/03-2	Nr	8		
	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.3	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	350		
K870.4	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with reinforced concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is completed.	m	120		
K870.5	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	350		
K870.6	Allow for breaking up of existing UNLINED EARTH DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/17)	m	50		
K870.7	-Ditto - but for existing STONE-PITCHED OPEN DRAINS with courses, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/17)	m	80		
K870.8	-Ditto - but for existing INVERT BLOCK DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/19)	m	200		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION</u>				
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in rock Class "A"	m ³	300		
L111.2	-Ditto- but rock Class "B"	m ³	500		
L111.3	-Ditto- but rock Class "C"	m ³	800		
	Note:- Blasting is NOT permitted for item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L521	To pipes nominal bore: n.e 200 mm	m	1,550		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L531	To pipes nominal bore: n.e 200 mm	m	1,108		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L541	To pipes nominal bore: n.e 200 mm	m	200.00		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks				
	Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	<u>Class 20/20 Mass Concrete</u>				
	<u>NOTE:-</u> The work includes pipe and fitting fixing				
L71	Volume not exceeding 0.1 m³				
L711	To pipes nominal bore not exceeding 200mm	Nr	70		
L72	Volume:- 0.1 - 0.2m³				
L721	To pipes nominal bore not exceeding 200mm	Nr	50		
L73	Volume:- 0.2 - 0.5m³				
L731	To pipes nominal bore not exceeding 200mm	Nr	10		
	<u>CLASS V: PAINTING</u>				
V310	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	90		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS X: MISCELLANEOUS WORK</u>				
	Trenchless Road Crossings				
X990	Provide all equipment and materials and construct trenchless micro-tunnel below road surface in common material (soil/murram). Rate to include for any requisite shoring and strutting during tunnelling. Micro-tunnelling to be carried out by Pipe Jacking, Horizontal Drilling or any other approved method. Contractor to submit detailed Method Statement for review and approval prior to Commencement of the works. All works to be executed in close liaison with the relevant road authorities. Rates to include for facilitation of the same.				
X990.1	Pipe Nominal Bore ne. 300mm, Maximum width of road 20m	m	75		
X990.2	Extra over trenchless road crossing for excavating/drilling in rock	m ³	25		
X991	Provide and Install steel pipe sleeve in micro-tunnel, including for all jointing, jacking, grouting, etc. Nominal Bore ne. 300mm	m	75		
X992	Allow for Any Method Related charges for Trenches pipe crossing under roads for Item X990 to X991 above that the bidder feels maybe required. These must be indicated below with pricing of each item (Bidder may now add Additional Items here below if required)	Item	L.S		
	i)				
	ii)				
X993	Provisional Sum of Kshs. 500,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		500,000.00
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BILL No. 3.3 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.3 - EXTENSION OF WATER RETICULATION NETWORK WITHIN AREA AROUND NGONG FOREST (OD 63 - OD 250; Total Length 2.5km)**

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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.	<p>NOTES:</p> <p>The proposed works are to be carried out within Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. The proposed pipelines are largely within narrow access roads within Karen Plains.</p> <p>The Pipeline alignments are characterized by numerous active Existing Services, both surface and buried; Specific conditions in execution of these works are deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted</p> <p>ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains</p> <p>iii) Pedestrians and Vehicular access to individual Shops/ Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided</p> <p>iv) Safety hoarding, lighting, bands, warning signs, etc. to be</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline routes to establish locations and alignment of existing Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.</p>				
4.	<p>All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).</p>				
5.	<p>Value Added Tax (VAT) to be added separately in the Grand Summary.</p>				
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS A: GENERAL ITEMS				
A2	Specified Requirements				
A260	Testing of Works				
A260.1	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	OD 63mm	m	4,100		
A260.1.2	OD 90mm	m	2,100		
A260.1.3	OD 110mm	m	3,000		
A260.2	Disinfection of Pipelines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. Rate to include for supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval upon satisfactory disinfection.				
A260.2.1	OD 63mm	m	4,100		
A260.2.2	OD 90mm	m	2,100		
A260.2.3	OD 110mm	m	3,000		
A38	Method Related Charges				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 4m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 200Nr.	Item	L.S		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 200Nr	Item	L.S		
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	L.S		
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 1,000,000 for Liaison, facilitation with	Item	P.S		1,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 1,500,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed	Item	P.S		1,500,000.00
	<u>CLASS D: DEMOLITION AND SITE CLEARANCE</u>				
	<u>The Employer has no available land to offer for dumping of spoil materials. Identification of and all accruing costs related to securing suitable area of land for dumping is the responsibility of the Contractor. Dumping and spreading is to be done in accordance with existing National Legislation and Local Authority's by-laws.</u>				
	<u>The Contractor is deemed to have allowed for this aspect of Work in their excavation and cart away to tips rates.</u>				
D1	Site Clearance				
D110	General clearance along the pipeline alignment.	ha	6		
D2	Tree Cutting				
	Cut down trees, grab up roots and cart away to tips				
D210.1	Girth 0.5m - 1.0m	Nr	25		
D210.2	Girth 1.0m - 2.0m	Nr	40		
D220.1	Girth 2.0m - 3.0m	Nr	50		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
D3	Removal and Disposal of Tree Stumps				
D310	Stump diameter not exceeding 1m	Nr	20		
D320	Stump diameter exceeding 1m	Nr	20		
	<u>CLASS E: EARTHWORKS</u>				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities (provisional).	m ³	1000		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Supply, Transport to Site and Store</u>				
A-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u>				
	<u>Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16</u>				
A-I71.1	OD 63mm	m	4,320		
A-I71.2	OD 90mm	m	2,100		
A-I71.3	OD 110mm	m	3,420		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench. Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation trenches, Backfilling and final Reinstatement.</u>				
	<u>Trench width and minimum cover to pipes is as per specifications. This cost shall include for all Strutting, Shuttering, Stabilizing the excavation faces and keeping the trenches free of water from whatever source either by pumping or other means and cost of use of selected use from excavated material for compaction in bed and surround to backfilling of trenches. etc.: all as specified</u>				
B-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u>				
	<u>Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16</u>				
B-I71.1	<u>OD 63 mm in trenches</u>				
B-I712.1	Depth not exceeding 1.5 m	m	3,024		
B-I713.1	Depth 1.5 m - 2.0 m	m	1,080		
B-I714.1	Depth 2.0 m - 2.5 m	m	216		
B-I71.2	<u>OD 90 mm in trenches</u>				
B-I712.2	Depth not exceeding 1.5 m	m	1,470		
B-I713.2	Depth 1.5 m - 2.0 m	m	525		
B-I714.2	Depth 2.0 m - 2.5 m	m	105		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-I71.3	OD 110 mm in trenches				
B-I71.2.3	Depth not exceeding 1.5 m	m	3,065		
B-I71.3.3	Depth 1.5 m - 2.0 m	m	210		
B-I714.3	Depth 2.0 m - 2.5 m	m	65		
B-I715.3	Depth 2.5 m - 3.0 m	m	40		
B-I716.3	Depth 3.0 m - 3.5 m	m	40		
	CLASS J: PIPE WORK - FITTINGS AND VALVES - PN 16				
A	Supply, Transport to Site and Store				
AJ3	Ductile Iron or Steel Fittings; Joints as specified				
A-J31	Bends				
A-J311.1	Nominal bore 80mm; All Flanged Bend				
A-J311.1.1	90° DN 80, PN 16	Nr	15		
A-J32	Junction and Branches				
	Saddle Clamps				
A-J321.1	DN 80 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	4		
A-J321.2	DN 100 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	2		
	All Flanged Tee				
A-J321.3	DN 50 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J321.4	DN 80 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J321.5	DN 80 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	4		
A-J321.6	DN 100 x DN 50, PN 16 All Flanged Tee	Nr	15		
A-J321.7	DN 100 x DN 80, PN 16 All Flanged Tee for offtakes	Nr	15		
A-J321.8	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	7		
A-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J323.1	DN 500 x DN 250, PN 16 All Flanged Tee for offtakes	Nr	4		
	All Flanged Level Invert Tee				
A-J321.9	DN 50 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	13		
A-J321.10	DN 80 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	4		
A-J321.11	DN 100 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	6		
A-J33	Tapers				
	All Flanged Concentric Taper				
A-J331.1	DN 80 x DN 50, PN 16	Nr	11		
A-J332.1	DN 250 x DN 80, PN 16	Nr	2		
A-J332.2	DN 250 x DN 100, PN 16	Nr	2		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J34	Ferrous Couplings				
A-J341.1	DN 50, PN 16 - Straight Coupling	Nr	3		
A-J341.2	DN 50, PN 16 - Stepped Coupling	Nr	89		
A-J341.3	DN 80, PN 16 - Straight Coupling	Nr	16		
A-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	19		
A-J341.5	DN 100, PN 16 - Straight Coupling	Nr	3		
A-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	88		
A-J342.1	DN 300, PN 16 - Straight Coupling	Nr	3		
A-J343.1	DN 500, PN 16 - Straight Coupling	Nr	6		
A-J35	Ferrous Flange Adaptors				
A-J351.1	DN 50, PN 16	Nr	42		
A-J351.2	DN 80, PN 16	Nr	30		
A-J351.3	DN 100, PN 16	Nr	6		
A-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.1	DN 50, PN 16, length 1.2m	Nr	24		
A-J381.2	DN 80, PN 16, length 1.2m	Nr	19		
A-J381.3	DN 100, PN 16, length 1.2m	Nr	5		
	Plain Ended Pipes without Puddle Flanges				
A-J381.4	DN 50, PN 16, length 1.2m	Nr	22		
	Flanged Spigot Pipes without Puddle Flanges				
A-J381.5	DN 50, PN 16, length 1.2m	Nr	28		
A-J381.6	DN 80, PN 16, length 1.2m	Nr	11		
A-J381.7	DN 100, PN 16, length 1.2m	Nr	68		
A-J382.1	DN 300, PN 16, length 1.2m	Nr	3		
A-J383.1	DN 500, PN 16, length 1.2m	Nr	6		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.8	DN 50, PN 16, length 1.2m	Nr	3		
A-J381.9	DN 80, PN 16, length 1.2m	Nr	34		
A-J381.10	DN 100, PN 16, length 1.2m	Nr	15		
	Double Flanged Pipes without Puddle Flanges				
A-J381.11	DN 80, PN 16, length 1.2m	Nr	14		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.12	DN 50, PN 16, length 1.2m	Nr	22		
A-J381.13	DN 80, PN 16, length 1.2m	Nr	18		
A-J381.14	DN 100, PN 16, length 1.2m	Nr	4		
A-J39	End Cap				
A-J391.1	DN 50, PN 16	Nr	20		
A-J391.2	DN 80, PN 16	Nr	4		
A-J391.3	DN 100, PN 16	Nr	4		
A-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded Jointing				
A-J61	Bends				
A-J611.1	OD 63mm; Plain Ended Bend				
A-J611.1.1	45° OD 63, PN 16	Nr	25		
A-J611.2	OD 90mm; Plain Ended Bend				
A-J611.2.1	45° OD 90, PN 16	Nr	10		
A-J611.3	OD 110mm; Plain Ended Bend				
A-J611.3.1	11.25° OD 110, PN 16	Nr	5		
A-J611.3.2	22.5° OD 110, PN 16	Nr	5		
A-J611.3.3	30° OD 110, PN 16	Nr	5		
A-J611.3.4	45° OD 110, PN 16	Nr	5		
A-J8	Valves and Penstocks				
A-J81	All Flanged Gate Valve				
A-J811.1	DN 50, with handwheel (for offtake)	Nr	25		
A-J811.2	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	11		
A-J811.3	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	25		
A-J811.4	DN 80, PN 16, with handwheel (for offtake)	Nr	18		
A-J811.5	DN 100, PN 16, with handwheel (for offtake)	Nr	4		
A-J86	Air Valve				
A-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
A-J861.1	DN 50, PN 16	Nr	15		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J9	Water Meters				
	Volumetric Flow Water Meters				
A-J991.1	DN 50, PN 16 All Flanged Volumetric Flow Water Meter	Nr	3		
A-J991.2	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	18		
A-J991.3	DN 100, PN 16 All Flanged Volumetric Flow Water Meter	Nr	4		
A-J10	Water Meter Strainer				
A-J1091.1	DN 50, PN 16 All Flanged Strainer	Nr	3		
A-J1091.2	DN 80, PN 16 All Flanged Strainer	Nr	18		
A-J1091.3	DN 100, PN 16 All Flanged Strainer	Nr	16		
A-J11	Fire Hydrant				
A-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	14		
B	<u>Transport From Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling.</u> NOTE: Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.				
BJ3	Ductile Iron or Steel Fittings; Joints as specified				
B-J31	Bends				
B-J311.1	Nominal bore 80mm; All Flanged Bend				
B-J311.1.1	90° DN 80, PN 16	Nr	14		
B-J32	Junction and Branches				
	Saddle Clamps				
B-J321.1	DN 80 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	4		
B-J321.2	DN 100 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	2		
	All Flanged Tee				
B-J321.3	DN 50 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J321.4	DN 80 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
B-J321.5	DN 80 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	4		
B-J321.6	DN 100 x DN 50, PN 16 All Flanged Tee	Nr	15		
B-J321.7	DN 100 x DN 80, PN 16 All Flanged Tee for offtakes	Nr	15		
B-J321.8	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	7		
B-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J323.1	DN 500 x DN 250, PN 16 All Flanged Tee for offtakes	Nr	4		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	All Flanged Level Invert Tee				
B-J321.9	DN 50 x DN 50, PN 16 All Flanged Tee for Washouts	Nr	13		
B-J321.10	DN 80 x DN 50, PN 16 All Flanged Tee for Washouts	Nr	4		
B-J321.11	DN 100 x DN 50, PN 16 All Flanged Tee for Washouts	Nr	6		
B-J33	Tapers				
	All Flanged Concentric Taper				
B-J331.1	DN 80 x DN 50, PN 16	Nr	11		
B-J332.1	DN 250 x DN 80, PN 16	Nr	2		
B-J332.2	DN 250 x DN 100, PN 16	Nr	2		
B-J34	Ferrous Couplings				
B-J341.1	DN 50, PN 16 - Straight Coupling	Nr	3		
B-J341.2	DN 50, PN 16 - Stepped Coupling	Nr	89		
B-J341.3	DN 80, PN 16 - Straight Coupling	Nr	16		
B-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	19		
B-J341.5	DN 100, PN 16 - Straight Coupling	Nr	3		
B-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	88		
B-J342.1	DN 300, PN 16 - Straight Coupling	Nr	3		
B-J343.1	DN 500, PN 16 - Straight Coupling	Nr	6		
B-J35	Ferrous Flange Adaptors				
B-J351.1	DN 50, PN 16	Nr	42		
B-J351.2	DN 80, PN 16	Nr	30		
B-J351.3	DN 100, PN 16	Nr	6		
B-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.1	DN 50, PN 16, length 1.2m	Nr	24		
B-J381.2	DN 80, PN 16, length 1.2m	Nr	19		
B-J381.3	DN 100, PN 16, length 1.2m	Nr	5		
	Plain Ended Pipes without Puddle Flanges				
B-J381.4	DN 50, PN 16, length 1.2m	Nr	22		
	Flanged Spigot Pipes without Puddle Flanges				
B-J381.5	DN 50, PN 16, length 1.2m	Nr	28		
B-J381.6	DN 80, PN 16, length 1.2m	Nr	11		
B-J381.7	DN 100, PN 16, length 1.2m	Nr	68		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J382.1	DN 300, PN 16, length 1.2m	Nr	3		
B-J383.1	DN 500, PN 16, length 1.2m	Nr	6		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.8	DN 50, PN 16, length 1.2m	Nr	3		
B-J381.9	DN 80, PN 16, length 1.2m	Nr	34		
B-J381.10	DN 100, PN 16, length 1.2m	Nr	15		
	Double Flanged Pipes without Puddle Flanges				
B-J381.11	DN 80, PN 16, length 1.2m	Nr	14		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.12	DN 50, PN 16, length 1.2m	Nr	22		
B-J381.13	DN 80, PN 16, length 1.2m	Nr	18		
B-J381.14	DN 100, PN 16, length 1.2m	Nr	4		
B-J39	End Cap				
B-J391.1	DN 50, PN 16	Nr	20		
B-J391.2	DN 80, PN 16	Nr	4		
B-J391.3	DN 100, PN 16	Nr	4		
B-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded Jointing				
B-J61	Bends				
B-J611.1	OD 63mm; Plain Ended Bend				
B-J611.1.1	45° OD 63, PN 16	Nr	25		
B-J611.2	OD 90mm; Plain Ended Bend				
B-J611.2.1	45° OD 90, PN 16	Nr	10		
B-J611.3	OD 110mm; Plain Ended Bend				
B-J611.3.1	11.25° OD 110, PN 16	Nr	5		
B-J611.3.2	22.5° OD 110, PN 16	Nr	5		
B-J611.3.3	30° OD 110, PN 16	Nr	5		
B-J611.3.4	45° OD 110, PN 16	Nr	5		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J8	Valves and Penstocks				
B-J81	All Flanged Gate Valve				
B-J811.1	DN 50, with handwheel (for offtake)	Nr	25		
B-J811.2	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	11		
B-J811.3	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	25		
B-J811.4	DN 80, PN 16, with handwheel (for offtake)	Nr	18		
B-J811.5	DN 100, PN 16, with handwheel (for offtake)	Nr	4		
B-J86	Air Valve				
B-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
B-J861.1	DN 50, PN 16	Nr	15		
B-J9	Water Meters				
	Volumetric Flow Water Meters				
B-J991.1	DN 50, PN 16 All Flanged Volumetric Flow Water Meter	Nr	3		
B-J991.2	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	18		
B-J991.3	DN 100, PN 16 All Flanged Volumetric Flow Water Meter	Nr	4		
B-J10	Water Meter Strainer				
B-J1091.1	DN 50, PN 16 All Flanged Strainer	Nr	3		
B-J1091.2	DN 80, PN 16 All Flanged Strainer	Nr	18		
B-J1091.3	DN 100, PN 16 All Flanged Strainer	Nr	4		
B-J11	Fire Hydrant				
A-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	16		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS K: PIPE WORK - CHAMBERS AND PIPE WORK				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and other pipework ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes, to detail. -Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K231	Depth not exceeding 1.5m				
K231.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	6		
K231.2	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	3		
K231.3	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	11		
K231.4	Provide all materials and construct Reinforced Concrete WASHOUT VALVE Chambers (PROVISIONAL) internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/03-1	Nr	8		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110; Total Length 8.6km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K232	Depth 1.5 m - 2.0 m				
K232.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K232.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	4		
K232.3	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	29		
K233	Depth 2.0 m - 2.5 m				
K233.1	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	2		
K231.2	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	9		
K232	Depth 2.5 m - 3.0 m				
K232.1	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K232.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K233	Depth 3.0 m - 3.5 m				
K233.1	Provide all materials and construct Reinforced concrete GATE VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K25	PRECAST CONCRETE CHAMBERS				
K251	Depth not exceeding 1.5m				
K251.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	18		
K251.2	- Ditto - but for FIRE HYDRANT Surface Box	Nr	12		
K252	Depth 1.5 m - 2.0 m				
K252.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	3		
K252.2	- Ditto - but for FIRE HYDRANT Surface Box	Nr	4		
K253	Depth 2.0 - 2.5 m				
K253.1	Provide all materials and construct precast concrete FIRE HYDRANT Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-02	Nr	2		
K254	Depth 2.5 - 3.0 m				
K254.1	Provide all materials and construct precast concrete FIRE HYDRANT Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-02	Nr	2		
K6	Crossings				
K671	Allow for crossing existing drains and sewers, and reinstate these after construction of the water line has been completed. Pipe bore n.e. 300mm	Nr	46		
K681	Allow for crossing existing underground services (waterlines, telecommunication/internet cables, electric cables etc.), including reinstatement to original state and liaison with the relevant body for the inspection/approval during execution of the works. Nominal pipe bore n.e. 300mm	Nr	90		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K7	Reinstatement				
K731.1	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murrum, and any other associated works. Nominal pipe bore n.e. 300mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.	m	950		
K731.2	- Ditto - but for CONCRETE BLOCK PAVED roads, Nominal Bore n.e 110mm	m	2,000		
K731.3	Breaking up, temporary and permanent reinstatement of MURRAM roads with 300mm thick well graded stabilized gravel with 3% cement base compacted in 150mm thick layers using an 8-10 tonne roller and 150mm deep approved compacted hardcore to the satisfaction of the Engineer. Nominal pipe bore n.e. 1800mm. all as per Dwg No. M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.; Pipe nominal bore n.e 300mm	m	1,000		
K741.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, cabro, tarmac, etc.). Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18	m	600		
K741.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS . Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/18	m	300		
K751	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	4,350		
K8	Other Pipework Ancillaries				
K810	Allow for diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of the water line has been completed. All waterways to be kept operational during construction.	Item	L.S		
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts along water main route, at road crossings, changes in direction, air valves, washouts, and at valve chambers. All in accordance with drawings and specifications	Nr	100		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP.				
K861	To pipes nominal bore: n.e 200 mm	Nr.	10		
K863	To pipes nominal bore: 300 - 600 mm	Nr.	5		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K870	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in drg. No. M455/W-02/SD/03-1 Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr.	21		
	Wash-out Outfall Structure				
K870.2	Provide all materials and construct Reinforced Concrete outfall structures on reinforced concrete plinths at washout drain pipe outlets as per details in drg no. M455/W-02/SD/03-2	Nr	21		
K870.3	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.4	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	700		
K870.5	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with reinforced concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is completed.	m	600		
K870.6	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	700		
K870.7	Allow for breaking up of existing UNLINED EARTH DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/17)	m	200		
K870.8	-Ditto - but for existing STONE-PITCHED OPEN DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/17)	m	200		
K870.9	-Ditto - but for existing INVERT BLOCK DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/19)	m	400		
	<u>CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION</u>				
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in rock Class "A"	m ³	500		
L111.2	-Ditto- but rock Class "B"	m ³	900		
L111.3	-Ditto- but rock Class "C"	m ³	1,500		
	Note:-Blasting is NOT permitted for item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L521	To pipes nominal bore: n.e 200 mm	m	5,200		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
L531	To pipes nominal bore: n.e 200 mm	m	4,000		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L541	To pipes nominal bore: n.e 200 mm	m	800		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	Class 20/20 Mass Concrete				
	NOTE:- The work includes pipe and fitting fixing				
L71	Volume not exceeding 0.1 m³				
L711	To pipes nominal bore not exceeding 200mm	Nr	100		
L72	Volume:- 0.1 - 0.2m³				
L721	To pipes nominal bore not exceeding 200mm	Nr	40		
L73	Volume:- 0.2 - 0.5m³				
L732	To pipes nominal bore not exceeding 200mm	Nr	35		
	CLASS V: PAINTING				
V310	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	70		
	CLASS X: MISCELLANEOUS WORK				
	Trenchless Road Crossings				
X990	Provide all equipment and materials and construct trenchless micro-tunnel below road surface in common material (soil/murram). Rate to include for any requisite shoring and strutting during tunnelling. Micro-tunnelling to be carried out by Pipe Jacking, Horizontal Drilling or any other approved method. Contractor to submit detailed Method Statement for review and approval prior to Commencement of the works. All works to be executed in close liaison with the relevant road authorities. Rates to include for facilitation of the same.				
X990.1	Pipe Nominal Bore ne. 300mm, Maximum width of road 20m	m	100		
X990.2	Extra over trenchless road crossing for excavating/drilling in rock.	m ³	25		
X991	Provide and Install steel pipe sleeve in micro-tunnel, including for all jointing, jacking, grouting, etc. Nominal Bore ne. 300mm	m	100		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
X992	Allow for Any Method Related charges the Bidder feels may be required in carrying out works for trenchless pipe crossing under roads for Item X990 to X991 above. These must be indicated below with pricing of each item (Separate additional sheet may be attached if necessary)	Item	L.S		
	i)				
	ii)				
X993	Provisional Sum of Kshs. 1,000,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		1,000,000.00
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BILL No. 3.4 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.4 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KAREN PLAINS (OD 63 - OD 110); Total Length 8.6km)**

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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>NOTES:</u>				-
1.	<p>The proposed works are to be carried out within Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. The Pipeline is to be laid along the busy Kabiria Road in Kabiria Estate, with narrow space and numerous shop frontages and accesses to private property/estates. The Pipeline alignment is characterized by numerous active Existing Services, both surface and buried; Specific conditions in execution of these works are deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted</p> <p>ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains</p> <p>iii) Pedestrians and Vehicular access to individual Shops/ Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided</p> <p>iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times.</p> <p>v) Immediate Reinstatement of access roads and Stabilization of Slopes upon laying of the Pipeline.</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline route to establish locations and alignment of existing Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges</p>				
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
4.	All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).				
5.	Value Added Tax (VAT) to be added separately in the Grand Summary.				
	<u>CLASS A: GENERAL ITEMS</u>				
A2	Specified Requirements				
A260	Testing of Works				
A260.1	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	OD 355mm	m	1,695		
A260.2	Disinfection of Pipe lines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. Rate to include for supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval upon satisfactory disinfection.				
A260.2.1	OD 355mm	m	1,695		
A38	Method Related Charges				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 4m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 200Nr.	Item	L.S		
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 200Nr	Item	LS		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	LS		-
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 1,000,000 for Liaison, facilitation with local residents	Item	P.S		1,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 1,500,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of	Item	P.S		1,500,000.00
	CLASS D: DEMOLITION AND SITE CLEARANCE				
	<u>The Employer has no available land to offer for dumping of spoil materials. Identification of and all accruing costs related to securing suitable area of land for dumping is the responsibility of the Contractor. Dumping and spreading is to be done in accordance with existing National Legislation and Local Authority's by-laws.</u>				
	<u>The Contractor is deemed to have allowed for this aspect of Work in their excavation and cart away to tips rates.</u>				
D1	Site Clearance				
D110	General clearance along the pipeline alignment. (The Contractor's rate for this item will be deemed to include for clearance of any extra land that he may consider necessary for execution of his Work and reinstatement of hedges and fences etc. removed during construction).	ha	1		
D2	Tree Cutting				
	Cut down trees, grab up roots and cart away to tips				
D210.1	Girth 0.5m - 1.0m	Nr	4		
D210.2	Girth 1.0m - 2.0m	Nr	4		
D220.1	Girth 2.0m - 3.0m	Nr	5		
D220.2	Girth 3.0m - 5.0m	Nr	2		
D3	Removal and Disposal of Tree Stumps				
D310	Stump diameter not exceeding 1m	Nr	2		
D320	Stump diameter exceeding 1m	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
	<u>CLASS E: EARTHWORKS</u>				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities.	m³	500		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Supply, Transport to Site and Store</u>				
A-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u>				
	<u>Butt-fusion or Electrofusion Weld jointed HDPE Pipes- PN 16</u>				
A-I71.1	OD 90mm, (provisional length) for Washout Drainage	m	32		
A-I71.2	OD 110mm (provisional length) for Chamber Drainage	m	142		
A-I72	OD 355mm	m	1,695		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation trenches, Backfilling and final Reinstatement.</u>				
	<u>Trench width and minimum cover to pipes is as per specifications. This cost shall include for all Strutting, Shuttering, Stabilizing the excavation faces and keeping the trenches free of water from whatever source either by pumping or other means and cost of use of selected use from excavated material for compaction in bed and surround to backfilling of trenches etc : all as specified</u>				
B-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u>				
	<u>Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16</u>				
B-I71.1	<u>OD 90 mm in trenches</u>				
B-I712.1	Depth not exceeding 1.5 m	m	10		
B-I713.1	Depth 1.5 m - 2.0 m	m	10		
B-I714.1	Depth 2.0 m - 2.5 m	m	12		
B-I71.2	<u>OD 110 mm in trenches</u>				
B-I713.2	Depth 1.5 m - 2.0 m	m	5.25		
B-I714.2	Depth 2.0 m - 2.5 m	m	75		
B-I715.2	Depth 2.5 m - 3.0 m	m	42		
B-I716.2	Depth 3.0 m - 3.5 m	m	5		
B-I717.2	Depth 3.5 m - 4.0 m	m	5		
B-I718.2	Depth exceeding 4.0 m	m	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
B-I72	OD 355 mm in trenches				
B-I722	Depth not exceeding 1.5 m	m	338		
B-I723	Depth 1.5 m - 2.0 m	m	1,111		
B-I724	Depth 2.0 m - 2.5 m	m	208		
B-I725	Depth 2.5 m - 3.0 m	m	38		
	CLASS J: PIPE WORK - FITTINGS AND VALVES - PN 16				
A	Supply, Transport to Site and Store				
AJ3	Ductile Iron or Steel Fittings; Joints as specified				
A-J31	Ductile Iron or Steel Bends				
A-J311	Nominal bore 80mm; All Flanged Bend				
A-J311.1	90° DN 80, PN 16	Nr	8		
A-J312	Nominal bore 300mm; All Flanged Bend				
A-J312.1	45° DN 300, PN 16	Nr	5		
A-J312.2	90° DN 300, PN 16	Nr	2		
A-J32	Junction and Branches				
	All Flanged Tee				
A-J321.1	DN 100 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	8		
A-J322.2	DN 300 x DN 150, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J322.3	DN 300 x DN 200, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J322.4	DN 300 x DN 300, PN 16 All Flanged Tee	Nr	2		
A-J322.5	DN 300 x DN 150, PN 16 All Flanged Tee for Air Valves	Nr	4		
A-J324.1	DN 900 x DN 300, PN 16 All Flanged Tee for offtakes	Nr	2		
	All Flanged Level Invert Tee				
A-J322.6	DN 300 x DN 80, PN 16 All Flanged Level Invert Tee for Washouts	Nr	3		
A-J33	Tapers				
A-J331.1	DN 150 x DN 50, PN 16 All Flanged Concentric Taper	Nr	4		
A-J331.2	DN 150 x DN 80, PN 16 All Flanged Concentric Taper	Nr	6		
A-J34	Ferrous Couplings				
A-J341.1	DN 80, PN 16 - Straight Coupling	Nr	6		
A-J341.2	DN 80, PN 16 - Stepped Coupling	Nr	3		
A-J341.3	DN 100, PN 16 - Straight Coupling	Nr	3		
A-J341.4	DN 100, PN 16 - Stepped Coupling	Nr	9		
A-J341.5	DN 200, PN 16 - Straight Coupling	Nr	3		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
A-J341.6	DN 200, PN 16 - Stepped Coupling	Nr	2		
A-J342.1	DN 300, PN 16 - Stepped Coupling	Nr	40		
A-J344.1	DN 900, PN 16 - Straight Coupling	Nr	3		
A-J35	Ferrous Flange Adaptors				
A-J351.1	DN 80, PN 16	Nr	13		
A-J351.2	DN 100, PN 16	Nr	8		
A-J351.3	DN 200, PN 16	Nr	2		
A-J352.1	DN 300, PN 16	Nr	5		
A-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.1	DN 80, PN 16, length 1.2m	Nr	6		
A-J381.2	DN 100, PN 16, length 1.2m	Nr	8		
A-J381.3	DN 150, PN 16, length 3m	Nr	2		
	Plain Ended Pipes without Puddle Flanges				
A-J381.4	DN 80, PN 16, length 1.2m	Nr	3		
A-J381.5	DN 100, PN 16, length 15m with couplings (Cut to suit on site)	Nr	2		
A-J381.6	DN 200, PN 16, length 1.2m	Nr	2		
A-J381.7	DN 200, PN 16, length 15m with couplings (Cut to suit on site)	Nr	2		
	Flanged Spigot Pipes without Puddle Flanges				
A-J381.8	DN 100, PN 16, length 1.2m	Nr	4		
A-J382.1	DN 300, PN 16, length 1.2m	Nr	31		
A-J382.2	DN 300, PN 16, length 2m	Nr	2		
A-J384.1	DN 900, PN 16, length 1.5m	Nr	3		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.9	DN 80, PN 16, length 1.2m	Nr	11		
A-J382.3	DN 300, PN 16, length 1.2m	Nr	12		
A-J382.4	DN 300, PN 16, length 1.5m	Nr	2		
	Double Flanged Pipes without Puddle Flanges				
A-J381.10	DN 80, PN 16, length 1.2m	Nr	6		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.5 - KABIRIA DISTRIBUTION MAIN, LINE KB01 (OD 355; Total Length 1.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.11	DN 80, PN 16, length 1.2m	Nr	6		
A-J381.12	DN 100, PN 16, length 1.2m	Nr	7		
A-J382.5	DN 300, PN 16, length 1.2m	Nr	2		
A-J382.6	DN 300, PN 16, length 3m	Nr	2		
A-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) with provision for Butt-fusion/Electrofusion Welded Jointing				
AJ61	HDPE Bends				
A-J612	OD 355mm; Plain Ended Bend				
A-J612.1	11.25° DN 355, PN 16	Nr	16		
A-J612.2	22.5° DN 355, PN 16	Nr	5		
A-J612.3	30° DN 355, PN 16	Nr	3		
A-J8	Valves and Penstocks				
A-J81	All Flanged Gate Valve				
A-J811.1	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	5		
A-J811.2	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	3		
A-J811.3	DN 80, PN 16, with handwheel (for fire hydrants)	Nr	6		
A-J811.4	DN 100, PN 16, with handwheel (for offtake)	Nr	8		
A-J811.5	DN 200, PN 16, with handwheel (for offtake)	Nr	2		
A-J812.1	DN 300, PN 16, with handwheel (for offtake)	Nr	3		
A-J86	Air Valve				
A-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
A-J861.1	DN 50, PN 16	Nr	5		
A-J9	Water Meters				
	Volumetric Flow Water Meters				
A-J991.1	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	6		
A-J992.1	DN 300, PN 16 All Flanged Battery Powered Electromagnetic Flow Water Meter, complete with accessories; Minimum Battery Life 6 Years	Nr	2		
A-J10	Water Meter Strainer				
A-J1091.1	DN 80, PN 16 All Flanged Strainer	Nr	6		
A-J11	Fire Hydrant				
A-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	6		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.5 - KABIRIA DISTRIBUTION MAIN, LINE KB01 (OD 355; Total Length 1.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B	<u>Transport From Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling.</u> <u>Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.</u>				-
B-J31	Bends				
B-J311	OD 90mm; All Flanged Bend				
B-J311.1	90° DN 80, PN 16	Nr	8		
B-J312.2	OD 110mm; All Flanged Bend				
B-J312.2.1	45° DN 300, PN 16	Nr	5		
B-J312.2.2	90° DN 300, PN 16	Nr	2		
B-J32	Junction and Branches				
	All Flanged Tee				
B-J321.1	DN 100 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	8		
B-J322.2	DN 300 x DN 150, PN 16 All Flanged Tee for offtakes	Nr	6		
B-J322.3	DN 300 x DN 200, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J322.4	DN 300 x DN 300, PN 16 All Flanged Tee	Nr	2		
B-J322.5	DN 300 x DN 150, PN 16 All Flanged Tee for Air Valves	Nr	4		
B-J324.1	DN 900 x DN 300, PN 16 All Flanged Tee for offtakes	Nr	2		
	All Flanged Level Invert Tee				
B-J322.6	DN 300 x DN 80, PN 16 All Flanged Level Invert Tee for Washouts	Nr	3		
B-J33	Tapers				
B-J331.1	DN 150 x DN 50, PN 16 All Flanged Concentric Taper	Nr	4		
B-J331.2	DN 150 x DN 80, PN 16 All Flanged Concentric Taper	Nr	6		
B-J34	Ferrous Couplings				
B-J341.1	DN 80, PN 16 - Straight Coupling	Nr	6		
B-J341.2	DN 80, PN 16 - Stepped Coupling	Nr	3		
B-J341.3	DN 100, PN 16 - Straight Coupling	Nr	3		
B-J341.4	DN 100, PN 16 - Stepped Coupling	Nr	9		
B-J341.5	DN 200, PN 16 - Straight Coupling	Nr	3		
B-J341.6	DN 200, PN 16 - Stepped Coupling	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
B-J342.1	DN 300, PN 16 - Stepped Coupling	Nr	40		
B-J344.1	DN 900, PN 16 - Straight Coupling	Nr	3		
B-J35	Ferrous Flange Adaptors				
B-J351.1	DN 80, PN 16	Nr	13		
B-J351.2	DN 100, PN 16	Nr	8		
B-J351.3	DN 200, PN 16	Nr	2		
B-J352.1	DN 300, PN 16	Nr	5		
B-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.1	DN 80, PN 16, length 1.2m	Nr	6		
B-J381.2	DN 100, PN 16, length 1.2m	Nr	8		
B-J381.3	DN 200, PN 16, length 1.2m	Nr	2		
	Plain Ended Pipes without Puddle Flanges				
B-J381.4	DN 80, PN 16, length 1.2m	Nr	3		
B-J381.5	DN 100, PN 16, length 15m with couplings (Cut to suit on site)	Nr	2		
B-J381.6	DN 200, PN 16, length 1.2m	Nr	2		
B-J381.7	DN 200, PN 16, length 15m with couplings (Cut to suit on site)	Nr	2		
	Flanged Spigot Pipes without Puddle Flanges				
B-J381.8	DN 100, PN 16, length 1.2m	Nr	4		
B-J382.1	DN 300, PN 16, length 1.2m	Nr	31		
B-J382.2	DN 300, PN 16, length 2m	Nr	2		
B-J384.1	DN 900, PN 16, length 1.5m	Nr	3		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.9	DN 80, PN 16, length 1.2m	Nr	11		
B-J382.3	DN 300, PN 16, length 1.2m	Nr	12		
B-J382.4	DN 300, PN 16, length 1.5m	Nr	2		
	Double Flanged Pipes without Puddle Flanges				
B-J381.10	DN 80, PN 16, length 1.2m	Nr	6		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.11	DN 80, PN 16, length 1.2m	Nr	6		
B-J381.12	DN 100, PN 16, length 1.2m	Nr	7		
B-J382.5	DN 300, PN 16, length 1.2m	Nr	2		
B-J382.6	DN 300, PN 16, length 3m	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
B-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) with provision for Butt-fusion/Electrofusion Welded Jointing				
B-J612	OD 355mm; Plain Ended Bend				
B-J612.1	11.25° DN 355, PN 16	Nr	16		
B-J612.2	22.5° DN 355, PN 16	Nr	5		
B-J612.3	30° DN 355, PN 16	Nr	2		
B-J8	Valves and Penstocks				
B-J81	All Flanged Gate Valve				
B-J811.1	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	4		
B-J811.2	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	3		
B-J811.3	DN 80, PN 16, with handwheel (for offtake)	Nr	6		
B-J811.4	DN 100, PN 16, with handwheel (for offtake)	Nr	8		
B-J811.5	DN 200, PN 16, with handwheel (for offtake)	Nr	2		
B-J812.1	DN 300, PN 16, with handwheel (for offtake)	Nr	3		
B-J86	Air Valve				
B-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
B-J861.1	DN 50, PN 16	Nr	5		
B-J9	Water Meters				
	Volumetric Flow Water Meters				
B-J991.1	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	6		
B-J992.1	DN 300, PN 16 All Flanged Battery Powered Electromagnetic Flow Water Meter, complete with accessories; Minimum Battery	Nr	2		
B-J10	Water Meter Strainer				
B-J1091.1	DN 80, PN 16 All Flanged Strainer	Nr	6		
B-J11	Fire Hydrant				
B-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	6		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
	CLASS K: PIPE WORK - CHAMBERS AND PIPE WORK				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and other pipework ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. - Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes to detail. -Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K233	Depth 2.0 - 2.5 m				
K233.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K233.2	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	9		
K233.3	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K233.4	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1500mm x 1800mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K233.5	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	4		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
K234	Depth 2.5 - 3.0 m				
K234.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	2		
K234.2	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	4		
K234.3	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	2		
K235	Depth 3.0 - 3.5 m				
K235.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	1		
K236	Depth 3.5 - 4.0 m				
K236.1	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc . All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	1		
K237	Depth exceeding 4.0 m				
K237.1	Provide all materials and construct Reinforced Concrete ELECTROMAGNETIC METER Chamber internal dimensions 1500mm x 1500mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	1		
K25	PRECAST CONCRETE CHAMBERS				
K253	Depth 2.0 - 2.5m				
K253.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	3		
K253.2	- Ditto - but for FIRE HYDRANT Surface Box	Nr	4		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
K254	Depth 2.5 - 3.0 m				
K254.1	Provide all materials and construct precast concrete FIRE HYDRANT Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	2		
K6	Crossings				
K671	Allow for crossing existing drains and sewers, and reinstate these after construction of the water line has been completed. Pipe bore n.e. 300mm	Nr	25		
K681	Allow for crossing existing underground services (waterlines, telecommunication/internet cables, electric cables etc.), including reinstatement to original state and liaison with the relevant body for the inspection/approval during execution of the works. Nominal pipe bore n.e. 300mm	Nr	25		
K7	Reinstatement				
K731.1	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murrum, and any other associated works. Nominal pipe bore n.e. 300mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.	m	100		
K731.2	- Ditto - but for CONCRETE BLOCK PAVED roads, Nominal Bore n.e 300mm	m	200		
K731.3	Breaking up, temporary and permanent reinstatement of MURRAM roads with 300mm thick well graded stabilized gravel with 3% cement base compacted in 150mm thick layers using an 8-10 tonne roller and 150mm deep approved compacted hardcore to the satisfaction of the Engineer. Nominal pipe bore n.e. 1800mm. all as per Dwg No. M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.; Pipe nominal bore n.e 300mm	m	200		
K741.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, cabro, tarmac, etc.). Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18	m	950		
K741.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS . Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/18	m	50		
K751	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	200		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.5 - KABIRIA DISTRIBUTION MAIN, LINE KB01 (OD 355; Total Length 1.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
K8	Other Pipework Ancillaries				
K810	Allow for diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of the water line has been completed. All waterways to be kept operational during construction.	Item	L.S		
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts along water main route, at road crossings, changes in direction, air valves, washouts, and at valve chambers. All in accordance with drawings and specifications	Nr	45		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP.				
K861	To pipes nominal bore: n.e 200 mm	Nr.	3		
K863	To pipes nominal bore: 300 - 600 mm	Nr.	1		
K864	To pipes nominal bore: 600 - 900 mm	Nr.	1		
K870	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in drg. No. M455/W-02/SD/03-1. Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr	3		
K870.2	Provide all materials and construct Reinforced Concrete outfall structures on reinforced concrete plinths at washout drain pipe outlets as per details in drg no. M455/W-02/SD/03-2	Nr	3		
	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.3	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	50		
K870.4	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with reinforced concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is completed.	m	60		
K870.5	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	50		
K870.6	Allow for breaking up of existing UNLINED EARTH DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/17)	m	50		
K870.7	-Ditto - but for existing STONE-PITCHED OPEN DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/17)	m	800		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.5 - KABIRIA DISTRIBUTION MAIN, LINE KB01 (OD 355; Total Length 1.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K870.8	-Ditto - but for existing INVERT BLOCK DRAINS with courses, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/19)	m	600		-
	<u>CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION</u>				
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in rock Class "A"	m ³	300		
L111.2	-Ditto- but rock Class "B"	m ³	450		
L111.3	-Ditto- but rock Class "C"	m ³	800		
	Note:- Blasting is NOT permitted for item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L522	To pipes nominal bore: 200 - 300 mm	m	1,017		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L532	To pipes nominal bore: 200 - 300 mm	m	678		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L542	To pipes nominal bore: 200 - 300 mm	m	250		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	<u>Class 20/20 Mass Concrete</u>				
	NOTE:- The work includes pipe and fitting fixing				
L71	Volume not exceeding 0.1 m³				
L711	To pipes nominal bore not exceeding 200mm	Nr	10		
L72	Volume:- 0.1 - 0.2m³				
L721	To pipes nominal bore not exceeding 200mm	Nr	15		
L722	To pipes nominal bore 200 - 300mm	Nr	20		
L73	Volume:- 0.2 - 0.5m³				
L732	To pipes nominal bore 200 - 300mm	Nr	14		
L74	Volume:- 0.5 - 1.0m³				
L742	To pipes nominal bore 200 - 300mm	Nr	30		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.5 - KABIRIA DISTRIBUTION MAIN, LINE KB01 (OD 355; Total Length 1.5km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
					-
L77	Volume:- 4.0 - 6.0m ³				
L774	To pipes nominal bore 600 - 900mm	Nr	2		
	CLASS V: PAINTING				
V78	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	100		
	CLASS X: MISCELLANEOUS WORK				
X990	Trenchless Road Crossings Provide all equipment and materials, tunnel below road surface in common material (soil/murram), including any requisite shoring and strutting during tunnelling, provide and install precast reinforced concrete lining segments to tunnel faces, blanking of tunnel ends with mass concrete/masonry walls upon pipework installation , all as detailed in drg. No M455/W-02/SD/10. or using any other Trenchless method, subject to Engineer's approval and in accordance to specifications. Rate to include for all necessary grouting. All works to be executed in close liaison with relevant road authorities. Rates to include for facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works. The bidder may quote for alternative method of Trenchless Road/Railway Crossing. Details of alternative methods to be submitted with the Bid. Nominal pipe bore n.e. 1m.				
X990.1	Kabiria Road Crossing	m	60		
X990.2	Other unclassified/unnamed Roads	m	60		
X991	Extra over road crossing item X61 above for excavating/drilling in rock, all classes (Provisional)	m ³	30		
X992	Allow for Any Method Related charges the Bidder feels may be required in carrying out works for trenchless pipe crossing under roads for Item X61 to X62 above. These must be indicated below with pricing of each item (Separate additional sheet may be attached if necessary)	Item	1		
	i)				
	ii)				
X993	Provisional Sum of Kshs. 1,000,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		1,000,000.00
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BILL No. 3.5 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL NO. 3.5 - KABIRIA DISTRIBUTION MAIN, LINE KB01 (OD 355; Total Length 1.5km)**

	Amount (Kshs)
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Bill No. 3.5 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>NOTES:</u>				
1.	<p>The proposed works are to be carried out within Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. The proposed pipelines are largely within narrow access roads within Kangemi and Kawangware. The pipeline alignments are characterized by numerous active Existing Services, both surface and buried; Specific conditions in execution of these works are deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains iii) Pedestrians and Vehicular access to individual Shops/ Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided. iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) Immediate Reinstatement of access roads and Stabilization of Slopes upon laying of the Pipeline.</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline routes to establish locations and alignment of existing Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.</p>				
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
4.	All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).				
5.	Value Added Tax (VAT) to be added separately in the Grand Summary.				
	<u>CLASS A: GENERAL ITEMS</u>				
A2	Specified Requirements				
A260	Testing of Works				
A260.1	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	OD 63mm	m	2,500		
A260.1.2	OD 90mm	m	600		
A260.1.3	OD 110mm	m	2,400		
A260.2	Disinfection of Pipelines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. Rate to include for supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval upon satisfactory disinfection.				
A260.2.1	OD 63mm	m	2,500		
A260.2.2	OD 90mm	m	600		
A260.2.3	OD 110mm	m	2,400		
A38	Method Related Charges				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 4m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 200Nr.	Item	L.S		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 200Nr	Item	LS		
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	LS		
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 2,000,000 for Liaison, facilitation w	Item	P.S		2,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 2,500,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of	Item	P.S		2,500,000.00
	CLASS D: DEMOLITION AND SITE CLEARANCE				
	<u>The Employer has no available land to offer for dumping of spoil materials. Identification of and all accruing costs related to securing suitable area of land for dumping is the responsibility of the Contractor. Dumping and spreading is to be done in accordance with existing National Legislation and Local Authority's by-laws.</u>				
	<u>The Contractor is deemed to have allowed for this aspect of Work in their excavation and cart away to tips rates.</u>				
D1	Site Clearance				
D110	General clearance along the pipeline alignment.	ha	3		
D2	Tree Cutting				
	Cut down trees, grab up roots and cart away to tips				
D210.1	Girth 0.5m - 1.0m	Nr	20		
D210.2	Girth 1.0m - 2.0m	Nr	60		
D220.1	Girth 2.0m - 3.0m	Nr	30		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
D3	Removal and disposal of Tree Stumps				
D310	Stump diameter not exceeding 1m	Nr	10		
D320	Stump diameter exceeding 1m	Nr	10		
	<u>CLASS E: EARTHWORKS</u>				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities.	m³	500		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Supply, Transport to Site and Store</u>				
A-I7	High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)				
	Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16				
A-I71.1	OD 63mm	m	2,500		
A-I71.2	OD 90mm	m	600		
A-I71.3	OD 110mm	m	2,400		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation trenches, Backfilling and final Reinstatement.</u>				
	<u>Trench width and minimum cover to pipes is as per specifications. This cost shall include for all Strutting, Shuttering, Stabilizing the excavation faces and keeping the trenches free of water from whatever source either by pumping or other means and cost of use of selected use from excavated material for compaction in bed and surround to backfilling of trenches etc - all as specified</u>				
B-I7	High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)				
	Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16				
B-I71	OD 63 mm in trenches				
B-I712.1	Depth not exceeding 1.5 m	m	1,750		
B-I713.1	Depth 1.5 m - 2.0 m	m	625		
B-I714.1	Depth 2.0 m - 2.5 m	m	125		
	OD 90 mm in trenches				
B-I712.2	Depth not exceeding 1.5 m	m	420		
B-I713.2	Depth 1.5 m - 2.0 m	m	150		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-I714.2	Depth 2.0 m - 2.5 m	m	30		
	OD 110 mm in trenches				
B-I712.3	Depth not exceeding 1.5 m	m	2,015		
B-I713.3	Depth 1.5 m - 2.0 m	m	330		
B-I714.3	Depth 2.0 m - 2.5 m	m	55		
	CLASS J: PIPE WORK - FITTINGS AND VALVES - PN 16				
A	Supply, Transport to Site and Store				
AJ3	Ductile Iron or Steel Fittings; Joints as specified				
A-J31	Bends				
A-J311	Nominal bore 80mm; All Flanged Bend				
A-J311.1	90° DN 80, PN 16	Nr	8		
A-J32	Junction and Branches				
	Saddle Clamps				
A-J321.1	DN 250 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	3		
A-J321.2	DN 250 x DN 80, PN 16 Saddle Clamp with Flanged branch	Nr	2		
A-J321.3	DN 150 x DN 80, PN 16 Saddle Clamp with Flanged branch	Nr	2		
A-J321.4	DN 150 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	6		
A-J321.5	DN 100 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	2		
	All Flanged Tee				
A-J321.6	DN 50 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J321.7	DN 50 x DN 50, PN 16 All Flanged Tee for Air Valves	Nr	4		
A-J321.8	DN 80 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J321.9	DN 80 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	2		
A-J321.10	DN 100 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J321.11	DN 100 x DN 80, PN 16 All Flanged Tee	Nr	7		
A-J321.12	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	9		
A-J321.13	DN 100 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J321.14	DN 150 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J321.15	DN 200 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J322.1	DN 250 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J322.2	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	All Flanged Level Invert Tee				
A-J321.16	DN 50 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	15		
A-J321.17	DN 80 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	4		
A-J321.18	DN 100 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	8		
A-J33	Tapers				
	All Flanged Concentric Taper				
A-J331.1	DN 80 x DN 50, PN 16	Nr	12		
A-J34	Ferrous Couplings				
A-J341.1	DN 50, PN 16 - Straight Coupling	Nr	15		
A-J341.2	DN 50, PN 16 - Stepped Coupling	Nr	90		
A-J341.3	DN 80, PN 16 - Straight Coupling	Nr	10		
A-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	15		
A-J341.5	DN 100, PN 16 - Straight Coupling	Nr	5		
A-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	65		
A-J341.7	DN 150, PN 16 - Stepped Coupling	Nr	4		
A-J341.8	DN 200, PN 16 - Stepped Coupling	Nr	5		
A-J342.2	DN 250, PN 16 - Stepped Coupling	Nr	5		
A-J342.3	DN 300, PN 16 - Stepped Coupling	Nr	3		
A-J35	Ferrous Flange Adaptors				
A-J351.1	DN 50, PN 16	Nr	40		
A-J351.2	DN 80, PN 16	Nr	20		
A-J351.3	DN 100, PN 16	Nr	10		
A-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.1	DN 50, PN 16, length 1.2m	Nr	15		
A-J381.2	DN 80, PN 16, length 1.2m	Nr	10		
A-J381.3	DN 100, PN 16, length 1.2m	Nr	8		
	Plain Ended Pipes without Puddle Flanges				
A-J381.4	DN 50, PN 16, length 1.2m	Nr	25		
	Flanged Spigot Pipes without Puddle Flanges				
A-J381.5	DN 50, PN 16, length 1.2m	Nr	40		
A-J381.6	DN 50, PN 16, length 12m	Nr	7		
A-J381.7	DN 80, PN 16, length 1.2m	Nr	3		
A-J381.8	DN 100, PN 16, length 1.2m	Nr	35		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J381.9	DN 100, PN 16, length 12m	Nr	2		
A-J381.10	DN 150, PN 16, length 1.2m	Nr	5		
A-J381.11	DN 200, PN 16, length 1.2m	Nr	3		
A-J382.1	DN 250, PN 16, length 1.2m	Nr	5		
A-J382.2	DN 300, PN 16, length 1.2m	Nr	3		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.12	DN 50, PN 16, length 1.2m	Nr	20		
A-J381.13	DN 80, PN 16, length 1.2m	Nr	20		
A-J381.14	DN 100, PN 16, length 1.2m	Nr	25		
	Double Flanged Pipes without Puddle Flanges				
A-J381.15	DN 50, PN 16, length 1.2m	Nr	3		
A-J381.16	DN 50, PN 16, 0.3m long	Nr	4		
A-J381.17	DN 80, PN 16, length 1.2m	Nr	7		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.18	DN 50, PN 16, length 1.2m	Nr	3		
A-J381.19	DN 80, PN 16, length 1.2m	Nr	7		
A-J381.20	DN 100, PN 16, length 1.2m	Nr	3		
A-J39	End Cap				
A-J391.21	DN 50, PN 16	Nr	14		
A-J391.22	DN 80, PN 16	Nr	3		
A-J391.23	DN 100, PN 16	Nr	6		
A-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded				
A-J611	Bends				
A-J611.1	OD 63mm; Plain Ended Bend				
A-J611.1.1	45° OD 63, PN 16 (provisional)	Nr	5		
A-J611.1.2	90° OD 63, PN 16	Nr	10		
A-J611.2	OD 110mm; Plain Ended Bend				
A-J611.2.1	11.25° OD 110, PN 16	Nr	15		
A-J611.2.2	22.5° OD 110, PN 16	Nr	5		
A-J611.2.3	30° OD 110, PN 16	Nr	10		
A-J611.2.4	45° OD 110, PN 16	Nr	5		
A-J611.2.5	90° OD 110, PN 16	Nr	7		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J8	Valves and Penstocks				
A-J81	All Flanged Gate Valve				
A-J811.1	DN 50, with handwheel (for offtake)	Nr	15		
A-J811.2	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	15		
A-J811.3	DN 50, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	22		
A-J811.4	DN 80, PN 16, with handwheel (for offtake)	Nr	10		
A-J811.5	DN 100, PN 16, with handwheel (for offtake)	Nr	8		
A-J86	Air Valve				
A-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
A-J861.1	DN 50, PN 16	Nr	15		
A-J9	Water Meters				
	Volumetric Flow Water Meters				
A-J991.1	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	7		
A-J10	Water Meter Strainer				
A-J1091.1	DN 80, PN 16 All Flanged Strainer	Nr	7		
A-J11	Fire Hydrant				
A-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	7		
B	<u>Transport From Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling.</u>				
	NOTE: Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.				
BJ3	Ductile Iron or Steel Fittings; Joints as specified				
B-J31	Bends				
B-J311	Nominal bore 80mm; All Flanged Bend				
B-J311.1	90° DN 80, PN 16	Nr	8		
B-J32	Junction and Branches				
	Saddle Clamps				
B-J321.1	DN 250 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	3		
B-J321.2	DN 250 x DN 80, PN 16 Saddle Clamp with Flanged branch	Nr	2		
B-J321.3	DN 150 x DN 80, PN 16 Saddle Clamp with Flanged branch	Nr	2		
B-J321.4	DN 150 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	6		
B-J321.5	DN 100 x DN 50, PN 16 Saddle Clamp with Flanged branch	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	All Flanged Tee				
B-J321.6	DN 50 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
B-J321.7	DN 50 x DN 50, PN 16 All Flanged Tee for Air Valves	Nr	4		
B-J321.8	DN 80 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J321.9	DN 80 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	2		
B-J321.10	DN 100 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
B-J321.11	DN 100 x DN 80, PN 16 All Flanged Tee	Nr	7		
B-J321.12	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	9		
B-J321.13	DN 100 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J321.14	DN 150 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	3		
B-J321.15	DN 200 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J322.1	DN 250 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	3		
B-J322.2	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
	All Flanged Level Invert Tee				
B-J321.16	DN 50 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	15		
B-J321.17	DN 80 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	4		
B-J321.18	DN 100 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	8		
B-J33	Tapers				
	All Flanged Concentric Taper				
B-J331.1	DN 80 x DN 50, PN 16	Nr	12		
B-J34	Ferrous Couplings				
B-J341.1	DN 50, PN 16 - Straight Coupling	Nr	15		
B-J341.2	DN 50, PN 16 - Stepped Coupling	Nr	90		
B-J341.3	DN 80, PN 16 - Straight Coupling	Nr	10		
B-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	15		
B-J341.5	DN 100, PN 16 - Straight Coupling	Nr	5		
B-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	65		
B-J341.7	DN 150, PN 16 - Stepped Coupling	Nr	4		
B-J341.8	DN 200, PN 16 - Stepped Coupling	Nr	5		
B-J342.1	DN 250, PN 16 - Stepped Coupling	Nr	5		
B-J342.2	DN 300, PN 16 - Stepped Coupling	Nr	3		
B-J35	Ferrous Flange Adaptors				
B-J351.1	DN 50, PN 16	Nr	40		
B-J351.2	DN 80, PN 16	Nr	20		
B-J351.3	DN 100, PN 16	Nr	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.1	DN 50, PN 16, length 1.2m	Nr	15		
B-J381.2	DN 80, PN 16, length 1.2m	Nr	10		
B-J381.3	DN 100, PN 16, length 1.2m	Nr	8		
	Plain Ended Pipes without Puddle Flanges				
B-J381.4	DN 50, PN 16, length 1.2m	Nr	25		
	Flanged Spigot Pipes without Puddle Flanges				
B-J381.5	DN 50, PN 16, length 1.2m	Nr	40		
B-J381.6	DN 50, PN 16, length 12m	Nr	7		
B-J381.7	DN 80, PN 16, length 1.2m	Nr	3		
B-J381.8	DN 100, PN 16, length 1.2m	Nr	35		
B-J381.9	DN 100, PN 16, length 12m	Nr	2		
B-J381.10	DN 150, PN 16, length 1.2m	Nr	5		
B-J381.11	DN 200, PN 16, length 1.2m	Nr	3		
B-J382.1	DN 250, PN 16, length 1.2m	Nr	5		
B-J382.2	DN 300, PN 16, length 1.2m	Nr	3		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.13	DN 50, PN 16, length 1.2m	Nr	20		
B-J381.14	DN 80, PN 16, length 1.2m	Nr	20		
B-J381.15	DN 100, PN 16, length 1.2m	Nr	25		
	Double Flanged Pipes without Puddle Flanges				
B-J381.16	DN 50, PN 16, length 1.2m	Nr	3		
B-J381.17	DN 50, PN 16, 0.3m long	Nr	4		
B-J381.18	DN 80, PN 16, length 1.2m	Nr	7		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.19	DN 50, PN 16, length 1.2m	Nr	3		
B-J381.20	DN 80, PN 16, length 1.2m	Nr	7		
B-J381.21	DN 100, PN 16, length 1.2m	Nr	3		
B-J39	End Cap				
B-J391.22	DN 50, PN 16	Nr	14		
B-J391.23	DN 80, PN 16	Nr	3		
B-J391.24	DN 100, PN 16	Nr	6		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded Jointing				
B-J611	Bends				
B-J611.1	OD 63mm; Plain Ended Bend				
B-J611.1.1	45° OD 63, PN 16 (provisional)	Nr	5		
B-J611.1.2	90° OD 63, PN 16	Nr	10		
B-J611.2	OD 110mm; Plain Ended Bend				
B-J611.2.1	11.25° OD 110, PN 16	Nr	15		
B-J611.2.2	22.5° OD 110, PN 16	Nr	5		
B-J611.2.3	30° OD 110, PN 16	Nr	10		
B-J611.2.4	45° OD 110, PN 16	Nr	5		
B-J611.2.5	90° OD 110, PN 16	Nr	7		
B-J8	Valves and Penstocks				
B-J81	All Flanged Gate Valve				
B-J811.1	DN 50, with handwheel (for offtake)	Nr	15		
B-J811.2	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	15		
B-J811.3	DN 50, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	22		
B-J811.4	DN 80, PN 16, with handwheel (for offtake)	Nr	10		
B-J811.5	DN 100, PN 16, with handwheel (for offtake)	Nr	8		
B-J86	Air Valve				
B-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
B-J861.1	DN 50, PN 16	Nr	15		
B-J9	Water Meters				
	Volumetric Flow Water Meters				
B-J991.1	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	7		
B-J10	Water Meter Strainer				
B-J1091.1	DN 80, PN 16 All Flanged Strainer	Nr	7		
B-J11	Fire Hydrant				
B-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	7		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS K: PIPE WORK - CHAMBERS AND PIPE WORK ANCILLARIES				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and other pipework ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. - Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes to detail. - Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K231	Depth not exceeding 1.5m				
K231.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	9		
K231.2	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	15		
K231.3	Provide all materials and construct Reinforced Concrete WASHOUT VALVE Chambers (PROVISIONAL) internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/04-2	Nr	1		
K232	Depth 1.5 m - 2.0 m				
K232.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	4		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K232.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	3		
K232.3	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	9	-	-
K233	Depth 2.0 m - 2.5 m				
K233.1	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed Drawing No. M455/W-02/SD/05	Nr	5		
K233.2	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	4		
K232	Depth 2.5 m - 3.0 m				
K232.1	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	3		
K25	PRECAST CONCRETE CHAMBERS				
K251	Depth not exceeding 1.5m				
K251.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	2		
K252	Depth 1.5 m - 2.0 m				
K252.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	3		
K252.2	- Ditto - but for FIRE HYDRANT Surface Box	Nr	3		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K253	Depth 2.0 - 2.5 m				
K253.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed Drawing No. M455/W-02/SD/03-2	Nr	1		
K253.2	- Ditto - but for FIRE HYDRANT Surface Box	Nr	4		
K254	Depth 2.5 - 3.0 m				
K6	Crossings				
K671	Allow for crossing existing drains and sewers, and reinstate these after construction of the water line has been completed. Pipe bore n.e. 300mm	Nr	30		
K681	Allow for crossing existing underground services (waterlines, telecommunication/internet cables, electric cables etc.), including reinstatement to original state and liaison with the relevant body for the inspection/approval during execution of the works. Nominal pipe bore n.e. 300mm	Nr	55		
K7	Reinstatement				
K731.1	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murrum, and any other associated works. Nominal pipe bore n.e. 300mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.(provisional)	m	200		
K731.2	- Ditto - but for CONCRETE BLOCK PAVED roads, Nominal Bore n.e 110mm	m	2,500		
K731.3	Breaking up, temporary and permanent reinstatement of MURRAM roads with 300mm thick well graded stabilized gravel with 3% cement base compacted in 150mm thick layers using an 8-10 tonne roller and 150mm deep approved compacted hardcore to the satisfaction of the Engineer. Nominal pipe bore n.e. 1800mm. all as per Dwg No. M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.; Pipe nominal bore n.e 300mm	m	900		
K741.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, cabro, tarmac, etc.). Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18 (provisional)	m	500		
K741.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS. Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/18 (provisional)	m	290		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K751	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	1,110		
K8	Other Pipework Ancillaries				
K810	Allow for diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of the water line has been completed. All waterways to be kept operational during construction.	Item	L.S		
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts along water main route, at road crossings, changes in direction, air valves, washouts, and at valve chambers. All in accordance with drawings and specifications	Nr	70		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP				
K861	To pipes nominal bore: n.e 200 mm	Nr.	10		
K862	To pipes nominal bore: 200 - 300 mm	Nr.	6		
K870	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in drg. No M455/W-02/SD/03-1 Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr.	21		
	Wash-out Outfall Structure				
K870.2	Provide all materials and construct Reinforced Concrete outfall structures on mass concrete plinths at washout drain pipe outlets as per details in drg no. M455/W-02/SD/03-2	Nr	21		
K870.3	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.4	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	1,000		
K870.5	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with reinforced concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is completed.	m	200		
K870.6	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	500		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K870.7	Allow for breaking up of existing UNLINED EARTH DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/17)	m	200		
K870.8	-Ditto - but for existing STONE-PITCHED OPEN DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/17)	m	350		
K870.9	-Ditto - but for existing INVERT BLOCK DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/19)	m	350		
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in rock Class "A"	m ³	350		
L111.2	-Ditto- but rock Class "B"	m ³	500		
L111.3	-Ditto- but rock Class "C"	m ³	800		
	Note:- Blasting is NOT permitted for item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L521	To pipes nominal bore: n.e 200 mm	m	3,300		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L531	To pipes nominal bore: n.e 200 mm	m	2,200		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L541	To pipes nominal bore: n.e 200 mm	m	200		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	Class 20/20 Mass Concrete				
	NOTE:- The work includes pipe and fitting fixing				
L71	Volume not exceeding 0.1 m³				
L711	To pipes nominal bore not exceeding 200mm	Nr	95		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
L72	Volume:- 0.1 - 0.2m³				
L721	To pipes nominal bore not exceeding 200mm	Nr	2		
L73	Volume:- 0.2 - 0.5m³				
L732	To pipes nominal bore 200 - 300mm	Nr	3		
L74	Volume:- 0.5 - 0.1m³				
L742	To pipes nominal bore 200 - 300mm	Nr	5		
	<u>CLASS V: PAINTING</u>				
V78	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	40		
	<u>CLASS X: MISCELLANEOUS WORK</u>				
	Trenchless Road Crossings				
X990	Provide all equipment and materials and construct trenchless micro-tunnel below road surface in common material (soil/murram). Rate to include for any requisite shoring and strutting during tunnelling. Micro-tunnelling to be carried out by Pipe Jacking, Horizontal Drilling or any other approved method. Contractor to submit detailed Method Statement for review and approval prior to Commencement of the works. All works to be executed in close liaison with the relevant road authorities. Rates to include for facilitation of the same.				
X990.1	Pipe Nominal Bore ne. 300mm, Maximum width of road 20m	m	20		
X990.2	Extra over trenchless road crossing for excavating/drilling in rock	m ³	5.7		
X991	Provide and Install steel pipe sleeve in micro-tunnel, including for all jointing, jacking, grouting, etc. Nominal Bore ne. 300mm	m	20		
X992	Allow for Any Method Related charges the Bidder feels may be required in carrying out works for trenchless pipe crossing under roads for Item X990 to X991 above. These must be indicated below with pricing of each item (Separate additional sheet may be attached if necessary)	Item	L.S		
	i)				
	ii)				
X993	Provisional Sum of Kshs. 1,000,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		1,000,000.00
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BILL No. 3.6 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.6 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KANGEMI AND KAWANGWARE AREA (OD 63 - OD 110; Total Length 5.17km)**

	Amount (Kshs)
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	NOTES:				
1.	<p>The proposed works are to be carried out within Urban Built-up areas which are densely developed, with limited working space and limited access for mechanical excavation equipment. The proposed pipelines are largely within narrow access roads within Kirigu Estate</p> <p>The Pipeline alignments which are largely within Kirigu area in Dagoretti are characterized by numerous active Existing Services, both surface and buried;</p> <p>Specific conditions in execution of these works are deemed to be included in the Contractor's Rates. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include, but are not limited to the following;</p> <p>i) No blasting will be permitted</p> <p>ii) The contractor to maintain uninterrupted continuity of Water Supply in existing Mains</p> <p>iii) Pedestrians and Vehicular access to individual Shops/ Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided</p> <p>iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times.</p> <p>v) Immediate Reinstatement of access roads and Stabilization</p>				
2.	<p>The Contractor shall carry out pilot excavations along the pipeline routes to establish locations and alignment of existing Telecommunication and Fibre Optic Cables and other buried services, if any, prior to actual trench excavation, all in close liaison with service providers. It shall be deemed that any costs for crossing existing Telecommunication and Fibre Optic Cables is included in the Contractor's Rates. Any claims thereof SHALL NOT be paid and damages caused on the same as a result of execution of the works shall be the Contractor's liability. These will be duly repaired at the Contractor's cost.</p> <p>The Contractor's rates should allow for any measures necessary to deal with the terrain, provision of access road to work site, liaison with the relevant Authorities and local residents, payment of any required statutory charges, etc. The costs for compliance shall be deemed to be covered by the Contractor's Rates.</p>				
3.	<p>The Pipeline alignment traverses along paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipeline trenches. The cost of reinstatement shall be limited to the specified trench widths. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.</p>				
4.	<p>All Rates to include for Government of Kenya Duties and Taxes, Except Value Added Tax (VAT).</p>				
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
5.	Value Added Tax (VAT) to be added separately in the Grand Summary.				
	<u>CLASS A: GENERAL ITEMS</u>				
A2	Specified Requirements				
A260	Testing of Works				
A260.1	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1.1	DN 63mm	m	2,380		
A260.1.2	DN 110mm	m	3,430		
A260.1.3	DN 160mm	m	1,730		
A260.2	Disinfection of Pipelines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. Rate to include for supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval upon satisfactory disinfection.				
A260.2.1	DN 63mm	m	2,380		
A260.2.2	DN 110mm	m	3,430		
A260.2.3	DN 160mm	m	1,730		
A38	Method Related Charges				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 4m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 200Nr.	Item	L.S		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 600mm. Estimated number of crossings is 200Nr	Item	L.S		
A38.6	Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates.	Item	L.S		
A38.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 1,000,000 for Liaison, facilitation with	Item	P.S		1,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 2,000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed	Item	P.S		2,000,000.00
	CLASS D: DEMOLITION AND SITE CLEARANCE				
	The Employer has no available land to offer for dumping of spoil materials. Identification of and all accruing costs related to securing suitable area of land for dumping is the responsibility of the Contractor. Dumping and spreading is to be done in accordance with existing National Legislation and Local Authority's by-laws.				
	The Contractor is deemed to have allowed for this aspect of Work in their excavation and cart away to tips rates.				
D1	Site Clearance				
D110	General clearance along the pipeline alignment.	ha	5		
D2	Tree Cutting				
	Cut down trees, grab up roots and cart away to tips				
D210.1	Girth 0.5m - 1.0m	Nr	30		
D210.2	Girth 1.0m - 2.0m	Nr	40		
D220.1	Girth 2.0m - 3.0m	Nr	50		
D3	Removal and Disposal of Tree Stumps				
D310	Stump diameter not exceeding 1m	Nr	20		
D320	Stump diameter exceeding 1m	Nr	20		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS E: EARTHWORKS</u>				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities.	m ³	2,262		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Supply, Transport to Site and Store</u>				
A-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u> <u>Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16</u>				
A-I71.1	OD 63mm	m	2,380		
A-I71.2	OD 63mm, (provisional length) for Washout Drainage	m	220		
A-I71.3	OD 90mm, (provisional length) for Washout Drainage	m	50		
A-I71.4	OD 110mm	m	3,430		
A-I71.5	OD 160mm	m	1,730		
A-I71.6	OD 110mm for Chamber Drainage	m	420		
	<u>CLASS I: PIPE WORK - PIPES</u>				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation trenches, Backfilling and final Reinstatement.</u> <u>Trench width and minimum cover to pipes is as per specifications. This cost shall include for all Strutting, Shuttering, Stabilizing the excavation faces and keeping the trenches free of water from whatever source either by pumping or other means and cost of use of selected use from excavated material for compaction in bed and surround to backfilling of trenches, etc.; all as specified</u>				
B-I7	<u>High Density Polyethylene Pipes (HDPE) SDR 11 (PN 16)</u> <u>Field Butt-fusion or Electrofusion Weld Jointed Pipes - PN 16</u>				
B-I71	<u>Nominal bore 63 mm in trenches</u>				
B-I712.1	Depth not exceeding 1.5 m	m	1,820		
B-I713.1	Depth 1.5 m - 2.0 m	m	650		
B-I714.1	Depth 2.0 m - 2.5 m	m	130		
B-I72	<u>Nominal bore 90 mm in trenches</u>				
B-I712.2	Depth not exceeding 1.5 m	m	30		
B-I713.2	Depth 1.5 m - 2.0 m	m	15		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-I714.2	Depth 2.0 m - 2.5 m	m	5		
B-I713	Nominal bore 110 mm in trenches				
B-I712.3	Depth not exceeding 1.5 m	m	2,695		
B-I713.3	Depth 1.5 m - 2.0 m	m	920		
B-I714.3	Depth 2.0 m - 2.5 m	m	193		
B-I715.3	Depth 2.5 m - 3.0 m	m	21		
B-I716.3	Depth 3.0 m - 3.5 m	m	21		
B-I74	Nominal bore 160 mm in trenches				
B-I712.4	Depth not exceeding 1.5 m	m	1,220		
B-I713.4	Depth 1.5 m - 2.0 m	m	270		
B-I714.4	Depth 2.0 m - 2.5 m	m	80		
B-I715.4	Depth 2.5 m - 3.0 m	m	80		
B-I716.4	Depth 3.0 m - 3.5 m	m	80		
	CLASS J: PIPE WORK - FITTINGS AND VALVES - PN 16				
A	Supply, Transport to Site and Store				
AJ3	Ductile Iron or Steel Fittings; Joints as specified				
A-J31	Ductile Iron or Steel Bends				
A-J311	Nominal bore 80mm; All Flanged Bend				
A-J311.1	90° DN 80, PN 16	Nr	25		
A-J32	Junction and Branches				
	All Flanged Tee				
A-J321.1	DN 80 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	5		
A-J321.2	DN 80 x DN 80, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J321.3	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	15		
A-J321.4	DN 100 x DN 80, PN 16 All Flanged Tee	Nr	16		
A-J321.5	DN 100 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	4		
A-J321.6	DN 150 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
A-J321.7	DN 150 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	6		
A-J321.8	DN 150 x DN 80, PN 16 All Flanged Tee	Nr	7		
A-J321.9	DN 150 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J321.10	DN 150 x DN 150, PN 16 All Flanged Tee	Nr	2		
A-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
A-J323.1	DN 500 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	8		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J323.2	DN 500 x DN 150, PN 16 All Flanged Tee for offtakes	Nr	2		
	All Flanged Level Invert Tee				
A-J321.11	DN 50 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	12		
A-J321.12	DN 100 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	7		
A-J321.13	DN 150 x DN 80, PN 16 All Flanged Level Invert Tee for Washouts	Nr	4		
A-J33	Tapers				
	All Flanged Concentric Taper				
A-J331.1	DN 80 x DN 50, PN 16	Nr	20		
A-J331.2	DN 100 x DN 50, PN 16	Nr	2		
A-J331.3	DN 100 x DN 80, PN 16	Nr	2		
A-J34	Ferrous Couplings				
A-J341.1	DN 50, PN 16 - Stepped Coupling	Nr	70		
A-J341.3	DN 80, PN 16 - Straight Coupling	Nr	28		
A-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	4		
A-J341.5	DN 100, PN 16 - Straight Coupling	Nr	3		
A-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	70		
A-J341.7	DN 150, PN 16 - Straight Coupling	Nr	2		
A-J341.8	DN 150, PN 16 - Stepped Coupling	Nr	40		
A-J342.1	DN 300, PN 16 - Straight Coupling	Nr	3		
A-J343.1	DN 500, PN 16 - Straight Coupling	Nr	15		
A-J35	Ferrous Flange Adaptors				
A-J351.1	DN 50, PN 16	Nr	30		
A-J351.2	DN 80, PN 16	Nr	45		
A-J351.3	DN 100, PN 16	Nr	12		
A-J351.4	DN 150, PN 16	Nr	4		
A-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.1	DN 50, PN 16, length 1.2m	Nr	15		
A-J381.2	DN 80, PN 16, length 1.2m	Nr	25		
A-J381.3	DN 100, PN 16, length 1.2m	Nr	13		
A-J381.4	DN 150, PN 16, length 1.2m	Nr	3		
	Plain Ended Pipes without Puddle Flanges				
A-J381.5	DN 50, PN 16, length 1.2m	Nr	18		
A-J381.6	DN 80, PN 16, length 1.2m	Nr	4		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	Flanged Spigot Pipes without Puddle Flanges				
A-J381.7	DN 80, PN 16, length 1.2m	Nr	24		
A-J381.8	DN 100, PN 16, length 1.2m	Nr	46		
A-J381.9	DN 100, PN 16, length 5m	Nr	2		
A-J381.10	DN 150, PN 16, length 1.2m	Nr	26		
A-J382.1	DN 300, PN 16, length 1.5m	Nr	3		
A-J383.1	DN 500, PN 16, length 1.5m	Nr	15		
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.11	DN 80, PN 16, length 1.2m	Nr	34		
A-J381.12	DN 100, PN 16, length 1.2m	Nr	22		
A-J381.13	DN 150, PN 16, length 1.2m	Nr	12		
	Double Flanged Pipes without Puddle Flanges				
A-J381.14	DN 80, PN 16, length 1.2m	Nr	23		
A-J381.15	DN 100, PN 16, length 5m	Nr	2		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
A-J381.16	DN 50, PN 16, length 1.2m	Nr	8		
A-J381.17	DN 80, PN 16, length 1.2m	Nr	24		
A-J381.18	DN 100, PN 16, length 1.2m	Nr	9		
A-J381.19	DN 150, PN 16, length 1.2m	Nr	3		
A-J39	End Cap				
A-J391.1	DN 50, PN 16	Nr	11		
A-J391.2	DN 100, PN 16	Nr	6		
A-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded Jointing				
A-J61	Bends				
A-J611.1	Nominal bore 63mm; Plain Ended Bend				
A-J611.1.1	22.5° OD 63, PN 16	Nr	2		
A-J611.1.2	45° OD 63, PN 16	Nr	5		
A-J611.2	Nominal bore 110mm; Plain Ended Bend				
A-J611.2.1	11.25° OD 110, PN 16	Nr	36		
A-J611.2.2	22.5° OD 110, PN 16	Nr	12		
A-J611.2.3	30° OD 110, PN 16	Nr	7		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A-J611.2.4	45° OD 110, PN 16	Nr	4		
A-J611.2.5	90° OD 110, PN 16	Nr	4		
A-J611.3	Nominal bore 160mm; Plain Ended Bend				
A-J611.3.1	11.25° OD 160, PN 16	Nr	10		
A-J611.3.2	22.5° OD 160, PN 16	Nr	3		
A-J611.3.3	30° OD 160, PN 16	Nr	2		
A-J611.3.4	45° OD 160, PN 16	Nr	2		
A-J8	Valves and Penstocks				
A-J81	All Flanged Gate Valve				
A-J811.1	DN 50, PN 16, with handwheel (for offtake)	Nr	13		
A-J811.2	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	19		
A-J811.3	DN 50, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	20		
A-J811.4	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	4		
A-J811.5	DN 80, PN 16, with handwheel (for offtake)	Nr	24		
A-J811.6	DN 100, PN 16, with handwheel (for offtake)	Nr	11		
A-J811.7	DN 150, PN 16, with handwheel (for offtake)	Nr	3		
A-J86	Air Valve				
A-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
A-J861.1	DN 50, PN 16	Nr	20		
A-J9	Water Meters				
	Volumetric Flow Water Meters				
A-J991.1	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	24		
A-J991.2	DN 150, PN 16 All Flanged Volumetric Flow Water Meter	Nr	2		
A-J10	Water Meter Strainer				
A-J1091.1	DN 80, PN 16 All Flanged Strainer	Nr	24		
A-J1091.2	DN 150, PN 16 All Flanged Strainer	Nr	2		
A-J11	Fire Hydrant				
A-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	25		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B	Transport From Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling.				
	NOTE: Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.				
BJ3	Ductile Iron or Steel Fittings; Joints as specified				
B-J31	Ductile Iron or Steel Bends				
B-J311.1	Nominal bore 80mm; All Flanged Bend				
B-J311.1	90° DN 80, PN 16	Nr	25		
B-J32	Junction and Branches				
	All Flanged Tee				
B-J321.1	DN 80 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	5		
B-J321.2	DN 80 x DN 80, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J321.3	DN 100 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	15		
B-J321.4	DN 100 x DN 80, PN 16 All Flanged Tee	Nr	16		
B-J321.5	DN 100 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	4		
B-J321.6	DN 150 x DN 50, PN 16 All Flanged Tee for offtakes	Nr	3		
B-J321.7	DN 150 x DN 80, PN 16 All Flanged Tee for Air Valves	Nr	6		
B-J321.8	DN 150 x DN 80, PN 16 All Flanged Tee	Nr	7		
B-J321.9	DN 150 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J321.10	DN 150 x DN 150, PN 16 All Flanged Tee	Nr	2		
B-J322.1	DN 300 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	2		
B-J323.1	DN 500 x DN 100, PN 16 All Flanged Tee for offtakes	Nr	8		
B-J323.2	DN 500 x DN 150, PN 16 All Flanged Tee for offtakes	Nr	2		
	All Flanged Level Invert Tee				
B-J321.11	DN 50 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	12		
B-J321.12	DN 100 x DN 50, PN 16 All Flanged Level Invert Tee for Washouts	Nr	7		
B-J321.13	DN 150 x DN 80, PN 16 All Flanged Level Invert Tee for Washouts	Nr	4		
B-J33	Tapers				
	All Flanged Concentric Taper				
B-J331.1	DN 80 x DN 50, PN 16	Nr	20		
B-J331.2	DN 100 x DN 50, PN 16	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J331.3	DN 100 x DN 80, PN 16	Nr	2		
B-J34	Ferrous Couplings				
B-J341.1	DN 50, PN 16 - Stepped Coupling	Nr	70		
B-J341.3	DN 80, PN 16 - Straight Coupling	Nr	28		
B-J341.4	DN 80, PN 16 - Stepped Coupling	Nr	4		
B-J341.5	DN 100, PN 16 - Straight Coupling	Nr	3		
B-J341.6	DN 100, PN 16 - Stepped Coupling	Nr	70		
B-J341.7	DN 150, PN 16 - Straight Coupling	Nr	2		
B-J341.8	DN 150, PN 16 - Stepped Coupling	Nr	40		
B-J342.1	DN 300, PN 16 - Straight Coupling	Nr	3		
B-J343.1	DN 500, PN 16 - Straight Coupling	Nr	15		
B-J35	Ferrous Flange Adaptors				
B-J351.1	DN 50, PN 16	Nr	30		
B-J351.2	DN 80, PN 16	Nr	45		
B-J351.3	DN 100, PN 16	Nr	12		
B-J351.4	DN 150, PN 16	Nr	4		
B-J38	Straight Specials				
	Plain Ended Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.1	DN 50, PN 16, length 1.2m	Nr	15		
B-J381.2	DN 80, PN 16, length 1.2m	Nr	25		
B-J381.3	DN 100, PN 16, length 1.2m	Nr	13		
B-J381.4	DN 150, PN 16, length 1.2m	Nr	3		
	Plain Ended Pipes without Puddle Flanges				
B-J381.5	DN 50, PN 16, length 1.2m	Nr	18		
B-J381.6	DN 80, PN 16, length 1.2m	Nr	4		
	Flanged Spigot Pipes without Puddle Flanges				
B-J381.7	DN 80, PN 16, length 1.2m	Nr	24		
B-J381.8	DN 100, PN 16, length 1.2m	Nr	46		
B-J381.9	DN 100, PN 16, length 5m	Nr	2		
B-J381.10	DN 150, PN 16, length 1.2m	Nr	26		
B-J382.1	DN 300, PN 16, length 1.5m	Nr	3		
B-J383.1	DN 500, PN 16, length 1.5m	Nr	15		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	Flanged Spigot Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.11	DN 80, PN 16, length 1.2m	Nr	34		
B-J381.12	DN 100, PN 16, length 1.2m	Nr	22		
B-J381.13	DN 150, PN 16, length 1.2m	Nr	12		
	Double Flanged Pipes without Puddle Flanges				
B-J381.14	DN 80, PN 16, length 1.2m	Nr	23		
B-J381.15	DN 100, PN 16, length 5m	Nr	2		
	Double Flanged Pipes with Puddle Flanges (Location of Flange as specified in Fitting Details)				
B-J381.16	DN 50, PN 16, length 1.2m	Nr	8		
B-J381.17	DN 80, PN 16, length 1.2m	Nr	24		
B-J381.18	DN 100, PN 16, length 1.2m	Nr	9		
B-J381.19	DN 150, PN 16, length 1.2m	Nr	3		
B-J39	End Cap				
B-J391.1	DN 50, PN 16	Nr	11		
B-J391.2	DN 100, PN 16	Nr	6		
B-J6	High Density Polyethylene Fittings (HDPE) SDR 11 (PN 16) including provision for Butt-Fusion/ Electrofusion Welded Jointing				
B-J61	Bends				
B-J611.1	Nominal bore 63mm; Plain Ended Bend				
B-J611.1.1	22.5° OD 63, PN 16	Nr	2		
B-J611.1.2	45° OD 63, PN 16	Nr	5		
B-J611.2	Nominal bore 110mm; Plain Ended Bend				
B-J611.2.1	11.25° OD 110, PN 16	Nr	36		
B-J611.2.2	22.5° OD 110, PN 16	Nr	12		
B-J611.2.3	30° OD 110, PN 16	Nr	7		
B-J611.2.4	45° OD 110, PN 16	Nr	4		
B-J611.2.5	90° OD 110, PN 16	Nr	4		
B-J611.3	Nominal bore 160mm; Plain Ended Bend				
B-J611.3.1	11.25° OD 160, PN 16	Nr	10		
B-J611.3.2	22.5° OD 160, PN 16	Nr	3		
B-J611.3.3	30° OD 160, PN 16	Nr	2		
B-J611.3.4	45° OD 160, PN 16	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
B-J8	Valves and Penstocks				
B-J81	All Flanged Gate Valve				
B-J811.1	DN 50,PN 16, with handwheel (for offtake)	Nr	13		
B-J811.2	DN 50, PN 16, with handwheel (Isolating Valve for Air Valves)	Nr	20		
B-J811.3	DN 50, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	20		
B-J811.4	DN 80, PN 16, with Extension Spindle, length n.e 5.0m without handwheel (for Washouts)	Nr	4		
B-J811.5	DN 80, PN 16, with handwheel (for offtake)	Nr	24		
B-J811.6	DN 100, PN 16, with handwheel (for offtake)	Nr	11		
B-J811.7	DN 150, PN 16, with handwheel (for offtake)	Nr	3		
B-J86	Air Valve				
B-J861	Flanged Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
B-J861.1	DN 50, PN 16	Nr	20		
B-J9	Water Meters				
	Volumetric Flow Water Meters				
B-J991.1	DN 80, PN 16 All Flanged Volumetric Flow Water Meter	Nr	24		
B-J991.2	DN 150, PN 16 All Flanged Volumetric Flow Water Meter	Nr	2		
B-J10	Water Meter Strainer				
B-J1091.1	DN 80, PN 16 All Flanged Strainer	Nr	24		
B-J1091.2	DN 150, PN 16 All Flanged Strainer	Nr	2		
B-J11	Fire Hydrant				
B-J1191.1	DN 80, PN 16 All Flanged Fire Hydrant	Nr	25		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS K: PIPE WORK - CHAMBERS AND PIPE WORK				
	Chambers, ducts, culverts, crossings, thrust and anchor blocks, reinstatement and other pipework ancillaries.				
	Note:- Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes, to detail. -Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K23	IN SITU CONCRETE CHAMBERS				
K231	Depth not exceeding 1.5m				
K231.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	5		
K231.2	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	7		
K231.3	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1500mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	2		
K231.4	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/05	Nr	4		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K232	Depth 1.5 m - 2.0 m				
K232.1	Provide all materials and construct Reinforced Concrete AIR VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/02	Nr	14		
K232.2	Provide all materials and construct Reinforced Concrete VOLUMETRIC FLOW METER Chambers internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable Reinforced Concrete cover, mild steel frame, lifting / opening mechanism, mild steel CAT Ladder, vents, drainage system, etc. All as specified and as detailed on Drawing No. M455/W-02/SD/05	Nr	20		
K232.3	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1200mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	31		
K232.4	Provide all materials and construct Reinforced Concrete GATE VALVE Chamber, internal dimensions 1400mm x 1200mm. Include for supply and fixing of removable reinforced concrete cover, mild steel frame, lifting / opening mechanism, plastic coated step irons, Vents, drainage system etc. All as specified and as detailed on Drawing No. M455/W-02/SD/04-2	Nr	2		
K25	PRECAST CONCRETE CHAMBERS				
K251	Depth not exceeding 1.5m				
K251.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed on Drawing No. M455/W-02/SD/03-2	Nr	13		
K251.2	- Ditto - but for FIRE HYDRANT Surface Box	Nr	4		
K252	Depth 1.5 m - 2.0 m				
K252.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed on Drawing No. M455/W-02/SD/03-2	Nr	7		
K252.2	- Ditto - but for FIRE HYDRANT Surface Box	Nr	20		
K253	Depth 2.0 - 2.5 m				
K253.1	Provide all materials and construct precast concrete WASHOUT VALVE Surface Box. Include for supply and fixing of Class 30 PCC unit, MS surface box and lockable cover, compacted granular fill, OD 160mm uPVC pipe sleeve, length not exceeding 4m, etc. all as specified and as detailed on Drawing No. M455/W-02/SD/03-2	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K6	Crossings				
K671	Allow for crossing existing drains and sewers, and reinstate these after construction of the water line has been completed. Pipe bore n.e. 300mm	Nr	43		
K681	Allow for crossing existing underground services (waterlines, sewerlines, telecommunication/ internet cables, electric cables etc.), including reinstatement to original state and liaison with the relevant body for the inspection/approval during execution of the works. Nominal pipe bore n.e. 300mm	Nr	78		
K7	Reinstatement				
K731.1	Breaking up, temporary and permanent reinstatement of TARMAC roads with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in 150mm thick layers using an 8-10 tonne roller, 150mm deep approved compacted hardcore and at-least 50mm thick bitumen macadam, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murrum, and any other associated works. Nominal pipe bore n.e. 300mm, all as per details in Dwg No. M455/W-02/SD/11 and M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.	m	1,000		
K731.2	- Ditto - but for CONCRETE BLOCK PAVED roads, Nominal Bore n.e 110mm	m	2,500		
K731.3	Breaking up, temporary and permanent reinstatement of MURRAM roads with 300mm thick well graded stabilized gravel with 3% cement base compacted in 150mm thick layers using an 8-10 tonne roller and 150mm deep approved compacted hardcore to the satisfaction of the Engineer. Nominal pipe bore n.e. 1800mm. all as per Dwg No. M455/W-02/SD/18. Rates quoted shall be deemed to include for costs incurred on traffic control, signage and safety measures during execution of the works.; Pipe nominal bore n.e 300mm	m	1,000		
K741.1	Breaking up temporary and permanent reinstatement of PAVED FOOTPATHS (concrete, cabro, tarmac, etc.). Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/12 and M455/W-02/SD/18	m	1,540		
K741.2	Breaking up temporary and permanent reinstatement of UNPAVED FOOTPATHS . Pipe bore n.e 300mm all as per Dwg No. M455/W-02/SD/18	m	500		
K751	Allow for reinstatement of land after completion of the Works, all to the satisfaction of the Engineer.	m	1,000		
K8	Other Pipework Ancillaries				
K810	Allow for diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of the water line has been completed. All waterways to be kept operational during construction.	Item	L.S		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K821	Marker Posts on Pipeline Alignment				
K821.1	Supply and fix marker posts along water main route, at road crossings, changes in direction, air valves, washouts, and at valve chambers. All in accordance with drawings and specifications	Nr	130		
K86	Interconnection To Existing Pipelines				
	Allow for locating, exposing and cutting of existing pipework to suit Interconnection pipework and fittings supplied and installed under other items. Item to include for trench excavation, draining of the existing pipe where necessary, dewatering of trench, etc. and reinstatement after installation of Interconnection pipework; all as directed by the Engineer and in liaison with WSP				
K861	To pipes nominal bore: n.e 200 mm	Nr.	10		
K863	To pipes nominal bore: 300 - 600 mm	Nr.	5		
K870	Wash-out Outfall Rising Pipe				
K870.1	Provide all materials, fabricate and install washout chamber outfall rising pipe as detailed in Dwg. No. M455/W-02/SD/03-1 Rate to include for supply of all fittings, jointing, installation and connection to washout tee and valve.	Nr.	10		
K870.2	Provide all materials and construct Reinforced Concrete outfall structures on reinforced concrete plinths at washout drain pipe outlets as per details in Dwg No. M455/W-02/SD/03-2	Nr	22		
	Removal and Reinstatement of Existing Hedges, Fences, Walls and Drains				
K870.3	Allow for removal of existing HEDGES and reinstating these after laying of the water mains is completed.	m	1,520		
K870.4	Allow for breaking up of existing masonry perimeter WALLS approx. 2.5m high, with reinforced concrete columns at approx. 3m intervals, and reinstatement after laying of water mains is completed.	m	500		
K870.5	Allow for breaking up of existing FENCES, including but not limited to chain link fence, barbed wire fence, timber, iron sheet, electric fence, etc., and reinstating these after construction of the water mains is completed.	m	1,520		
K870.6	Allow for breaking up of existing UNLINED EARTH DRAINS and reinstating these after construction of the water mains is completed. Include for provision of diverting the drains or water ways and keeping them operational during construction. Depth of Drain n.e. 3m (See Drg. No. M455/W-02/SD/17)	m	1,200		
K870.7	-Ditto - but for existing STONE-PITCHED OPEN DRAINS with courses, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/17)	m	1,600		
K870.8	-Ditto - but for existing INVERT BLOCK DRAINS, depth n.e. 3.0m (See Drg. No. M455/W-02/SD/19)	m	800		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION</u>				
L1	Extras to excavation and backfilling (Provisional)				
L11	In pipe trench and chambers				
L111.1	Excavation in rock Class "A"	m ³	380		
L111.2	-Ditto- but rock Class "B"	m ³	560		
L111.3	-Ditto- but rock Class "C"	m ³	950		
	Note:- Blasting is NOT permitted for item L11				
L5	Surrounds				
L52	Provide, transport to site and place selected excavated granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L521	To pipes nominal bore: n.e 200 mm	m	3,040		
L53	Provide, transport to site and place imported granular fill and compact in bed and surround to pipes as specified and where directed by the Engineer				
L531	To pipes nominal bore: n.e 200 mm	m	4,500		
L54	Provide all materials, transport to site and place mass concrete class 15/20 in bed and surround to pipes under road crossings and on shallow pipeline sections as directed by the Engineer. Include for provision, fixing and dismantling of all formwork, vibration of concrete etc. all as per Dwg No. M455/W-02/SD/09				
L541	To pipes nominal bore: n.e 200 mm	m	800		
L7	Concrete Support, Thrust Blocks, Stools and Anchor Blocks Details as per Dwg No. M455/W-02/SD/07 - 08 (Provisional)				
	Rates to include for excavation, formwork, provision and placing of concrete, backfilling etc.				
	<u>Class 20/20 Mass Concrete</u>				
	NOTE:- The work includes pipe and fitting fixing				
L71	Volume not exceeding 0.1 m³				
L711	To pipes nominal bore not exceeding 200mm	Nr	250		
	<u>CLASS V: PAINTING</u>				
V78	Allow for cleaning and painting with 3 coats of approved epoxy paint all exposed pipework, fittings, valves, etc.	m ²	90		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.1 - EXTENSION OF WATER RETICULATION NETWORK WITHIN KIRIGU (OD 63 - 160; Total Length 7.17km)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS X: MISCELLANEOUS WORK</u>				
	Trenchless Road Crossings				
X990	Provide all equipment and materials and construct trenchless micro-tunnel below road surface in common material (soil/murram). Rate to include for any requisite shoring and strutting during tunneling. Micro-tunnelling to be carried out by Pipe Jacking, Horizontal Drilling or any other approved method. Contractor to submit detailed Method Statement for review and approval prior to Commencement of works. All works to be executed in close liaison with the relevant road authorities. Rates to include for facilitation of the same.				
X990.1	Pipe Nominal Bore ne. 300mm, Maximum width of road 20m	m	30		
X990.2	Extra over trenchless road crossing for excavating/drilling in rock	m ³	15		
X991	Provide and Install steel pipe sleeve in micro-tunnel, including for all jointing, jacking, grouting, etc. Nominal Bore ne. 300mm	m	30		
X992	Allow for Any Method Related charges the Bidder feels may be required in carrying out works for trenchless pipe crossing under roads for Item X990 to X991 above. These must be indicated below with pricing of each item (Separate additional sheet may be attached if necessary)	Item	L.S		
	i)				
	ii)				
X993	Provisional Sum of Kshs. 1,000,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		1,000,000.00
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<u>CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT</u>	
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.2 - WATER DISTRIBUTION NETWORK FOR KINOO DAGORETTI AREA OD 63 TO 110 MM - 20.75KM**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS A - TESTING AND SETTING OUT OF WORKS</u>				
	<u>Testing and Commissioning of the Pipeline including flushing and sterlising in accordance with the Specification Clause 5.19 & 5.20</u>				
A260.3	OD110	m	4,150		
A260.4	OD90	m	6,600		
A260.5	OD63	m	10,000		
	<u>Method Related Charges</u>				
	The Pipeline will be laid along narrow urban roads with existing active services both on the surface (electricity, etc) and buried (existing community water pipelines, fiber optic cables, etc.) and with limited working space for mechanical excavation equipment.				
	The Contractor's rates shall be deemed to include for any measures necessary to deal with these conditions, provision of access road to work site, liaison with relevant authorities and local residents, payment of any required statutory charges, etc. The Contractor will be required to submit Method Statement for execution of works under these specific conditions for approval prior to execution of the works. These include but are not limited to the following: i. No blasting will be permitted in these areas ii. The Contractor to maintain uninterrupted continuity of water supply in existing pipelines iii. Pedestrian and vehicular Access to individual shops / plots to be maintained at all times iv. Safety hoarding, lighting, bands, warning signs, tapes etc. to be maintained at all times. v. Keeping trenches free of excessive groundwater, seepage or water from any source vi. Trench collapse protection will be required for trenches deeper than 1.5m that are not entirely of stable rock including; shielding (devices designed to protect workers in the event of a collapse, such as trench boxes); shoring (bracing designed to prevent collapse, such as hydraulic shoring or slide-rail systems); and sloping or benching trench walls away from the trench bottom at a safe angle. vii. Working within paved roads and footpaths. The project area predominantly comprises of paved footpaths and access roads. Contractor will ensure status of these roads and footpaths around the working area is maintained or reinstated to the original condition. Payment for reinstatement will only be measured for the specified trench width, hence the contractor will ensure no damages beyond this specified trench width. Cost for compliance with this shall be deemed to be inclusive in the Contractor's rates.				
A35.1	Cost relating to the above mentioned specific conditions	Item	L.S		
A35.2	Liaison, facilitation with local residents and relevant authorities and payment for access, accidental damage, temporary access to working spaces during execution of the Works, etc.	Item	L.S		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.2 - WATER DISTRIBUTION NETWORK FOR KINOO DAGORETTI AREA OD 63 TO 110 MM - 20.75KM**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
A35.3	Allow for any other method related charges the tenderer feels may be required. These should be indicated below with pricing for each item (Tenderer may attach additional sheets if necessary)				
	i)	Item	L.S		
	ii)	Item	L.S		
A36	Setting Out and As Built Drawings				
	Setting out entire pipeline route, taking and recording invert levels upon excavation and preparation of As Built Drawings to be submitted for approval to the Resident Engineer.	m	20,750		
	<u>CLASS I - PIPEWORK - PIPES</u>				
I7	HDPE PIPES - PN16				
	<u>Supply, Transport to site and store in secure place, protected from direct sunlight and physical damage. Rate to include Welding machines for Jointing HDPE pipes.</u>				
I431.2	Outer Diameter 110mm - not in trenches	m	4,150		
I431.3	Outer Diameter 90mm - not in trenches	m	6,600		
I431.3	Outer Diameter 63mm - not in trenches	m	10,000		
	<u>Transport from site store, Demolition and General clearance for pipeline covering the full width of easement including grubbing out all shrubs etc and removal of all trees, Excavation of Trench including Trench Bed preparation, Shoring of Trench walls, Pipe Laying and Jointing, Backfilling, Final reinstatement and Disposal of excess Excavated material all as per the specifications</u>				
I432.2	Outer Diameter 110mm in trenches, depth not exceeding 1.5m	m	1,038		
I433.2	-Ditto- but depth 1.5m - 2.0m	m	1,453		
I434.2	-Ditto- but depth > 2.0m	m	1,660		
I432.3	Outer Diameter 90mm in trenches, depth not exceeding 1.5m	m	1,650		
I433.3	-Ditto- but depth 1.5m - 2.0m	m	2,310		
I434.3	-Ditto- but depth > 2.0m	m	2,640		
I432.3	Outer Diameter 63mm in trenches, depth not exceeding 1.5m	m	2,500		
I433.3	-Ditto- but depth 1.5m - 2.0m	m	3,500		
I434.3	-Ditto- but depth > 2.0m	m	4,000		
	<u>For River aerial crossings - Supply Steel Pipe sections, Transport to site and store in secure place. Include supply of jointing material, bolts, nuts, gaskets etc as applicable for Steel sections and Install as per Drawing Detail AFE0006-C0-253 or as directed by the Resident Engineer.</u>				
I421.1	Outer Diameter 110mm	m	30		
I421.2	Outer Diameter 90mm	m	90		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.2 - WATER DISTRIBUTION NETWORK FOR KINOO DAGORETTI AREA OD 63 TO 110 MM - 20.75KM**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS J - PIPEWORK - FITTINGS AND VALVES				
J6	HDPE FITTINGS - Pressure Rating of PN16				
	Supply, Transport to site and store in secure place. Include supply of jointing materials, bolts, nuts, gaskets etc as Applicable.				
	Note - Rate to include Transport from site store, Excavation of Trench including Trench Bed preparation, Shoring of Trench walls, Pipe Laying and Jointing, Backfilling, Final reinstatement and Disposal of excess Excavated material all as per the specifications				
J61	Bends				
	Plain Ended Bends				
J613.4	Outer Diameter 110mm 90° bend	Nr	3		
J613.5	-Ditto- but 45° bend	Nr	8		
J613.6	-Ditto- but 22.5° bend	Nr	4		
J613.7	Outer Diameter 90mm 90° bend	Nr	4		
J613.8	-Ditto- but 45° bend	Nr	2		
J613.7	Outer Diameter 63mm 90° bend	Nr	6		
J613.8	-Ditto- but 45° bend	Nr	10		
J62	Junctions and Branches				
	Tees				
J623.4	Outer Diameter 160mm x 63mm	Nr	1		
J623.5	Outer Diameter 110mm x 110mm	Nr	9		
J623.6	Outer Diameter 110mm x 63mm	Nr	9		
J623.6	Outer Diameter 90mm x 63mm	Nr	4		
J623.6	Outer Diameter 63mm x 63mm	Nr	6		
	Tees for Air Valve				
J623.14	Outer Diameter 110mm x 80mm	Nr	15		
	Inverted Tee for Washout)				
J623.20	Outer Diameter 110mm x 80mm	Nr	22		
J63	Tapers				
	Concentric Taper				
J632.3	160 x 110mm	Nr	1		
J632.5	110 x 90mm	Nr	3		
J632.3	110 x 63mm	Nr	5		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.2 - WATER DISTRIBUTION NETWORK FOR KINOO DAGORETTI AREA OD 63 TO 110 MM - 20.75KM**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J64	<u>Double Collars</u>				
	<u>Stepped Couplings</u>				
J641.4	Outer Diameter 110mm flange steel/HDPE stepped coupling	Nr	20		
J641.5	Outer Diameter 90mm flange steel/HDPE stepped coupling	Nr	8		
J641.6	Outer Diameter 80mm flange steel/HDPE stepped coupling (For Washout)	Nr	44		
J65	<u>Adaptors</u>				
	<u>Flanged Adaptor</u>				
J651.4	Outer Diameter 110mm flanged adaptor	Nr	11		
J651.5	Outer Diameter 90mm flanged adaptor	Nr	5		
J651.6	Outer Diameter 80mm flanged adaptor (for Washout)	Nr	22		
J651.7	Diameter 80mm flanged adaptor (for Air valve)	Nr	15		
J68	<u>Straight Specials as specified</u>				
	<u>Plain Ended Pipes</u>				
J682.4	-Ditto- but 110mm	Nr	20		
J682.5	-Ditto- but 90mm	Nr	8		
J681.6	80mm diameter plain ended steel, 2000mm long (for Washout)	Nr	22		
J681.9	-Ditto- but DN110	Nr	30		
J681.14	-Ditto- but DN110	Nr	44		
	<u>Flanged Spigot Pipes</u>				
J682.3	-Ditto- but DN110	Nr	30		
J682.6	80mm diameter flanged Spigot pipe, n.e 1.2m long for Washout	Nr	22		
	<u>Double Flanged Pipes</u>				
J683.1	80mm diameter double flanged pipe, n.e 1.2m long for Washout Type 2	Nr	11		
J683.2	80mm diameter double flanged riser pipe, n.e 200mm long for Air valve	Nr	15		
	<u>End Cap</u>				
J693.1	80mm diameter End Cap Washout Type 2	Nr	11		
J693.2	63mm diameter End Cap	Nr	10		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
J8	VALVES AND PENSTOCKS				
J81	<u>Gate Valves as specified</u>				
	Gate Valves for washout and line valves to be supplied complete with extension spindle n.e 2m and Tee-key. Air Valve isolating valves to be supplied with wheel only. All rates to be inclusive of these add-ons.				
J811.1	Nominal Diameter 80mm flanged sluice valve for Washout	Nr	22		
J811.2	Nominal Diameter 80mm flap valve for Washout	Nr	22		
J811.3	Nominal Diameter 80mm flanged sluice valve for Air Valve	Nr	15		
J811.7	Outer Diameter 110mm flanged sluice valve	Nr	10		
J811.8	Outer Diameter 90mm flanged sluice valve	Nr	2		
J811.8	Outer Diameter 63mm flanged sluice valve	Nr	4		
J86	<u>Air Valves as specified</u>				
J861	Nominal Diameter 80mm Combination air valve	Nr	15		
J91	<u>Flanged Water Meters</u>				
J911.4	OD 110	Nr	1		
J911.5	OD 90	Nr	1		
J911.5	OD 63	Nr	1		
J93	<u>Fire Hydrant</u>				
J911.6	DN 80	Nr	8		
	<u>CLASS K - PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES</u>				
	Construction of chambers, chamber ducts, culverts, crossings, thrust, anchor blocks, reinstatement and other pipework ancillaries Note:- Items for Work in this class shall include: - Excavation, preparation of surfaces, disposals of surplus excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, Reinforcement, Formwork, joints and Finishes. - Tips for disposals of excavated material of debris to be identified by the Contractor in liaison with the Local Authorities.				
K23	<u>In Situ Concrete Chambers</u>				
	Valve Chambers				
K133	In situ concrete chamber, internal size 1200mm x 1200mm, depth not exceeding 2.0m	Nr	75		
	Meter Chambers				
K133	In situ concrete chamber, internal size 1200mm x 1200mm, depth not exceeding 2.0m	Nr	3		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
K6	<u>Crossings</u>				
K611	Construct reinforced concrete river/ drain pipe crossing, all in accordance with details shown on drawings. Include for provision and fixing of clips, heavy duty steel pipe clamps and heavy duty triangular mild steel frame as detailed. Outer Diameter 63-200mm	Nr	4		
K641	Allow for crossing existing hedges, wall and fences (chain link, barbed wire etc.) including reinstatement to original state.	m	850		
K671	Allow for crossing existing drains and reinstate these after construction has been completed	m	1,000		
K681	Allow for crossing existing underground services (water, sewers, telephone, electric cables etc.), including reinstatement to original state and in lison with the relevant body for inspection and approval during execution of works. Pilot excavation to be done to establish the location of any buried services prior to actual excavation. Rate to include pilot excavation, repairs and reinstatement of any damages to existing buried services as a result of execution of works.	Item	L.S		
K7	<u>Reinstatement</u>				
K711	Breaking up, temporary and permanent reinstatement of murrum road compacted to the satisfaction of the Engineer. Contractor to allow for provision of requisite diversion signage, controls and safety precaution in their rates, Outer Diameter 63-200mm	m	1,250		
K741	Breaking up, temporary and permanent reinstatement of CONCRETE BLOCK PAVED roads/footpaths including subbase, base and sand bed layers, raised kerbs and flush kerbs to the satisfaction of the Engineer, Outer Diameter 63-200mm	m	1,000		
K8	<u>Other Pipework Ancillaries</u>				
K82	<u>Marker Posts</u>				
K821.1	Marker post for Air Valve inscribed 'AV'	Nr	15		
K821.2	-Ditto- but Water Main inscribed 'WM'	Nr	32		
K821.3	-Ditto- but Washout inscribed 'WO'	Nr	22		
K87	<u>Washout Outfall structures</u>				
K871	Provide all materials and construct Masonry outfall structures on mass concrete plinths at washout drain pipe outlets.	Nr	22		
	<u>CLASS L - PIPEWORK SUPPORTS AND PROTECTION.</u>				
L1	<u>Extras to excavation and backfilling of pipe trenches for rock excavation</u> <u>Rate to include carting away and disposal.</u>				
L11	<u>In Pipe Trenches and Chambers</u>				
L111	Excavation in soft rock (Description as specified)	m ³	8,500		
L112	Excavation in Hard rock (Description as specified)	m ³	3,000		
	Note: - Blasting is NOT permitted for all Items under L1				
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
L5	<u>Surrounds</u>				
L52	<u>Selected Excavated Granular Fill</u>				
L522	Provide, place and compact with excavated selected granular material for bed and surround to pipes not less than 150mm thick or as specified and as directed by the Engineer, pipe bore 63-200mm	m	19,000		
L53	<u>Imported Selected Fill</u>				
L532	Provide, transport to site, place and compact with imported selected fill (granular material) for bed and surround to pipes not less than 150mm thick or as specified and as directed by the Engineer, pipe bore 63-200mm	m	3,600		
L54	<u>Mass Concrete Surround</u>				
L542	Provide all materials and construct concrete ogee pipe sleeve and 150mm thick class 15/20 concrete bed and surround to HDPE pipe under trafficked areas with cover below 1.2m, and untrafficked areas of cover below 1m.	m	1,200		
L6	<u>Pipe Wrapping</u>				
L602	Supply 'Denso Tape' Wrapping or approved equivalent for steel pipe joints and exposed steel sections. Bidder to include wrapping and jointing onto pipe in two layers as directed by the Engineer on site.	m ²	320		
L7	<u>Concrete Support, Thrust Blocks, Stools and Anchor Blocks</u>				
	Rate to include; excavation, formwork, reinforcement, provision and placing of concrete, curing and backfilling.				
	Class 25 Concrete				
	Note; The rate should include pipe and fitting fixing				
L71	<u>Volume n.e 0.5m³</u>				
L711	To pipes Outer Diameter n.e 200mm	Nr	110		
PAGE TOTAL CARRIED TO BILL COLLECTION SHEET					

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.7.2 - WATER DISTRIBUTION NETWORK FOR KINOO DAGORETTI AREA OD 63 TO 110 MM - 20.75KM**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS X - MISCELLANEOUS WORK				
	<u>Trenchless Road Crossings</u>				
X61	Provide all equipment, excavate below road surface in common materials (soil/murram) using trenchless technique (e.g pipe jacking, horizontal drilling etc). The rate to include all preparatory works, any requisite shoring, strutting, installation of pipe casing and necessary grouting and reinstatement. Pipe Outer Diameter 63-200mm.	m	150		
	Note:- All works to be executed in liason with relevant road authorities and rates to include facilitation. The bidder to submit method statement with Bid execution of these works.				
X62	Extra over road crossing item X61 above for excavation/drilling in rock	m ³	23		
X63	Allow for any method related charges the bidder feels may be required in carrying out works for trechless pipe crosssing under roads for items X61 & X62 above. These must be indicated below and pricing of each item provided (Separate additional sheet may be attached if necessary)	Item	L.S		
	i)				
	ii)				
X993	Provisional Sum of Kshs. 1,000,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		1,000,000.00
PAGE TOTAL CARRIED TO BILL COLLECTION SHEET					

BILL No. 3.7.2 COLLECTION SHEET

CKE1135- NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS

BILL No. 3.7.2 - WATER DISTRIBUTION NETWORK FOR KINOO DAGORETTI AREA OD 63 TO 110 MM - 20.75KM

	Amount (Kshs)
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Bill No. 3.7.2 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.8: HOUSEHOLD WATER CONNECTIONS (560 Nr)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1	<u>Supply and Installation of Pipes and Fittings for Consumer Connection Works</u>				
	Typical Arrangement of Pipes and Fittings for a Consumer Connection are given in Drawing No. M455/W-02/SD/21.				
	Under this Item, the Contractor will Supply Pipes and Fittings for Consumer Connections and carry out the Installation Works for New Consumers being connected to the Distribution Network for the first time				
	The Pipes and Fittings to be supplied and installed under this Item are for 560 Nr. New Consumer Connections.				
	Supply, Transport to Site and Install as directed by the Engineer the following Pipes and Fittings for Consumer Connections. Rates to Include all necessary Jointing Material/fittings. All pipes and fittings to be pressure Class PN 16 Rating. Rate to include for all jointing, anchorage, etc.				
1.1	Pipes				
1.1.1	15mm Dia. HDPE pipe	m	9,800		
1.1.2	20mm Dia. HDPE pipe	m	4,900		
1.1.3	25mm Dia. HDPE pipe	m	4,900		
1.1.4	32mm Dia. HDPE pipe	m	140		
	Fittings				
1.2	HDPE Saddle Clamps				
1.2.1	DN32 x DN15	Nr	350		
1.2.2	DN32 x DN25	Nr	350		
1.2.3	DN63x DN32	Nr	42		
1.2.4	DN90x DN32	Nr	28		
1.2.5	DN110x DN32	Nr	21		
1.3	90° HDPE Elbows				
1.3.1	DN15	Nr	1,400		
1.3.2	DN25	Nr	70		
1.3.3	DN32	Nr	35		
1.4	HDPE Adaptor				
	Adaptor (Stub end) complete with metal back up ring				
1.4.1	DN15	Nr	1,400		
1.5	End Cap				
1.5.1	DN15	Nr	490		
PAGE TOTAL CARRIED TO BILL COLLECTION PAGE					

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.8: HOUSEHOLD WATER CONNECTIONS (560 Nr)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.6	Brass Ferrule				
1.6.1	DN15	Nr	560		
1.6.2	DN25	Nr	70		
1.6.3	DN32	Nr	70		
1.7	HDPE Equal Tee				
1.7.1	DN25 x DN25	Nr	70		
1.7.2	DN32 x DN32	Nr	70		
1.8	HDPE Reducing Coupler				
1.8.1	DN32 x DN15	Nr	140		
1.8.2	DN32 x DN25	Nr	70		
	Consumer Water Meters and Stop Cocks				
1.9	Consumer Water Meters				
	<i>Note: All Water Meters to conform with ISO 4061-1:2005, BS 5728-7:1997 and KS OMIL R 49:2006 Specifications for Domestic Water Meters or approved equivalent.</i>				
1.9.1	15mm dia Consumer Plastic Water Meters, Piston Type, PSM Elser Kent or approved equivalent. The Meters to include inbuilt Meter Strainers & Non-Return Mechanism. Rate to include for Supply of Meters Liner (2Nr for each Meter). All Meters to be engraved with word "NCWSC" or as directed by the Engineer	Nr	1,560		
1.10	Stop Cocks				
1.10.1	15mm dia Stop Cock, make Pegler or approved equivalent.	Nr	1,560		
1.11	Meter Boxes				
1.11.1	Standard Plastic Meter Boxes with cover and opening key, minimum dimensions; length-265mm, width-150mm & height-180mm.	Nr	1,560		
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BILL No. 3.8 COLLECTION SHEET

CKE1135- NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND
SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS

BILL No. 3.8 - HOUSEHOLD WATER CONNECTIONS (560 Nr)

SUPPLY OF PIPES, FITTINGS AND ACCESSORIES FOR NEW CONSUMER CONNECTIONS

	Amount Kshs.
<p>Page Total, Page 1 of 2</p> <p>Page Total, Page 2 of 2</p>	
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS A: GENERAL ITEM</u>				
A260	Testing of Works				
	Pipeline Testing and Commissioning, including provision of all Equipment, Materials and works necessary for Testing, such as but not limited to thrust blocks, anchor blocks, provision, transportation and use of water, requisite pipe fittings, etc., successful testing to specified pressure and safe disposal of used water.				
	NOTE: Any additional fittings that may be necessitated by the Contractor's Methodology for testing shall be supplied and installed at the Contractor's own cost.				
A260.1	DN 300mm, PN 25	m	2,377		
	Disinfection of Pipe lines: Flushing with clear water, filling with water containing 0.05 g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment, materials, chemicals and water, measurement of residual chlorine, all as specified and safe disposal of disinfecting water to Engineer's approval.				
A260.2	DN 300mm, PN 25	m	2,377		
A38	<u>Method Related Charges</u>				
A38.1	Working within available limited pipeline wayleave, include costs for double / multiple handling of excavated materials if required, as well as provision of alternative access to private property during execution of the works.	Item	L.S		
A38.2	Working within marshy areas with weak soil formation along the pipeline alignment	Item	L.S		
A38.3	Keeping pipe trenches free of excessive groundwater, seepage or water from whatever source	Item	L.S		
A38.4	Allow for carrying out Pilot Excavation, exposing and identification of existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables, etc.) prior to setting out and excavation of the pipeline. Pilot excavation n.e. 5m depth on approx. 5m wide corridor, estimate No. of pilot holes along the Pipeline route is 40Nr.	Item	L.S		
A38.5	Allow for crossing existing UNDERGROUND SERVICES (water lines, sewer lines, storm water drains, telephone/electricity ducts, fibre optic cables (including cables for security cameras), etc.), including reinstatement to original states and liaison with the relevant body for the inspection/ approval during execution of the works. Nominal bore up to - 300mm. Estimated number of crossings is 40Nr	Item	LS		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
A38.6	"Allow method related charges for working within paved roads, footpaths and accesses. Note; payment for reinstatement of paved roads, pavement and accesses under reinstatement item shall be limited to the extent of the trench width as specified. Cost for preventive measures and reinstatements beyond trench width shall be deemed to be included in this method related charges or in the contractor's rates."	Item	L.S		
A35.7	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item (Bidder may attach additional sheets if necessary):				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 500,000 for Liaison, facilitation with local residents	Item	P.S		500,000.00
A42.2	Allow a Provisional Sum of Kshs. 1,000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S	1,000,000.00	1,000,000.00
	CLASS D - DEMOLITION AND SITE CLEARANCE				
D100	General clearance and demolition of structures for pipeline for full width of easement including grubbing out all shrubs, temporary roadside business structures etc and removal of all trees of girth < 0.5m.	ha	1		
	CLASS E: EARTHWORKS				
E220	Mass Excavation in selected areas to level localized high points and to remove imported deposited material on pipeline alignment to original ground level as directed by the Engineer prior to excavation of pipeline trenches. Include for transportation and disposal of excavated material to approved tips identified by the Contractor in liaison with Local Authorities.	m ³	100		
	CLASS I - PIPEWORK - PIPES				
	STEEL PIPE SUPPLY				
	<u>Supply, transport to site and store cement mortar lined epoxy coated socket and spigot Steel Pipes complete with rubber ring.</u>				
I42.1	DN 300 mm, PN 25	m	60		
I7	HIGH DENSITY POLYETHYLENE PIPE SUPPLY				
	Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 20				
I71.1	OD 110 mm, PN 20 (provisional length) for Washout Drainage	m	200		
I71.2	OD 160 mm, PN 20 (provisional length) for Washout Drainage	m	100		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>STEEL PIPE LAYING</u>				
	<u>Transport from Site Store, Lay and Joint Pipes in Trench, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling.</u>				
	Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.				
	Steel Pipes; Joints as specified				
I45.1	Nominal bore 300mm in trenches, depth not exceeding 1.5m	m	27		
I453.68	-Ditto- but depth 1.5m - 2m	m	300		
I453.70	-Ditto- but depth 2.0m - 2.5m	m	2,000		
I7	<u>HIGH DENSITY POLYETHYLENE PIPE LAYING</u>				
	<u>Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 20 Nominal Bore 110mm in trenches (washouts)</u>				
I712.1	Depth not exceeding 1.5 m	m	60		
I713.1	Depth 1.5m - 2.0 m	m	100		
I714.1	Depth exceeding 2.0 m	m	40		
	<u>Butt-fusion weld jointed or Electrofusion welded jointed HDPE Pipes - PN 20 Nominal Bore 160mm in trenches (washouts)</u>				
I712.2	Depth not exceeding 1.5m	m	20		
I713.2	Depth 1.5m - 2.0m	m	30		
I714.2	Depth 2.0m - 2.5m	m	30		
I715.2	Depth exceeding 2.5 m	m	20		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS J: PIPE WORK - FITTINGS AND VALVES</u>				
	<u>Transport from Site Store, Lay and Joint Pipe Fittings in Trench/on Aerial Crossings, Include for Excavation, Preparation of Surfaces, Disposal of Excavated Material, Shoring Sides of Excavation and Backfilling. Rate to include for Transport to Site and Installation of all Jointing Materials, Bolts, Nuts, Gaskets, etc.</u>				
	<u>Trench width and minimum cover to pipes is as per the Specification. The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches and keeping the trenches free of water from whatever source by pumping or other means and cost of use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc., all as specified.</u>				
J3	Steel Pipes and fittings; Joints as specified				
J31	Bends				
J311	All Flanged Steel Bends				
J311.1	DN 100 PN 25, 90 degrees. (Provisional)	nr	3		
J311.2	DN 150 PN 25, 90 degrees. (Provisional)	nr	3		
J311.3	DN 200 PN 25, varying angles.	nr	8		
J312.1	DN 300 PN 25, varying angles.	nr	16		
J313.2	DN 450 PN 25, varying angles.	nr	4		
J315.1	DN 1000 PN 25, 45 degrees.	nr	4		
J32	Junctions and Branches				
	<u>Tee (Jointing as specified)</u>				
J322.1	DN 300 x DN 100, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	5		
J322.2	DN300 x DN 150, PN 25 Special Plain Ended Tee with Flanged Branch for Air Valve	nr	16		
J322.3	DN 300 x DN 150, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	1		
J323.1	DN 400 x DN 100, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	1		
J323.2	DN 400 x DN 150, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	2		
J323.3	DN400 x DN 200, PN 25 Special Plain Ended Tee with Flanged Branch for Air Valve	nr	1		
J323.4	DN 450 x DN 150, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	3		
J323.5	DN450 x DN 200, PN 25 Special Plain Ended Tee with Flanged Branch for Air Valve	nr	1		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
J323.6	DN 500 x DN 250, PN 25 Special Plain Ended Tee with Flanged Branch for Air Valve	nr	1		
J323.7	DN 600 x DN 300, PN 25 Special Plain Ended Tee with Flanged Branch for Air Valve	nr	3		
J323.8	DN 600 x DN 300, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	3		
J324.2	DN 800 x DN 75, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	1		
J324.3	DN 800 x DN 600, PN 25 Special Plain Ended Tee with Flanged Branch for Air Valve	nr	3		
J325.1	DN 1000 x DN 800, PN 25 Special Plain Ended Tee with Flanged Branch for Air Valve	nr	3		
J325.2	DN 1000 x DN 300, PN 25 Plain Ended Tee for Offtake (Provisional)	nr	1		
	<u>All Flanged Level Invert Tee</u>				
J321.1	DN 200 x DN 100, PN 25 All Flanged Level Invert Tee for Washout	nr	1		
J322.4	DN 300 x DN 100, PN 25 All Flanged Level Invert Tee for Washout	nr	3		
J323.9	DN 400 x DN 150, PN 25 All Flanged Level Invert Tee for Washout	nr	4		
J323.10	DN 500 x DN 150, PN 25 All Flanged Level Invert Tee for Washout	nr	1		
J323.11	DN 600 x DN 150, PN 25 All Flanged Level Invert Tee for Washout	nr	3		
J33	<u>Ferrous All Flanged Concentric Tapers</u>				
J331.1	DN 100 x DN 50, PN 25	nr	1		
J331.2	DN 150 x DN 75, PN 25	nr	19		
J331.3	DN 200 x DN 75, PN 25	nr	2		
J332.1	DN 250 x DN 100, PN 25	nr	1		
J332.2	DN 300 x DN 100, PN 25	nr	3		
J34	<u>Ferrous Couplings</u>				
J341.1	DN 100, PN 25 - Stepped Coupling	nr	6		
J341.2	DN 150, PN 25 - Stepped Coupling	nr	6		
J341.3	DN 200, PN 25 - Straight Coupling	nr	6		
J342.1	DN 300, PN 25 - Straight Coupling	nr	50		
J343.1	DN 400, PN 25 - Straight Coupling	nr	10		
J343.2	DN 450, PN 25 - Straight Coupling	nr	10		
J343.3	DN 500, PN 25 - Straight Coupling	nr	3		
J343.4	DN 600, PN 25 - Straight Coupling	nr	14		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
J344.1	DN 700, PN 25 - Straight Coupling	nr	8		
J344.2	DN 800, PN 25 - Straight Coupling	nr	10		
J345.1	DN 1000, PN 25 - Straight Coupling	nr	10		
J35	<u>Ferrous Flange Adaptor</u>				
J355	DN 200, PN 25	nr	3		
J354.1	DN 300, PN 25	nr	9		
J354.2	DN 400, PN 25	nr	2		
J354.3	DN 450, PN 25	nr	2		
J353.1	DN 500, PN 25	nr	1		
J353.2	DN 600, PN 25	nr	6		
J353.3	DN 700, PN 25	nr	1		
J353.4	DN 800, PN 25	nr	3		
J352.5	DN 1000, PN 25	nr	1		
J38	<u>Straight Specials</u>				
	<u>Plain Ended Pipes without Puddle Flanges</u>				
J381.1	DN 100, PN 25, length 1.2m (provisional)	nr	4		
J381.2	DN 150, PN 25, length 1.2m (provisional)	nr	8		
	<u>Flanged Spigot Pipes without Puddle Flanges</u>				
J381.3	DN 100, PN 25, length 1.2m	nr	4		
J381.4	DN 150, PN 25, length 1.2m	nr	8		
	<u>Special Fittings</u>				
J381.3	DN 150, PN 25, special double flanged pipe 325mm long with flange to suit 500mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	nr	3		
J381.4	DN 150, PN 25, special double flanged pipe 325mm long with flange to suit 600mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	nr	3		
J381.5	DN 150, PN 25, special double flanged pipe 325mm long with flange to suit 800mm dia. tee on one end and 150mm dia flange on the other end as per Dwg Nr M455/W-02/SD/02 (Detail 1).	nr	3		
J39	<u>Blank Flange</u>				
J39.2	DN 300, PN 25	nr	2		
J8	<u>Valves and Penstocks</u>				
J81	<u>Flanged Gate Valve</u>				
J811.1	DN 37, PN 25, with handwheel (For Offtakes)(Provisional)	nr	1		
J811.2	DN 50, PN 25, with handwheel (Isolating Valve for Air Valves)	nr	29		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
J811.3	DN 50, PN 25, with handwheel (For Offtakes)(Provisional)	nr	1		
J811.4	DN 75, PN 25, with handwheel (Isolating Valve for Air Valves)	nr	9		
J811.5	DN 75, PN 25, with handwheel (For Offtakes)(Provisional)	nr	2		
J811.6	DN 100, PN 25, with handwheel (Isolating Valve for Air Valves)	nr	4		
J811.7	DN 100, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	6		
J811.8	DN 100, PN 25, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	nr	1		
J811.9	DN 150, PN 25, with handwheel (Isolating Valve for Air Valves)	nr	9		
J811.10	DN 150, PN 25, with Extension Spindle, length n.e. 5.0m without handwheel (for washouts)	nr	8		
J811.11	DN 150, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	8		
J811.12	DN 200, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	2		
J812.2	DN 250, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	1		
J812.3	DN 300, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	7		
J813.1	DN 400, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	2		
J813.2	DN 450, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	1		
J813.3	DN 500, PN 25, with handwheel (Isolating Valve for Line Valves)	nr	1		
J84	Flanged Butterfly Valve complete with Gear Mechanism designed to slow down flow reduction at end of closure as specified and Hand Wheel as specified				
J843.1	DN 600, PN 25	nr	6		
J844.1	DN 800, PN 25	nr	3		
J845.1	DN 1000, PN 25	nr	1		
J86	Air Valve				
J861	Flanged PN 25 Double Acting Non-Slam (Anti-Surge) Air Valve (DAV) as specified				
J861.1	DN 50, ARI D40 or approved equivalent	nr	5		
J861.2	DN 50, ARI D62 or approved equivalent	nr	11		
J861.3	DN 50, ARI D52 or approved equivalent	nr	5		
J861.4	DN 50, ARI D46 or approved equivalent	nr	8		
J861.5	DN 75, ARI D46 or approved equivalent	nr	9		
J861.6	DN 100, ARI D46 or approved equivalent	nr	4		
J861.7	DN 150, ARI D46 or approved equivalent	nr	9		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
A-J9	Water Meters				
	Electromagnetic Water Meters				
	Supply as specified ,install and commission . Rate inclusive of all fittings and manufcutres installation requirements				
J991.1	DN 200 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	nr	1		
J992.1	DN 300 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	nr	2		
J992.2	DN 450 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	nr	1		
J994.1	DN 700 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	nr	1		
J995.1	DN 1000 All Flanged Battery Powered Electromagnetic Water Meter to PN 16 complete with accessories as specified; Minimum Battery Life 6 Years.	nr	1		
	<u>CLASS K - MANHOLES AND PIPEWORK ANCILLARIES</u>				
	<u>Chambers complete as per the drawings</u>				
	<u>Note:-</u> Items for Work in this class shall include:- - Excavation, dewatering, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. - Concrete, reinforcement, formwork, joints and finishes. - Tips for disposal of excavated material or debris to be identified by the Contractor in liaison with the Local Authorities. - Rate to include for placing and compaction of pipe embedment material below the chamber and filling around pipe before construction of chamber - All Chambers to be fitted with adequate drainage system and permanent ventilation as per details or as directed by Engineer in Site. - Chambers to be fitted with plastic coated step irons or Access ladders as specified; and lockable covers to access manholes, to detail. -Contractor's rates to include for reinstatement of paved areas around the chamber to the original status.				
K233.1	In situ concrete chamber, internal size 1200mm x 1200mm, depth not exceeding 3.0m. (Air Valve chambers)	nr	51		
K233.1	In situ concrete chamber, internal size 400mm x 400mm surface boxes for Washout Valves depth not exceeding 1.5m	nr	12		
K236.2	In situ concrete chamber, internal size 1800mm x 1800mm, depth exceeding 1.5m but not exceeding 4.0m for line valve chambers and Interconnection	nr	18		
K236.2	In situ concrete chamber, internal size 1200mm x 1200mm, depth not exceeding 4.0m for Washouut valves chambers	nr	12		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
K236.2	In situ concrete for Washout outfall structure type A (To road drain or natural drain)	nr	12		
K236.2	In situ concrete for Washout outfall structure type B (To river)	nr	12		
	<u>Breaking up, temporary and permanent reinstatement of roads (Provisional Quantity)</u>				
K732.1	Urban Local Authority tarmac, cabro or concrete paved roads, pipe nominal bore not exceeding 300mm. To include traffic control and diversion and reinstatement to the original condition to Local Authority satisfaction and diversion and reinstatement to the original condition to Local Authority satisfaction	m	150		
K732.2	Urban Local Authority tarmac, cabro or concrete paved roads, pipe nominal bore not exceeding 300-900mm. To include traffic control and diversion and reinstatement to the original condition to Local Authority satisfaction and diversion and reinstatement to the original condition to Local Authority satisfaction	m	250		
K732.3	Urban Local Authority tarmac, cabro or concrete paved roads, pipe nominal bore not exceeding 900-1800mm. To include traffic control and diversion and reinstatement to the original condition to Local Authority satisfaction and diversion and reinstatement to the original condition to Local Authority satisfaction	m	150		
K732.5	Urban Local Authority gravel roads, pipe nominal bore not exceeding 300-900mm. To include traffic control and diversion and reinstatement to the original condition to Local Authority satisfaction and diversion and reinstatement to the original condition to Local Authority satisfaction	m	150		
K732.6	Urban Local Authority gravel roads, pipe nominal bore not exceeding 900-1800mm. To include traffic control and diversion and reinstatement to the original condition to Local Authority satisfaction and diversion and reinstatement to the original condition to Local Authority satisfaction	m	150		
	<u>Pipeline Marker Posts</u>				
K820.1	Marker post for Line Valve inscribed 'LV'	nr	115		
K820.2	-Ditto- but Air Valve inscribed 'AV'	nr	70		
K820.3	-Ditto- but Water Main inscribed 'WM'	nr	80		
K820.4	-Ditto- but Wash Out inscribed 'WO'	nr	41		
	<u>Connection to Existing Pipes in Chambers(Rate to include all materials associated)</u>				
K861	Connection to existing line pipe nominal bore n.e. 200mm	nr	5		
K862	Connection to existing line pipe nominal bore 200 - 300 mm	nr	20		
K863	Connection to existing line pipe nominal bore 300 - 600 mm	nr	1		
K864	Connection to existing line pipe nominal bore 600 - 900 mm	nr	2		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS L - PIPEWORK SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	<u>Excavation in rock as defined in Specifications</u>				
L111	Excavation in Class A Rock	m ³	750		
L112	-Ditto- but Class B Rock	m ³	750		
L112	-Ditto- but Class C Rock	m ³	1,500		
	<u>Trenchless Road And Railway Crossings</u>				
	Provide all equipment and materials, tunnel below road surface including any requisite shoring and strutting during tunneling, provide and install precast reinforced concrete lining segments to tunnel faces, blanking of tunnel ends with mass concrete/masonry walls upon pipework installation using any trenchless method subject to Engineer's approval and in accordance to standard specifications. Rate to include for all necessary grouting. All works to be executed in close liaison with relevant road/railway authorities. Rate to include facilitation of the same. The Bidder to submit method statement with bid for execution of this works. The bidder may quote for alternative method of trenchless road/railway crossing. Details of alternative method to be submitted with the bid.				
L237	Tunnelling Works across classified roads, tunnel cross-section as detailed	m	80		
L52*2	Surrounds with imported granular material, pipe bore "All" for trench in unsuitable material such as rock, clay soil, etc	m	1,000		
L52*3	Surrounds with Class C15/20 mass concrete, pipe bore "All" for road, river and stream crossings	m	200		
L5	Surrounds				
	<i>Rate to include for supply, transport to site and placing of surround material</i>				
L522	Surrounds with imported granular material, pipe bore "All" for trench in unsuitable material such as rock, clay soil, etc	m	1,000		
L523	Surrounds with Class C15/20 mass concrete, pipe bore "All" for road, river and stream crossings	m	200		
L7	<u>Mass Concrete Class 20/20 Thrust blocks for bends, tees, blank ends and anchor blocks for tapers, gate valves and vertical bends.</u>				
L74	Concrete thrust and anchor blocks, volume 0.5 - 1 m ³ pipe nominal bore "All"	nr	25		
L75	-Ditto- but volume 1 - 2m ³	nr	5		
L76	-Ditto- but volume 2 - 4m ³	nr	5		
L77	-Ditto- but volume 4 - 6m ³	nr	5		
L78	-Ditto- but volume exceeding 6m ³	nr	10		
	<u>Pipeline Piers and Supports as shown on drawing .</u>				
L843.1	Reinforced concrete pier complete with pipe cradle and strap, pier height 1.0 - 10.0m.	Nr.	4		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS X:-MISCELLANEOUS WORKS</u>				
X99	<u>Exposing, Cutting and surface reinstatement of existing Pipes at locations of New Fittings</u>				
X991	Provide all tools and equipment, expose existing pipeline for installation of new fittings as identified under Item A35 and reinstate after installation of new fittings measured elsewhere. Rate to include for disposal of excavated material, cuttings of pipe, surface preparation and painting of pipe prior to installation of fittings.				
X991.1	Pipe Nominal Bore N.e. 300mm	Nr.	10		
X991.2	Ditto, but for Pipe Nominal Bore 300mm - 600mm	Nr.	20		
X991.3	Ditto, but for Pipe Nominal Bore Exceeding 600mm	Nr.	20		
X992	<u>Removal of Existing Temporary Fittings</u>				
X992.1	Allow for removal of existing temporary fittings in chambers, including gate valves, air valves, couplings, etc. and handing over to the client. Rate to include for cost of transportation to client's designated storage.	Item	LS		
X993	<u>Supply and Installation of loose flanges on existing Pipes</u>				
X993.1	Provide all materials and install flanges on existing pipes to receive flanged Valves, Meters, etc. Rate to include for supply of flanges and cost for welding in position. Cost for exposing and cutting of pipe measured elsewhere.				
X993.2	DN 300 PN 25 Flange	Nr.	10		
X993.2	DN 400 PN 25 Flange	Nr.	2		
X993.3	DN 450 PN 25 Flange	Nr.	2		
X993.4	DN 500 PN 25 Flange	Nr.	1		
X993.5	DN 600 PN 25 Flange	Nr.	6		
X993.6	DN 700 PN 25 Flange	Nr.	1		
X993.7	DN 800 PN 25 Flange	Nr.	3		
X993.8	DN 1000 PN 25 Flange	Nr.	2		
X994	<u>Miscellaneous Works (Provisional)</u>				
X994.1	Provisional Sum of Kshs. 2,000,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		2,000,000.00
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BILL No. 3.9 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND
SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 3: WATER DISTRIBUTION MAINS AND HOUSEHOLD WATER CONNECTIONS****BILL No. 3.9 - OPERATIONALIZATION WORKS FOR TRANSMISSION PIPELINE ALONG THE NAIROBI EXPRESSWAY**

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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 4: WATER STORAGE RESERVOIRS****BILL No. 4.1 - KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1	<u>KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)</u>				
1.1	<u>GENERAL</u>				
1.1.1	Water Tightness Testing of the Tank in accordance with the Specifications to the satisfaction of the Engineer. Include for provision of water from approved source.	Item	L.S		
1.1.2	Cleansing and Sterilization of the 5,500m ³ Tank in accordance with specifications. Rate to include for provision of water, all required chemicals and carrying out relevant tests as well as safe disposal of used water, all to Engineer's approval.	Item	L.S		
1.1.3	Pressure Testing, Cleansing and Sterilization of all Tank Pipework (Inlet, Outlet, Washout, Overflow) in accordance with Specifications. Rate to include for provision of water, all required chemicals and carrying out relevant tests as well as safe disposal of used water, all to Engineer's approval.	Item	L.S		
1.2	<u>EARTHWORKS</u>				
	The rates shall include for all strutting, shuttering, stabilizing the excavation faces, and keeping the excavation free of water by pumping, bailing or other means				
	Bulk excavations and top soil stripping for all structures at the Karen Reservoir site are measured under Section 2 of this bill (Site & Ancillary Works)				
	Excavate below stripped level to formation level in common material, part backfill after construction and remainder, cart away to tips identified by the Contractor in liaison with Local Authorities or use as fill on site, all as directed by the Engineer.				
1.2.1	Maximum depth n.e. 1.0 m	m ³	1700		
1.2.2	-Ditto- but maximum depth 1.0 m to 2.0 m	m ³	1700		
1.2.3	-Ditto- but maximum depth 2.0 m to 5.0 m	m ³	5300		
1.2.4	-Ditto- but maximum depth exceeding 5.0 m	m ³	4700		
1.2.5	Provide and place approved hardcore packing, hand packed and compacted to Engineer's approval, maximum 300mm thick layer. Rate to include for provision, packing and compaction.	m ³	550		
1.2.6	Extra Over excavation items for excavation in rock Class 'A', blasting not permitted (Provisional)	m ³	540		
1.2.7	-Ditto- but in rock Class 'B'	m ³	800		
1.2.8	-Ditto- but in rock Class 'C'	m ³	1340		
1.3	<u>CONCRETE WORKS</u>				
	<u>Provide, Mix and Place Concrete as Directed</u>				
1.3.1	Plain concrete Class 15/20 in 75mm thick blinding layer under base slab of tank	m ²	1550		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 4: WATER STORAGE RESERVOIRS****BILL No. 4.1 - KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	<u>Guaranteed Strength Reinforced Concrete Class 25/20mm</u> <u>Maximum Aggregate as Described in:-</u>				
1.3.2	Base - external walls base including key and splay	m ³	330		
1.3.3	Base - Internal Partition wall	m ³	55		
1.3.4	Base slab -including sloping faces	m ³	182		
1.3.5	Bases to columns	m ³	18		
1.3.6	Bases to internal baffle walls	m ³	14		
1.3.7	Base to overflow chamber	m ³	1		
1.3.8	Roof slab including all upstands	m ³	336		
1.3.9	External walls (thickness 500 mm)	m ³	180		
1.3.1	External walls (thickness 300 mm)	m ³	115		
1.3.11	Partition wall (thickness 300mm)	m ³	55		
1.3.12	Baffle walls	m ³	100		
1.3.13	Walls - washout sump	m ³	1		
1.3.14	Walls - overflow chamber	m ³	1		
1.3.15	Columns (excluding top flared heads)	m ³	12		
1.3.16	Column Heads	m ³	6		
1.4	<u>REINFORCEMENT</u> <u>Provide and Fix High Tensile Steel Reinforcement to SRN 127</u> <u>including Cutting, Bending, Propping with Spacers and Tying as specified :-</u>				
1.4.1	Reinforcement Bars, all diameters	Kg	210,900		
1.4.2	Steel fabric to BS 4483: A252 square mesh, nominal mass 3-4kg/m ²	m ²	910		
1.5	<u>FORMWORK</u> Provide and Fix Shuttering Including Propping, Strutting and Striking, all as specified. Rate to include for formation of chamfers at concrete edges where specified.				
	<u>(i) Vertical Formwork - Class F1 Finish</u>				
1.5.1	External sides of 200 mm base slab of tank	m	170		
1.5.2	Sides of key; width 0.4 m to 1.0 m	m ²	305		
1.5.3	External sides of washout sump, width 1.0 m	m ²	6		
	<u>(ii) Vertical Formwork - Class F3 Finish</u>				
1.5.4	Internal sides of washout sumps, width 0.4 m to 1.0 m	m ²	4		
1.5.5	Inner sides of access and inspection manholes, width 0.4 m to 2.0 m	m ²	18		
1.5.6	Sides of partition wall base slab, width n.e. 0.5m	m ²	35		
1.5.7	Sides of overflow chamber, width 1.0 m to 1.5 m	m ²	11		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 4: WATER STORAGE RESERVOIRS****BILL No. 4.1 - KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.5.8	Outer sides of access and inspection manholes upstands, 300 mm high; width 1.0 m to 2.0 m	m ²	22		
1.5.9	Inner sides of roof upstands 300 mm high, width exceeding 2 m	m ²	50		
1.5.10	Outer sides of roof upstands 550 mm high width exceeding 2 m	m ²	95		
1.5.11	Outer sides of external walls, width exceeding 2 m	m ²	800		
1.5.12	Inner sides of external walls, wall thickness 0.3m to 0.5m, width exceeding 2.0 m	m ²	800		
1.5.13	Sides of partition wall, width exceeding 2.0m	m ²	340		
1.5.14	Baffle walls, width exceeding 2.0 m	m ²	1010		
1.5.15	Sides of columns; width 0.3 m	m	150		
1.5.16	Sides of columns; width 0.1 m	m	100		
1.5.17	Sides of column bases; width 0.3 m	m	150		
1.5.18	Sides of baffle walls bases; width 0.3 m	m	200		
	(iii) Horizontal Formwork - Class F3 Finish				
1.5.19	Soffits of overflow channel	m ²	4		
1.5.20	Soffit of roof slab, width exceeding 2.0 m	m ²	1400		
	(iv) Sloping Formwork - Class F3 Finish				
1.5.21	Splay on wall at overflow chamber, width 0.1 m to 0.3 m	m	2		
1.5.22	Splay on base slab, width 0.1 m 0.3 m	m	300		
1.5.23	Splay in wall, width 0.1 m to 0.3 m	m	150		
1.5.24	Splay at column heads, width 0.4 m to 1.0 m	m ²	40		
1.5.25	Allow for 75 mm x 75 mm rebate in walls of overflow chamber for precast concrete slabs	m	5		
1.5.26	- Ditto - but 50 mm x 50 mm rebates for manhole covers	m	30		
1.5.27	Allow for fillet to form 25 mm x 25 mm chamfer for all exposed concrete edges	m	550		
1.5.28	Allow for 12 mm dia. half round fillet for drip mould round soffit of roof slab overhang	m	155		
1.5.29	Boxing out for 400 mm diameter inlet pipe in 300mm thick concrete wall of tank and making good after installation of pipework	Nr	2		
1.5.30	Boxing out for 500 mm diameter outlet pipe in 200mm thick concrete base slab of tank and making good after installation of pipework	Nr	2		
1.5.31	Boxing out for 500 mm diameter overflow pipe in 200mm thick concrete base of overflow chamber and making good after installation of pipework	Nr	2		
1.5.32	- Ditto - but for 250mm diameter scour pipe in 200mm thick concrete wall of scour sump	Nr	2		
1.5.33	- Ditto - but for 250mm diameter scour pipe in 500mm thick concrete walls	Nr	2		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 4: WATER STORAGE RESERVOIRS****BILL No. 4.1 - KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.6	<u>CONCRETE SURFACE FINISH</u>				
1.6.1	Provide Class UF3 Finish for top of base slab of tank	m ²	1320		
1.7	<u>CONSTRUCTION JOINTS - WATER BARS</u>				
	Provide and install the following waterstops in construction joints including all surface treatment, formwork, forming of rebate and sealing of rebate with polysulphide sealant, all as per drawings and specification.				
1.7.1	Open surface with filler, average width n.e. 0.5 m	m ²	200		
1.7.2	Formed surface with filler, average width n.e. 0.5 m	m ²	120		
1.7.3	uPVC horizontal waterstops, rear guard type, width 200 mm	m	150		
1.7.4	uPVC vertical waterstops, width 200 mm	m	450		
1.7.5	Sealed 20 mm x 20 mm rebates with polysulphide joint sealant	m	600		
1.8	<u>PIPEWORK - FITTINGS & VALVES</u>				
	<u>Supply, Transport to Site and Store in Secure Place, Including all Jointing Material, Bolts, Gaskets, Packing, Jointing Glues, etc. as Applicable</u>				
	<u>(i) Inlet Pipework - Approved Lined Ferrous Pipes and Fittings (M455/W-02/W/KR/06)</u>				
1.8.1	500mm dia. Coupling (Mark A)	Nr	3		
1.8.2	500mm dia. Flanged spigot pipe, length 1200mm (Mark B)	Nr	2		
1.8.3	500mm dia. All flanged 90° bend (Mark C)	Nr	1		
1.8.4	500mm dia. Plain ended pipe, length 30000mm With Couplings (cut to suit on site) (Mark D)	Nr	1		
1.8.5	500mm dia. Flanged Spigot pipe, length 1200mm with puddle flange at 625mm from one end (Mark E)	Nr	1		
1.8.6	500mm x 400mm dia. All flanged tee (Mark F)	Nr	1		
1.8.7	400mm dia. All flanged gate valve with an extended spindle 1800mm long, head stock and hand wheel (Mark G)	Nr	2		
1.8.8	400mm dia. All flanged flow control valve with an integrated altitude valve function (Mark H)	Nr	2		
1.8.9	400mm dia. Flange adaptor (Mark I)	Nr	3		
1.8.10	400mm dia. Flanged spigot pipe, length 1835mm with puddle flange at 625mm from plain end (Mark J)	Nr	1		
1.8.11	400mm dia. All flanged 90° short radius bend (Mark K)	Nr	4		
1.8.12	400mm dia. All flanged pipe, length 400mm (Mark L)	Nr	1		
1.8.13	400mm dia. All flanged pipe, length 1300mm with a puddle flange at 450mm from one end (Mark M)	Nr	2		
1.8.14	400mm dia. All flanged 90° bend (Mark N)	Nr	3		
1.8.15	400mm dia. Flanged spigot pipe, length 1000mm (Mark O)	Nr	2		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 4: WATER STORAGE RESERVOIRS****BILL No. 4.1 - KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.8.16	500mm x 400mm dia. All flanged concentric taper (Mark P)	Nr	1		
1.8.17	400mm dia. Flanged Spigot pipe, length 1200mm with puddle flange at 625mm from one end (Mark Q)	Nr	1		
1.8.18	400mm dia. Coupling (Mark P)	Nr	4		
1.8.19	400mm dia. Plain ended pipe, length 12000mm (Mark S)	Nr	2		
1.8.20	400mm dia. Flanged Spigot pipe, length 5000mm (cut to suit on site) (Mark T)	Nr	1		
1.8.21	400mm dia. Plain Ended pipe, length 1200mm with puddle flange at 625mm from one end (Mark U)	Nr	1		
1.8.22	400mm dia. All flanged pipe, length 1200mm with a puddle flange at 625mm from one end (Mark V)	Nr	1		
1.8.23	400mm dia. Flanged spigot pipe, length 2400mm (cut to suit on site) (Mark W)	Nr	1		
	(ii) Outlet Pipework- Approved Lined Ferrous Pipes and Fittings (M455/W-02/W/KR/07)				
1.8.24	500mm dia. Special flanged bell mouth, length 800mm with puddle flange at 600mm from flanged end (Mark 1)	Nr	2		
1.8.25	500mm dia. all flanged 90° bend (Mark 2)	Nr	3		
1.8.26	500mm dia. flanged spigot pipe, length 6500mm long (cut to suit on site) (Mark 3)	Nr	2		
1.8.27	500mm dia. Coupling (Mark 4)	Nr	7		
1.8.28	500mm dia. plain ended pipe, length 1200mm with puddle flange at 725mm from one end (Mark 5)	Nr	1		
1.8.29	500mm dia. Flange Adaptor (Mark 6)	Nr	3		
1.8.30	500mm dia. double flanged gate valve with extended spindle 2200mm long, headstock and handwheel (Mark 7)	Nr	2		
1.8.31	500mm x 500mm dia. All flanged tee (Mark 8)	Nr	1		
1.8.32	500mm dia. Flanged spigot pipe, length 1300mm (cut to suit on site) (Mark 9)	Nr	1		
1.8.33	500mm dia. Flanged spigot pipe, length 1200mm (Mark 10)	Nr	1		
1.8.34	500mm dia. Plain ended pipe, length 12000mm (cut to suit on site) (Mark 11)	Nr	1		
1.8.35	500mm dia. Plain ended pipe, length 1200mm with puddle flange at 500mm from one end (Mark 12)	Nr	1		
1.8.36	500mm dia. Flanged spigot pipe, length 1200mm with puddle flange at 500mm from the plain end (Mark 13)	Nr	1		
1.8.37	500mm dia. Plain ended pipe, length 7000mm (cut to suit on site) (Mark 14)	Nr	1		
1.8.38	500mm dia. Plain ended pipe, length 1200mm with puddle flange at 450mm from one end (Mark 15)	Nr	1		
1.8.39	500mm dia. Electromagnetic Water Meter, complete with all requisite accessories (Mark 16)	Nr	1		
1.8.40	500mm dia. Flanged Spigot pipe, length 1200mm with puddle flange at 450mm from one end (Mark 17)	Nr	1		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 4: WATER STORAGE RESERVOIRS****BILL No. 4.1 - KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)**

ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	(iii) Scour Pipework - Approved Lined Ferrous Pipes and Fittings (M455/W-02/W/KR/08)				
1.8.41	250mm dia. Plain ended pipe, length 5200mm with puddle flange at 100mm from one end (cut to suit on site) (Mark i)	Nr	2		
1.8.42	250mm dia. coupling (Mark ii)	Nr	2		
1.8.43	250mm dia. Flanged Spigot pipe, length 1200mm with puddle flange at 655mm from one end (Mark iii)	Nr	2		
1.8.44	250mm dia. all flanged gate valve with an extended spindle 2000mm, head stock and hand wheel (Mark iv)	Nr	2		
1.8.45	250mm dia. Single flanged 90° bend (Mark v)	Nr	2		
	(iv) Overflow Pipework - Approved Lined Ferrous Pipes and Fittings (M455/W-02/W/KR/08)				
1.8.46	500mm dia. Flanged spigot pipe, length 1500mm with puddle flange at 100mm from spigot end (Mark 1)	Nr	2		
1.8.47	500mm dia. All flanged 45° bend (Mark 2)	Nr	2		
1.8.48	500mm dia. Flanged spigot pipe, length 2250mm with spigot end beveled (Mark 3)	Nr	2		
	<u>Transport From Site, Store, Install, Test & Commission. Include for Excavation & Backfilling of Pipe Trenches Where Applicable.</u>				
	(i) Inlet Pipework - Approved Lined Ferrous Pipes and Fittings (M455/W-02/W/KR/06)				
1.8.49	500mm dia. Coupling (Mark A)	Nr	3		
1.8.50	500mm dia. Flanged spigot pipe, length 1200mm (Mark B)	Nr	2		
1.8.51	500mm dia. All flanged 90° bend (Mark C)	Nr	1		
1.8.52	500mm dia. Plain ended pipe, length 30000mm With Couplings (cut to suit on site) (Mark D)	Nr	1		
1.8.53	500mm dia. Flanged Spigot pipe, length 1200mm with puddle flange at 625mm from one end (Mark E)	Nr	1		
1.8.54	500mm x 400mm dia. All flanged tee (Mark F)	Nr	1		
1.8.55	400mm dia. All flanged gate valve with an extended spindle 1800mm long, head stock and hand wheel (Mark G)	Nr	2		
1.8.56	400mm dia. All flanged flow control valve with an integrated altitude valve function (Mark H)	Nr	2		
1.8.58	400mm dia. Flange adaptor (Mark I)	Nr	3		
1.8.59	400mm dia. Flanged spigot pipe, length 1835mm with puddle flange at 625mm from plain end (Mark J)	Nr	1		
1.8.60	400mm dia. all flanged 90° short radius bend (Mark K)	Nr	4		
1.8.61	400mm dia. All flanged pipe, length 400mm (Mark L)	Nr	1		
1.8.62	400mm dia. All flanged pipe, length 1300mm with puddle flange at 450mm from one end (Mark M)	Nr	2		
1.8.63	400mm dia. All flanged 90° bend (Mark N)	Nr	3		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.8.64	400mm dia. Flanged spigot pipe, length 1000mm (Mark O)	Nr	2		
1.8.65	500mm x 400mm dia. All flanged concentric taper (Mark P)	Nr	1		
1.8.66	400mm dia. Flanged Spigot pipe, length 1200mm with puddle flange at 625mm from one end (Mark Q)	Nr	1		
1.8.67	400mm dia. Coupling (Mark R)	Nr	4		
1.8.68	400mm dia. Plain ended pipe, length 12000mm (Mark S)	Nr	2		
1.8.69	400mm dia. Flanged Spigot pipe, length 5000mm (cut to suit on site) (Mark T)	Nr	1		
1.8.70	400mm dia. Plain ended pipe, length 1200mm with puddle flange at 625mm from one end (Mark U)	Nr	1		
1.8.71	400mm dia. All flanged pipe, length 1200mm with a puddle flange at 625mm from one end (Mark V)	Nr	1		
1.8.72	400mm dia. Flanged spigot pipe, length 2400mm (cut to suit on site) (Mark W)	Nr	1		
	(ii) Outlet Pipework- Approved Lined Ferrous Pipes and Fittings(M455/W-02/W/KR/07)				
1.8.73	500mm dia. Special flanged bell mouth, length 800mm with puddle flange at 600mm from flanged end (Mark 1)	Nr	2		
1.8.74	500mm dia. all flanged 90° bend (Mark 2)	Nr	3		
1.8.75	500mm dia. flanged spigot pipe, length 6500mm long (cut to suit on site (Mark 3)	Nr	2		
1.8.76	500mm dia. Coupling (Mark 4)	Nr	7		
1.8.77	500mm dia. plain ended pipe, length 1200mm with puddle flange at 725mm from one end (Mark 5)	Nr	1		
1.8.78	500mm dia. Flange Adaptor (Mark 6)	Nr	3		
1.8.79	500mm dia. double flanged gate valve with extended spindle 2200mm long, headstock and handwheel (Mark 7)	Nr	2		
1.8.80	500mm x 500mm dia. All flanged tee (Mark 8)	Nr	1		
1.8.81	500mm dia. Flanged spigot pipe, length 1300mm (cut to suit on site) (Mark 9)	Nr	1		
1.8.82	500mm dia. Flanged spigot pipe, length 1200mm (Mark 10)	Nr	1		
1.8.83	500mm dia. Plain ended pipe, length 12000mm (cut to suit on site) (Mark 11)	Nr	1		
1.8.84	500mm dia. Plain ended pipe, length 1200mm with puddle flange at 500mm from one end (Mark 12)	Nr	1		
1.8.85	500mm dia. flanged spigot pipe, length 1200mm with puddle flange at 500mm from the plain end (Mark 13)	Nr	1		
1.8.85	500mm dia. Plain ended pipe, length 7000mm (cut to suit on site) (Mark 14)	Nr	1		
1.8.86	500mm dia. Plain ended pipe, length 1200mm with puddle flange at 450mm from one end (Mark 15)	Nr	1		
1.8.87	500mm dia. Electromagnetic Water Meter complete with all requisite accessories (Mark 16)	Nr	1		
1.8.88	500mm dia. Flanged Spigot pipe, length 1200mm with puddle flange at 450mm from one end (Mark 17)	Nr	1		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
	(iii) Scour Pipework - Approved Lined Ferrous Pipes and Fittings (M455/W-02/W/KR/08)				
1.8.89	250mm dia. Plain ended pipe, length 5200mm with a puddle flange 100mm from one end (cut to suit on site) (Mark i)	Nr	2		
1.8.90	250mm dia. coupling (Mark ii)	Nr	2		
1.8.91	250mm dia. Flanged Spigot pipe, length 1200mm with a puddle flange 655mm from one end (Mark iii)	Nr	2		
1.8.92	250mm dia. all flanged gate valve with an extended spindle 2000mm, head stock and hand wheel (Mark iv)	Nr	2		
1.8.93	250mm dia. Single flanged 90° bend (Mark v)	Nr	2		
	(iv) Overflow Pipework - Approved Lined Ferrous Pipes and Fittings (M455/W-02/W/KR/08)				
1.8.94	500mm dia. Flanged spigot pipe, length 1500mm with puddle flange at 100mm from spigot end (Mark 1)	Nr	2		
1.8.95	500mm dia. All flanged 45° bend (Mark 2)	Nr	2		
1.8.96	500mm dia. Flanged spigot pipe, length 2250mm with spigot end beveled (Mark 3)	Nr	2		
1.9	<u>METALWORK</u>				
	Rate to include for, but not limited to all fabrication, welding, jointing, galvanizing, painting works, transportation to site and installation; including rawl bolts, hinges, locking mechanisms, etc. where applicable. All to Engineer's approval.				
	All steelwork to be completely cleaned by acid dipping prior to galvanizing				
	Supply and Install:				
1.9.1	Galvanized mild steel ladders, height n.e. 6000 mm installed internally in the Tank, as per details on Drg. No. M455/W-02/SD/04-2	Nr	4		
1.9.2	-Ditto- but for Galvanized Mild Steel ladders, height n.e 6000mm installed externally to the tank	Nr	2		
1.9.3	Lockable mild steel chequered plate covers over access manholes to tank as per details on Drg. No. M455/W-02/SD/16-1,16-2, for manhole size 1020mmx1020mm	Nr	4		
1.9.4	Ditto - but over inspection manholes to tank for manhole size 2000mm x 1600mm	Nr	2		
1.10	<u>MISCELLANEOUS WORK</u>				
	Provide and Place				
1.10.1	3 layers of 4mm thick, 300mm wide, joint filling material at wall to roof slab interface - Polyflex APP modified Membrane as supplied by Kenbro Industries or approved equivalent - including all surface preparation, etc., to the manufacturer's detailed instructions.	m	150		
1.10.2	Gauge 1000 polythene sheeting on blinding below base slab	m ²	1550		
1.10.3	150 mm thick layer of pumice on roof slab of tank	m ²	1290		
1.10.4	Supply and install vent pipes on roof of tank as per details on Drg No. M455/W-02/W/KR/03. Rate to include for painting with 3 coats of approved epoxy paint on one coat of approved primer.	Nr	24		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
2	<u>SITE AND ANCILLARY WORKS AT KAREN STORAGE RESERVOIR</u>				
2.1	<u>WORKS PIPELINE</u>				
	<u>A) Supply, Transport to Site & Store in secure place including Jointing Material, Bolts, Gaskets, Packing, Jointing glue, etc. as applicable</u>				
	<u>LINE A: PROPOSED DN 500 INLET PIPEWORK FROM EXISTING TRANSMISSION LINE PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES AND FITTINGS)</u>				
A-2.1.1	500mm dia. Straight Coupling (Mark A)	Nr	3		
A-2.1.2	500mm dia. Flanged Spigot Pipe, Length 1200mm (Mark B)	Nr	3		
A-2.1.3	500mm dia All Flanged 90° Bend (Mark C)	Nr	2		
A-2.1.4	500mm dia. Plain Ended Pipe, Length 45000mm with couplings. Cut to suit on site (Mark D)	Nr	2		
	<u>LINE B: PROPOSED DN 500 OUTLET PIPEWORK FROM PROPOSED 5,500m³ CAPACITY RESERVOIR TO EXISTING DISTRIBUTION NETWORK IN KAREN AREA PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES AND FITTINGS)</u>				
A-2.2.1	500mm dia. Straight Coupling (Mark 1)	Nr	4		
A-2.2.2	500mm dia. Flanged Spigot Pipe, Length 1200mm (Mark 2)	Nr	5		
A-2.2.3	500mm dia All Flanged 90° Bend (Mark 3)	Nr	3		
A-2.2.4	500mm dia. Plain Ended Pipe, Length 3000mm. Cut to suit on site (Mark 4)	Nr	2		
	<u>B) Transport from Site Store, Lay Joint and Test</u>				
	<u>LINE B: PROPOSED DN 500 INLET PIPEWORK FROM EXISTING TRANSMISSION LINE PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES AND FITTINGS)</u>				
B-2.1.1	500mm dia. Straight Coupling (Mark A)	Nr	3		
B-2.1.2	500mm dia. Flanged Spigot Pipe, Length 12000mm (Mark B)	Nr	3		
B-2.1.3	500mm dia All Flanged 90° Bend (Mark C)	Nr	2		
B-2.1.4	500mm dia. Plain Ended Pipe, Length 45000mm with couplings. Cut to suit on site (Mark D)	Nr	2		
	<u>LINE B: PROPOSED DN 500 OUTLET PIPEWORK FROM PROPOSED 5,500m³ CAPACITY RESERVOIR TO EXISTING DISTRIBUTION NETWORK IN KAREN AREA PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES AND FITTINGS)</u>				
B-2.2.1	500mm dia. Straight Coupling (Mark 1)	Nr	4		
B-2.2.2	500mm dia. Flanged Spigot Pipe, Length 12000mm (Mark 2)	Nr	5		
B-2.2.3	500mm dia All Flanged 90° Bend (Mark 3)	Nr	3		
B-2.2.4	500mm dia. Plain Ended Pipe, Length 3000mm. Cut to suit on site (Mark 4)	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
2.2	<u>DEMOLITION, SITE CLEARANCE AND GENERAL EXCAVATION</u>				
2.2.1	Clear area within the Storage Reservoir site of all grass, bushes, shrubs, hedges, grub up roots and cart away to approved tips identified by the Contractor in liaison with Local Authorities, all as directed by the Engineer	m ²	6050		
2.2.2	Cut down trees, grub up roots and cart away to approved tips identified by the Contractor in liaison with Local Authorities, all as directed by the Engineer. Girth n.e. 1.2m	Nr	12		
2.2.3	-Ditto- but girth 1.2 - 2.4m	Nr	5		
2.2.4	Demolish existing concrete plinths and walls in buildings and structures and cart away surplus to approved tips identified by the Contractor in liaison with the Local Authorities, as directed by the Engineer	m ³	6		
	<u>Top Soil Stripping</u>				
2.2.5	Excavate over site for structures, roads, etc. average 150mm deep to remove vegetable soil and stack part of material for use as and where directed by the Engineer, cart away surplus to tips identified by the Contractor in liaison with the Local Authorities	m ²	4000		
	<u>Earthworks and Grading</u>				
2.2.6	Excavate approximately 300mm below stripped surface to formation level of roads, footpaths and verges including compaction of areas, stack approved material for reuse as fill and cart away surplus to approved tips identified by the Contractor in liaison with the Local Authorities, all as directed by the Engineer	m ³	120		
2.2.7	Fill using approved suitable excavated material stacked on site, compact in 150mm layers as specified under roads and verges compacted to suitable density as per Clause 304 of the Specifications. Compaction tests to be carried out and rates to include for it.	m ³	60		
2.2.8	-Ditto- around the Tank, including cutting and trimming of slopes	m ³	50		
2.2.9	Fill using approved imported material, compact in 150mm layers as specified. Compact to suitable density as per Clause 304 of the Specifications. Compaction tests to be carried out and rates to include for it. Contractor to identify suitable borrow pits as source of material.	m ³	60		
2.2.10	Extra over Excavation items for excavation in rock Class 'A' - blasting not permitted (provisional)	m ³	5		
2.2.11	Extra over Excavation items for excavation in rock Class 'B' - blasting not permitted (provisional)	m ³	8		
2.2.12	Extra over Excavation items for excavation in rock Class 'C' - blasting not permitted (provisional)	m ³	12		
2.2.13	Spread top soil stacked on site for reuse (Item 2.1.5) level and prepare for grassing and landscaping. Plant approved grass and maintain until it takes roots	m ²	3,000		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
2.3	<u>ROADS AND FOOTPATHS</u>				
	<u>Kerbs and Channels</u>				
2.3.1	Provide, lay and joint 255 mm x 125 mm precast concrete kerbs on and including 250 mm x 100 mm Class 15/20 concrete foundation and haunch 125 mm thick including all excavation, shuttering, jointing and bedding as specified	m	75		
2.3.2	E.O. Item 2.2.1 for kerbs laid to radius n.e. 20 m	m	8		
2.3.3	Provide, lay and joint 125 mm x 100 mm precast concrete channels on and including 225 mm x 125 mm Class 15/40 concrete bed and haunch 100 mm thick including all excavation, shuttering, jointing and bedding as specified	m	75		
2.3.4	E.O. Item for channels laid to radius n.e. 3.0m	m	8		
2.3.5	-Ditto - but for channels laid to radius n.e. 6.0m	m	8		
	<u>Concrete Block Paved Roads</u>				
	<u>Sub-Base and Base Courses: Provide, Lay and Compact to required relative density as per Clause 304 of Specifications:</u>				
2.3.6	Hand packed hardcore compacted to CBR not less than 30 up to formation level (where road is in fill)	m ³	100		
2.3.7	Base 200mm thick crusher run or quarry chips (hand packed), including for watering and stone dust blinding as directed.	m ²	300		
2.3.8	200mm murram, include for watering and stone dust blinding as directed	m ²	300		
2.3.9	Provide and apply approved weed killer / herbicide to road surface in accordance with manufacturer's instructions	m ²	300		
	<u>Concrete Block Paving (as Manufactured by Bamburi Special Products Ltd. or Other Approved Supplier)</u>				
2.3.10	Supply and lay Medium Duty Paving Blocks, 60mm thick, Minimum strength 37-41N/mm ² laid on and including 50mm thick sand bed and compacted by surface vibration	m ²	300		
	<u>Footpaths</u>				
	Provide and lay:				
2.3.11	100mm murram sub-base, compacted to Engineer's approval	m ²	150		
2.3.12	50mm thick concrete bed for footpath (Class 15)	m ²	150		
2.3.13	Precast concrete paving in 600mm x 600mm x 50mm slabs jointed and grouted up in lime and sand (1:3)	m ²	150		
2.4	<u>FENCING AND GATES</u>				
2.4.1	Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3m centre to centre as specified on Drg. No. M455/W-02/SD/13 including straining posts at every 10th post and additional posts at corners.	m	100		
2.4.2	Provide all materials and construct Pedestrian gate 2.0m wide including 2 Nr. Pillars, footings, etc. all as detailed on Drg. No. M455/W-02/SD/14-15	Nr	1		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
2.5	<u>SURFACE WATER DRAINAGE</u>				
	<u>Precast Concrete Drains</u>				
2.5.1	Excavate trench for precast concrete invert block drain Type 'A' as shown on Drg. No. M455/W-02/SD/19, including trimming of sides to receive courses and cart excavated material to tips. Depth to invert n.e. 1.0m.	m	75		
2.5.2	-Ditto - but depth exceeding 1.0m	m	175		
2.5.3	Provide, lay and joint precast concrete invert block drain Type 'A' on 100mm murram bed, including 75mm murram filling both sides for height of block	m	250		
2.5.4	E.O. item 2.5.3 above for provisions, laying and jointing two courses (one each side) of precast concrete side slabs to Type 'A' drain on 75mm thick compacted murram bed	m	75		
2.5.5	-Ditto - but with 4 courses (two on each side)	m	75		
2.5.6	-Ditto - but with 6 courses (three on each side)	m	100		
2.5.7	Provide, lay and joint to any radius, precast concrete invert block drain on 100mm murram bed including 75mm murram filling both sides for height of block. Price to include for all cutting, waste, etc.	m	20		
2.5.8	E.O. item 2.5.7 above for provision, laying and jointing two courses (one each side) of precast concrete side slabs to invert block drain on 75mm block compacted murram bed. Price to include for all cutting, waste, etc.	m	10		
2.5.9	-Ditto - but with 4 courses (two on each side)	m	5		
2.5.10	-Ditto - but with 6 courses (three on each side)	m	5		
	<u>Culvert Pipes and Storm Water Sewers (Provisional)</u>				
2.5.11	Excavate trench depth n.e. 2.5 m, supply, lay and joint 600mm diameter precast concrete ogee pipes including concrete haunch and surround, backfill after laying of pipes, compact and cart away surplus material to tips	m	15		
	<u>Headwalls</u>				
2.5.12	Excavate for, provide all materials and construct 200 mm thick masonry headwalls including concrete Class 20/20 footings, all in accordance with detailed Drg. No. M455/W-02/SD/19.	Nr	2		
2.6	<u>SCOUR / OVERFLOW DRAINAGE PIPELINE</u>				
2.6.1	Excavate trench for 525mm dia. concrete S&S pipe for Scour/ Overflow drainage pipework, backfill after laying of pipes and cart away surplus to tips identified by the Contractor in liaison with Local Authorities as directed. Average depth n.e. 3.0m (Provisional)	m	500		
2.6.2	Supply, lay, joint and test 525mm dia. concrete S&S pipes including Type 'BO' bed and surround.(Provisional length)	m	500		
2.6.6	Excavate for, provide all materials and install Reinforced Precast Concrete Circular Drainage Manholes, 1.2m diameter; on R.C. base slab, complete with benching, step irons, etc. All as detailed on Drg. No. M455/W-02/SD/17. Include for pipe installation, forming benching, Grade 'B' medium duty Cast Iron Covers, etc. Depth to invert n.e. 3.0m	Nr	4		
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ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
2.7	<u>VALVE CHAMBERS</u>				
2.7.1	Provide all materials, excavate for and construct Reinforced Concrete Inlet Valve Chamber, size 2500mm x 1700mm x 2420mm deep complete with precast concrete cover slab and step irons as detailed on Drg. No. M455/W-02/W/KR/04.	Nr	1		
2.7.2	Provide all materials, excavate for and construct Reinforced Concrete Inlet Valve Chamber, size 2950mm x 3200mm x 2420mm deep complete with precast concrete cover slab and step irons as detailed on Drg. No. M455/W-02/W/KR/04.	Nr	1		
2.7.3	-Ditto - but Reinforced Concrete Outlet Valve Chamber size 2400mm x 2500mm x 2750mm deep with GMS Cat ladder as per details on Drg. No. M455/W-02/W/KR/05-06.	Nr	1		
2.7.5	-Ditto - but reinforced concrete scour/overflow chamber size 2200mm x 2200mm x 2800mm deep with GMS Cat ladder as per details on Drg. No. M455/W-02/W/KR/07.	Nr	2		
2.8	<u>MISCELLANEOUS</u>				
2.8.1	Provide all material, fabricate and install signboard for Karen Storage Reservoir, dimensions 1150mm x 1200mm. Include for painting, decorating and anchoring of the signboard to the ground using 300mm x 300mm x 600mm deep mass concrete footing, all as detailed in Drg. No. (M455/W-02/SD/22).. Note: Final wording on signboard to be decided in consultation with the Employer.	Nr	1		
2.8.2	Allow a Provisional Sum of Kshs. 1,000,000 to be used as directed by the Engineer for any other Works as may be deemed necessary on site.	Item	P.S		1,000,000.00
2.9	<u>COMPACTION TESTS AND COMPACTION OF TANK FORMATION SURFACE</u>				
2.9.1	Allow for carrying out onsite compaction tests at formation levels of Tank structure using the Sand Displacement Method or other approved in-situ method. Rate to include for provision of all apparatus and materials and carrying out the test as per standard procedures. Tests to be carried out on at least 2Nr. locations on the Reservoir base to be selected by the Engineer.	Item	L.S		
2.9.2	Allow for compaction of formation surface of the Tank if deemed necessary upon compaction tests. Rate to include for provision of adequate vibrating compaction equipment and compaction of formation level to relative density of 98% MDD; all as per Clause 304 of the Specifications.	m ²	1550		
PAGE TOTAL CARRIED TO COLLECTION PAGE					

BILL No. 4.1 COLLECTION SHEET**CKE1135- NAIROBI WATER AND SANITATION PROJECT****CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 4: WATER STORAGE RESERVOIRS****BILL No. 4.1 - KAREN STORAGE RESERVOIR (5,500m³ CAPACITY)**

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Bill No. 4.1 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300: TOTAL LENGTH - 14.4KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	The Bidder is advised to take the following into consideration while pricing for the Works:				
	The sewer lines will be laid in Areas with numerous active Existing Services, both on the surface and buried; and along busy Streets / Roads in Commercial and Residential areas.				
	The works are to be carried out in congested Built-up areas with limited working space and limited access for Mechanical Equipment. Some areas are generally characterized by high ground water levels while others are predominantly rocky.				
	Majority of the sewer lines will be constructed mainly along road reserves with limited working spaces. Others are mainly along River Riparian Reserves where preparation of vehicular access will be required for transportation of materials.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.				
	Execution of Works in such conditions are deemed to be included in the Contractor's Rates except where otherwise provided for in the Bills of Quantities. The Contractor will be required to submit Method Statement for execution of Works in these specific conditions for approval prior to execution of the Works. These include, but are not limited to the following; i) No blasting will be permitted ii) The Contractor to maintain uninterrupted continuity of Water Supply and Sewage Flow in the existing Mains iii) Pedestrians and Vehicular access to individual Shops / Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) The Contractor is to carry out pilot trenching to determine the location of buried existing services. vi) Uninterrupted smooth flow of traffic to be ensured at all times, with adequate signage. Contractor to facilitate for traffic control during execution of works along roads or at road crossings.				
CLASS A	<u>GENERAL ITEMS</u>				
	Specified Requirements				
	<u>Testing of Works</u>				
	Allow for water testing of sewers and manholes as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.				
5.1-A260.1	200mm Diameter Sewer pipe	m	12,672		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300: TOTAL LENGTH - 14.4KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.1-A260.2	300mm Diameter Sewer pipe	m	1,751		
	<i>Allow for cleaning and flushing of Existing Sewer Line sections to which new sewers are to be connected so as to dislodge sediments, stones and other debris. Rate to include provision of all the equipment, materials and labour as may be required for physical removal of debris</i>				
5.1-A260.3	200mm Diameter Sewer pipe	m	640		
5.1-A260.4	300mm Diameter Sewer pipe	m	560		
5.1-A260.5	450mm Diameter Sewer pipe	m	1,260		
	Temporary Works				
5.1-A271	Allow for temporary works for diversion of traffic during construction of sewers across roads, including sign posting, liaison with Traffic Police Department, County Authority, etc. all to the satisfaction of the Engineer. Include provision for maintaining temporary vehicular access to individual plots at all times.	Item	L.S		
5.1-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	L.S		
A3	Method Related Charges				
A35	Temporary Works				
5.1-A353	Allow for provision of Temporary Access to the Individual Plots or Business Premises during the Construction Works, approximate length of Access Structures of 4m.	Nr	100		
5.1-A359.1	Working within allowable Road Reserves, include costs for double / multiple handling of excavated materials if required.	Item	L.S		
5.1-A359.2	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 1,000,000 for Liaison, facilitation with local residents	Item	P.S		1,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 2,000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		2,000,000.00
CLASS B	SITE INVESTIGATION				
5.1-B111	Allow for pilot excavation to identify and establish the exact location of underground services such as Sewers, Water Pipes, Fiber Cable, etc. prior to actual excavation as directed by the Engineer. Depth n.e 3m	Nr	60		
CLASS D	DEMOLITION AND SITE CLEARANCE				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300: TOTAL LENGTH - 14.4KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>General Clearance</u>				
5.1-D110	Demolish and cart away natural and artificial articles, objects and obstructions which are above the original surface, n.e 3m on either side of the sewer lines	ha	9		
	<i>Cut down trees, grub up roots and cart away debris to designated spoil pit (Provisional)</i>				
5.1-D210.1	Trees with Girth: 500mm - 1m	Nr	200		
5.1-D210.2	Trees with Girth: 1m - 2m	Nr	150		
5.1-D220.1	Trees with Girth: 2m - 3m	Nr	120		
5.1-D220.2	Trees with Girth over 3m	Nr	50		
5.1-D310	Stumps with diameter less than 1m	Nr	160		
5.1-D320	Stumps with diameter exceeding 1m	Nr	200		
5.1-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	380		
5.1-D534	Allow for demolition of Masonry Structures along the sewer alignment (including Stone-pitched Drains). Rate to include requisite reinstatement Works	m ²	2,472		
CLASS E	<u>EARTHWORKS</u>				
E4	<u>General Excavation</u>				
5.1-E424	Excavation to trenching surface commencing from original ground level; depth n.e. 2.0m	m ³	200		
5.1-E434	Extra over excavation in rock to achieve trenching surface; depth n.e. 2.0m (all rock classes)	m ³	100		
E5	<u>Excavation Ancillaries</u>				
5.1-E532	Disposal of excess excavated material	m ³	150		
5.1-E533	Disposal of excess excavated rock	m ³	100		
5.1-E542	Double handling of excavated material	m ³	50		
E6	<u>Filling</u>				
5.1-E634	Selected excavated material from stock, fill and ram the materials around trench to achieve finished ground levels as directed by the Engineer	m ³	250		
5.1-E635	Approved import granular material and fill and ram materials around trench to achieve finished ground levels as directed by the Engineer	m ³	200		
CLASS I	<u>PIPEWORK - SEWERS</u>				
I7	<u>High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC)</u>				
	<i>Provide, lay, and joint DWC HDPE (SN8) Socket & Spigot sewers in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I72	<u>DWC HDPE Sewer, Nominal Bore: 200mm</u>				
5.1-I722	200mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	9,936		
5.1-I723	Ditto in trenches, but depth 1.5 - 2m	m	2,377		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300: TOTAL LENGTH - 14.4KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.1-I724	Ditto in trenches, but depth 2 - 2.5m	m	329		
5.1-I725	Ditto in trenches, but depth 2.5 - 3m	m	30		
I73	DWC HDPE Sewer, Nominal Bore: 300mm				
5.1-I732	300mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	752		
5.1-I733	Ditto in trenches, but depth 1.5 - 2m	m	658		
5.1-I734	Ditto in trenches, but depth 2 - 2.5m	m	301		
5.1-I735	Ditto in trenches, but depth 2.5 - 3m	m	20		
5.1-I736	Ditto in trenches, but depth 3 - 3.5m	m	20		
CLASS K	PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
K15	Precast Concrete Manholes				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes with RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.1-K151	Manhole depth n.e 1.5m	Nr	120		
5.1-K152	Manhole depth 1.5 - 2m	Nr	204		
5.1-K153	Ditto but depth 2 - 2.5m	Nr	86		
5.1-K154	Ditto but depth 2.5 - 3m	Nr	22		
5.1-K155	Ditto but depth 3.0 - 3.5m	Nr	2		
5.1-K156	Ditto but depth 3.5 - 4m	Nr	2		
K16	Precast Concrete Manholes with Backdrop				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes on sewers with backdrop and RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.1-K162	Manholes with depth 1.5 - 2m	Nr	10		
5.1-K163	Manholes with depth 2 - 2.5m	Nr	3		
5.1-K164	Manholes with depth 2.5 - 3m	Nr	3		
5.1-K165	Ditto but depth 3.0 - 3.5m	Nr	2		
K6	Crossings				
	Other Crossings				
5.1-K641	Allow for crossing existing HEDGES, including reinstatement to original state. Nominal bore n.e. 300mm	Nr	80		
5.1-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	80		
5.1-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	100		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300: TOTAL LENGTH - 14.4KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.1-K671	Allow for crossing existing SEWER AND DRAINS, and reinstate these after construction of sewer has been completed. Pipe internal diameter n.e. 600mm	Nr	120		
5.1-K681.1	Allow for UNDERGROUND TELEPHONE, POWER AND FIBRE CABLE crossing as may be encountered during construction or as directed by the Engineer (provisional).	Nr	240		
5.1-K681.2	Allow for WATER MAIN CROSSINGS including reinstatement to original state as may be encountered during construction or as directed by the Engineer (provisional).	Nr	350		
K7	Reinstatement				
	Trenchless Road Crossing				
5.1-K732.1	Provide all equipment and materials, tunnel below road surface in common material (soil/murram) using tunnelling technique (for Sewerlines DAG-S-12-1, DAG-S-12-2, DAG-S-12-3 and DAG-S-12-8). The rate to include all preparatory works, any requisite shoring, strutting, installation of HDPE DWC Sewer Pipe and Steel Pipe casing, anchoring of the pipe, blanking of tunnel ends with mass concrete / masonry walls upon pipework installation and necessary grouting and reinstatement. Steel Pipe Casing nominal bore n.e. 900mm. All works to be executed in close liaison with relevant road authorities and rates to include facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works.	m	80		
5.1-K732.2	Extra over road crossing item 5.1-K732.1 above for tunnelling in rock, all classes (provisional)	m ³	120		
5.1-K732.3	Allow for any other Method Related charges the Tenderer feels may be required for the Micro-tunnelling Works above. These should be indicated below with pricing of each item				
	i)	Item	L.S		
	ii)	Item	L.S		
5.1-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	150		
5.1-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	250		
5.1-K742.1	Breaking up, temporary and permanent reinstatement of all murram FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	1,000		
5.1-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	1,650		
5.1-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	14,423		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300: TOTAL LENGTH - 14.4KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
K8	Other Pipeline Ancillaries				
5.1-K810	Allow for temporary diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of sewer has been completed. All waterways to be kept operational during construction.	Item	L.S		
5.1-K853	Provide all materials and connect the new sewer line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	40		
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches (Provisional)				
5.1-L111.1	Excavation in rock Class A	m ³	850		
5.1-L111.2	-Ditto- but rock Class B	m ³	1,060		
5.1-L111.3	-Ditto- but rock Class C	m ³	1,300		
5.1-L117.1	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1.0m	m ³	52		
5.1-L117.2	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and total volume n.e 30%), depth n.e 1m (Provisional)	m ³	52		
5.1-L118	Allow for excavation of soft material below pipe invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	60		
	Extras to excavation and backfilling in Manholes (Provisional)				
5.1-L121.1	Excavation in rock Class A	m ³	220		
5.1-L121.2	-Ditto- but rock Class B	m ³	280		
5.1-L121.3	-Ditto- but rock Class C	m ³	300		
5.1-L127.1	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1m	m ³	12		
5.1-L127.2	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and of total volume of plums n.e 30%), depth n.e 1m	m ³	10		
5.1-L128	Allow for excavation of soft material below manhole invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	10		
	Bed, Haunches and Surrounds				
	<u>Pipeline nominal bore n.e. 300mm</u>				
5.1-L322	Selected excavated granular material surround compacted in 150mm layers to Pipe as per specifications	m	7,275		
5.1-L332	Imported granular material surround compacted in 150mm layers to Pipe as per specifications	m	7,148		
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds, Pipe Nominal bore n.e 300mm</u>				
5.1-L542.1	Bed and haunch Surround Type B	m	50		
5.1-L542.2	Bed and haunch Surround Type C	m	1,240		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300: TOTAL LENGTH - 14.4KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS X: MISCELLANEOUS WORKS</u>				
X4	Rock Filled Gabion				
	<u>Slopes Structural Protection Measures (Gabions)</u>				
5.1-X410	Provide all materials and carry out laying of 2m x 1m x 1m approved galvanized rock filled gabions, McCaffery or approved equivalent, laid in stretches with 0.5m overlap and mesh wire diameter 5mm. Include for tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions. All preparatory works to be included in the rate.	Nr	20		
5.1-X420	Provide all materials and carry out laying of 0.23 - 0.5m thick gabion mattresses, McCaffery or approved equivalent, mesh wire to be galvanized and of minimum dia 5mm. Include approved hardcore fill, tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions.	m ³	12		
5.1-X421	Provide, fill and compact in 200 mm layers imported approved excavated material as backing to gabions as directed by the Engineer. Rate to include compaction tests.	m ³	48		
5.1-X422	Extra over for infilling of Gabions with 50mm layer Mass Concrete Class 15/40	m ³	6		
	<u>Surface Protection Measures</u>				
5.1-X610	Provide and carry out hydraulic mulch grass seeding to slopes as specified in the Drawings or as directed by the Engineer	m ²	3,820		
5.1-X611	Provide all materials and maintain approved grass planted in above item until it takes root to the satisfaction of the Engineer	m ²	3,820		
X93	Miscellaneous Works (Provisional)				
5.1-X931	Provisional Sum of Kshs. 500,000 for carrying out Detailed Topographical Survey for purposes of preparation of construction drawings as directed by the Engineer.	Item	P.S		500,000.00
5.1-X932	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Water Supply Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	400		
5.1-X933	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Sewer Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	100		
5.1-X934	Provisional Sum of Kshs. 500,000 to be expended by the Engineer for liaison, facilitation with local residents / community and relevant authorities for access to construction sites, accidental damage, temporary access to working spaces during execution of the works, etc.	Item	P.S		500,000.00
5.1-X935	Exhaust and demolish existing Septic Tanks along the sewer line alignment. The foul water to be disposed in approved existing designated discharge points within the existing sewerage network, identified by the Contractor in liaison with and approved by Nairobi City Water and Sewerage Company Ltd, and approved by the Engineer. Rate to include for provision of temporary storage of septic water from house holds served by the demolished septic tanks before the sewer connection is completed (Provisional)	Nr	48		
5.1-X936	Provisional Sum of Kshs. 500,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		500,000.00
PAGE TOTAL CARRIED TO COLLECTION SHEET					

BILL No. 5.1 COLLECTION SHEET

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

BILL No. 5.1: RETICULATION SEWERS - DAGORETTI (OD 200 - OD 300; TOTAL LENGTH - 14.4KM)

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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.2: RETICULATION SEWERS - KAWANGWARE (OD 200 - OD 300; TOTAL LENGTH - 9.7KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	The Bidder is advised to take the following into consideration while pricing for the Works:				
	The sewer lines will be laid in Areas with numerous active Existing Services, both on the surface and buried; and along busy Streets / Roads in Commercial and Residential areas.				
	The works are to be carried out in congested Built-up areas with limited working space and limited access for Mechanical Equipment. Some areas are generally characterized by high ground water levels while others are predominantly rocky.				
	Majority of the sewer lines will be constructed mainly along road reserves with limited working spaces. Others are mainly along River Riparian Reserves where preparation of vehicular access will be required for transportation of materials.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.				
	Execution of Works in such conditions are deemed to be included in the Contractor's Rates except where otherwise provided for in the Bills of Quantities. The Contractor will be required to submit Method Statement for execution of Works in these specific conditions for approval prior to execution of the Works. These include, but are not limited to the following; i) No blasting will be permitted ii) The Contractor to maintain uninterrupted continuity of Water Supply and Sewage Flow in the existing Mains iii) Pedestrians and Vehicular access to individual Shops / Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) The Contractor is to carry out pilot trenching to determine the location of buried existing services. vi) Uninterrupted smooth flow of traffic to be ensured at all times, with adequate signage. Contractor to facilitate for traffic control during execution of works along roads or at road crossings.				
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS A	GENERAL ITEMS				
	Specified Requirements				
	<i>Testing of works</i>				
	<i>Allow for water testing of sewers and manholes as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.</i>				
5.2-A260.1	200mm Diameter Sewer pipe	m	8,020		
5.2-A260.2	300mm Diameter Sewer pipe	m	1,724		
	<i>Allow for cleaning and flushing of Existing Sewer Line sections to which new sewers are to be connected so as to dislodge sediments, stones and other debris. Rate to include provision of all the equipment, materials and labour as may be required for physical removal of debris</i>				
5.2-A260.3	200mm Diameter Sewer pipe	m	2,070		
5.2-A260.4	300mm Diameter Sewer pipe	m	1,080		
5.2-A260.5	450mm Diameter Sewer pipe	m	100		
	<i>Temporary Works</i>				
5.2-A271	Allow for temporary works for diversion of traffic during construction of sewers across roads, including sign posting, liaison with Traffic Police Department, County Authority, etc. all to the satisfaction of the Engineer. Include provision for maintaining temporary vehicular access to individual plots at all times.	Item	L.S		
5.2-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	L.S		
A3	Method Related Charges				
A35	Temporary Works				
5.2-A353	Allow for provision of Temporary Access to the Individual Plots or Business Premises during the Construction Works, approximate length of Access Structures of 4m.	Nr	30		
5.2-A359.1	Working within allowable Road Reserves, include costs for double / multiple handling of excavated materials if required.	Item	L.S		
5.2-A359.2	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
A42	<u>Provisional Sums for Defined Works</u>				
A42.1	Allow Provisional Sum of Kshs. 1,000,000 for Liaison, facilitation with local residents	Item	P.S		1,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 1,500,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		1,500,000.00
CLASS B	<u>SITE INVESTIGATION</u>				
5.2-B111	Allow for pilot excavation to identify and establish the exact location of underground services such as Sewers, Water Pipes, Fiber Cable, etc. prior to actual excavation as directed by the Engineer. Depth n.e 3m	nr	20		
CLASS D	<u>DEMOLITION AND SITE CLEARANCE</u>				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
	<u>General clearance</u>				
5.2-D110	Demolish and cart away natural and artificial articles, objects and obstructions which are above the original surface, n.e 3m on either side of the sewer lines	ha	6		
	<i>Cut down trees, grub up roots and cart away debris to designated spoil pit (Provisional)</i>				
5.2-D210.1	Trees with Girth: 500mm - 1m	Nr	43		
5.2-D210.2	Trees with Girth: 1m - 2m	Nr	41		
5.2-D220.1	Trees with Girth: 2m - 3m	Nr	1		
5.2-D220.2	Trees with Girth over 3m	Nr	2		
5.2-D310	Stumps with diameter less than 1m	Nr	44		
5.2-D320	Stumps with diameter exceeding 1m	Nr	46		
5.2-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	342		
5.2-D534	Allow for demolition of Masonry Structures along the sewer alignment (including Stone-pitched Drains). Rate to include requisite reinstatement Works.	m ²	1,580		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.2: RETICULATION SEWERS - KAWANGWARE (OD 200 - OD 300; TOTAL LENGTH - 9.7KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS I	<u>PIPEWORK - SEWERS</u>				
I4	Steel Pipes				
	<i>Provide, lay, and joint Steel Pipes (PN10) Sleeve with adequate internal surface protection works and flanged connections in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I4	Steel / Ferrous Pipe Sleeves				
5.2-I421	300mm dia Steel Pipe complete with flanged connections, not in trench	m	12		
5.2-I422	Ditto but in trenches, depth n.e. 1.5m	m	10		
I7	High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC)				
	<i>Provide, lay, and joint DWC HDPE (SN8) Socket & Spigot sewers in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I72	DWC HDPE Sewer, Nominal Bore: 200mm				
5.2-I722	200mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	6,490		
5.2-I723	Ditto in trenches, but depth 1.5 - 2m	m	1,314		
5.2-I724	Ditto in trenches, but depth 2 - 2.5m	m	195		
5.2-I725	Ditto in trenches, but depth 2.5 - 3m	m	21		
I73	DWC HDPE Sewer, Nominal Bore: 300mm				
5.2-I732	300mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	825		
5.2-I733	Ditto in trenches, but depth 1.5 - 2m	m	247		
5.2-I734	Ditto in trenches, but depth 2 - 2.5m	m	227		
5.2-I735	Ditto in trenches, but depth 2.5 - 3m	m	119		
5.2-I736	Ditto in trenches, but depth 3 - 3.5m	m	93		
5.2-I737	Ditto in trenches, but depth 3.5 - 4m	m	84		
5.2-I738	Ditto in trenches, but depth exceeding 4m	m	129		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS K	<u>PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES</u>				
K15	Precast Concrete Manholes				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes with RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.2-K151	Manhole depth n.e 1.5m	Nr	96		
5.2-K152	Manhole depth 1.5 - 2m	Nr	134		
5.2-K153	Ditto but depth 2 - 2.5m	Nr	37		
5.2-K154	Ditto but depth 2.5 - 3m	Nr	10		
5.2-K155	Ditto but depth 3.0 - 3.5m	Nr	3		
5.2-K156	Ditto but depth 3.5 - 4m	Nr	3		
5.2-K157	Ditto but depth exceeding 4m	Nr	3		
K6	Crossings				
5.2-K641	Allow for crossing existing HEDGES, including reinstatement to original state. Nominal bore n.e. 300mm	Nr	10		
5.2-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	20		
5.2-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	5		
5.2-K671	Allow for crossing existing SEWER AND DRAINS, and reinstate these after construction of sewer has been completed. Pipe internal diameter n.e. 600mm	Nr	75		
5.2-K681.1	Allow for UNDERGROUND TELEPHONE, POWER AND FIBRE CABLE crossing as may be encountered during construction or as directed by the Engineer (provisional).	Nr	56		
5.2-K681.2	Allow for WATER MAIN CROSSINGS including reinstatement to original state as may be encountered during construction or as directed by the Engineer (provisional).	Nr	100		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
K7	Reinstatement				
	<u>Trenchless Road Crossing</u>				
5.2-K732.1	Provide all equipment and materials, tunnel below road surface in common material (soil/murram) using tunnelling technique (Kinyanjui Road, Salim Road, Kabiro Road, etc) [For Sewerlines KAW-S-8, KAW-S-8-1, KAW-S-8-2, KAW-S-5-1, KAW-S-6-1, KAW-S-6-5, KAW-S-6-7, KAW-S-2]. The rate to include all preparatory works, any requisite shoring, strutting, installation of HDPE DWC Sewer Pipe and Steel Pipe casing, anchoring of the pipe, blanking of tunnel ends with mass concrete / masonry walls upon pipework installation and necessary grouting and reinstatement. Steel Pipe Casing nominal bore n.e. 900mm. All works to be executed in close liaison with relevant road authorities and rates to include facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works.	m	170		
5.2-K732.2	Extra over road crossing item 5.2-K732.1 above for tunnelling in rock, all classes (provisional)	m ³	80		
5.2-K732.3	Allow for any other Method Related charges the Tenderer feels may be required for the Micro-tunnelling Works above. These should be indicated below with pricing of each item				
	i)	Item	L.S		
	ii)	Item	L.S		
5.2-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	265		
5.2-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	1,078		
5.2-K742.1	Breaking up, temporary and permanent reinstatement of all murram FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	1,182		
5.2-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	1,530		
5.2-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	9,744		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
K8	Other Pipeline Ancillaries				
5.2-K810	Allow for temporary diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of sewer has been completed. All waterways to be kept operational during construction.	Item	L.S		
5.2-K853	Provide all materials and connect the new sewer line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	21		
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches (Provisional)				
5.2-L111.1	Excavation in rock Class A	m ³	590		
5.2-L111.2	-Ditto- but rock Class B	m ³	800		
5.2-L111.3	-Ditto- but rock Class C	m ³	1,000		
5.2-L117.1	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1.0m	m ³	20		
5.2-L117.2	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and total volume n.e 30%), depth n.e 1m (Provisional)	m ³	30		
5.2-L118	Allow for excavation of soft material below pipe invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	30		
	Extras to excavation and backfilling in Manholes (Provisional)				
5.2-L121.1	Excavation in rock Class A	m ³	195		
5.2-L121.2	-Ditto- but rock Class B	m ³	240		
5.2-L121.3	-Ditto- but rock Class C	m ³	300		
5.2-L127.1	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1m	m ³	8		
5.2-L127.2	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and of total volume of plums n.e 30%), depth n.e 1m	m ³	8		
5.2-L128	Allow for excavation of soft material below manhole invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	8		
	Bed, Haunches and Surrounds				
	<u>Pipeline nominal bore n.e. 300mm</u>				
5.2-L322	Selected excavated granular material surround compacted in 150mm layers to Pipe as per specifications	m	6,818		
5.2-L332	Imported granular material surround compacted in 150mm layers to Pipe as per specifications	m	2,922		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds. Pipe Nominal bore n.e 300mm</u>				
5.2-L542.1	Bed and haunch Surround Type B	m	50		
5.2-L542.2	Bed and haunch Surround Type C	m	720		
	<u>CLASS X: MISCELLANEOUS WORKS</u>				
X93	Miscellaneous Works (Provisional)				
5.2-X931	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Water Supply Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	300		
5.2-X932	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Sewer Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	250		
5.2-X933	Provisional Sum of Kshs. 500,000 to be expended by the Engineer for liaison, facilitation with local residents / community and relevant authorities for access to construction sites, accidental damage, temporary access to working spaces during execution of the works, etc.	Item	P.S		500,000.00
5.2-X934	Exhaust and demolish existing Septic Tanks along the sewer line alignment. The foul water to be disposed in approved existing designated discharge points within the existing sewerage network, identified by the Contractor in liaison with and approved by Nairobi City Water and Sewerage Company Ltd, and approved by the Engineer. Rate to include for provision of temporary storage of septic water from house holds served by the demolished septic tanks before the sewer connection is completed (Provisional)	Nr	20		
5.2-X935	Provisional Sum of Kshs. 250,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		250,000.00
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

BILL No. 5.2: RETICULATION SEWERS - KAWANGWARE (OD 200 - OD 300; TOTAL LENGTH - 9.7KM)

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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	The Bidder is advised to take the following into consideration while pricing for the Works:				
	The sewer lines will be laid in Areas with numerous active Existing Services, both on the surface and buried; and along busy Streets / Roads in Commercial and Residential areas.				
	The works are to be carried out in congested Built-up areas with limited working space and limited access for Mechanical Equipment. Some areas are generally characterized by high ground water levels while others are predominantly rocky.				
	Majority of the sewer lines will be constructed mainly along road reserves with limited working spaces. Others are mainly along River Riparian Reserves where preparation of vehicular access will be required for transportation of materials.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges				
	Execution of Works in such conditions are deemed to be included in the Contractor's Rates except where otherwise provided for in the Bills of Quantities. The Contractor will be required to submit Method Statement for execution of Works in these specific conditions for approval prior to execution of the Works. These include, but are not limited to the following; i) No blasting will be permitted ii) The Contractor to maintain uninterrupted continuity of Water Supply and Sewage Flow in the existing Mains iii) Pedestrians and Vehicular access to individual Shops / Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) The Contractor is to carry out pilot trenching to determine the location of buried existing services. vi) Uninterrupted smooth flow of traffic to be ensured at all times, with adequate signage. Contractor to facilitate for traffic control during execution of works along roads or at road crossings.				
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS A	GENERAL ITEMS				
	Specified Requirements				
	<i>Testing of works</i>				
	<i>Allow for water testing of sewers and manholes as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.</i>				
5.3-A260.1	200mm Diameter Sewer pipe	m	8,343		
5.3-A260.2	300mm Diameter Sewer pipe	m	1,890		
	<i>Allow for cleaning and flushing of Existing Sewer Line sections to which new sewers are to be connected so as to dislodge sediments, stones and other debris. Rate to include provision of all the equipment, materials and labour as may be required for physical removal of debris</i>				
5.3-A260.3	200mm Diameter Sewer pipe	m	1,530		
5.3-A260.4	300mm Diameter Sewer pipe	m	270		
5.3-A260.5	450mm Diameter Sewer pipe	m	1,260		
	<i>Temporary Works</i>				
5.3-A271	Allow for temporary works for diversion of traffic during construction of sewers across roads, including sign posting, liaison with Traffic Police Department, County Authority, etc. all to the satisfaction of the Engineer. Include provision for maintaining temporary vehicular access to individual plots at all times.	Item	L.S		
5.3-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	L.S		
A3	Method Related Charges				
A35	Temporary Works				
5.3-A353	Allow for provision of Temporary Access to the Individual Plots or Business Premises during the Construction Works, approximate length of Access Structures of 4m.	Nr	30		
5.3-A359.1	Working within allowable Road Reserves, include costs for double / multiple handling of excavated materials if required.	Item	L.S		
5.3-A359.2	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
A42	<u>Provisional Sums for Defined Works</u>				
A42.1	Allow Provisional Sum of Kshs. 1,000,000 for Liaison, facilitation with local residents	Item	P.S		1,000,000.00
A42.2	Allow a Provisional Sum of Kshs.1,500,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		1,500,000.00
CLASS B	<u>SITE INVESTIGATION</u>				
5.3-B111	Allow for pilot excavation to identify and establish the exact location of underground services such as Sewers, Water Pipes, Fiber Cable, etc. prior to actual excavation as directed by the Engineer. Depth n.e 3m	Nr	24		
CLASS D	<u>DEMOLITION AND SITE CLEARANCE</u>				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
	<u>General clearance</u>				
5.3-D110	Demolish and cart away natural and artificial articles, objects and obstructions which are above the original surface, n.e 3m on either side of the sewer lines	ha	6		
	<i>Cut down trees, grub up roots and cart away debris to designated spoil pit (Provisional)</i>				
5.3-D210.1	Trees with Girth: 500mm - 1m	Nr	50		
5.3-D210.2	Trees with Girth: 1m - 2m	Nr	46		
5.3-D220.1	Trees with Girth: 2m - 3m	Nr	25		
5.3-D220.2	Trees with Girth over 3m	Nr	16		
5.3-D310	Stumps with diameter less than 1m	Nr	49		
5.3-D320	Stumps with diameter exceeding 1m	Nr	46		
5.3-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	280		
5.3-D534	Allow for demolition of Masonry Structures along the sewer alignment (including Stone-pitched Drains). Rate to include requisite reinstatement Works	m ²	1,518		
CLASS E	<u>EARTHWORKS</u>				
E4	<u>General Excavation</u>				
5.3-E424	Excavation to trenching surface commencing from original ground level; depth n.e. 2.0m	m ³	50		
E5	<u>Excavation Ancillaries</u>				
5.3-E532	Disposal of excess excavated material	m ³	50		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS I	<u>PIPEWORK - SEWERS</u>				
I4	Steel Pipes				
	<i>Provide, lay, and joint Steel Pipes (PN10) Sleeve with adequate internal surface protection works and flanged connections in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I4	Steel / Ferrous Pipe Sleeves				
5.3-I421	300mm dia Steel Pipe complete with flanged connections, not in trench	m	22		
5.3-I422	Ditto but in trenches, depth n.e. 1.5m	m	10		
I7	High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC)				
	<i>Provide, lay, and joint DWC HDPE (SN8) Socket & Spigot sewers in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to manholes along the trench</i>				
I72	DWC HDPE Sewer, Nominal Bore: 200mm				
5.3-I722	200mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	5,784		
5.3-I723	Ditto in trenches, but depth 1.5 - 2m	m	2,202		
5.3-I724	Ditto in trenches, but depth 2 - 2.5m	m	268		
5.3-I725	Ditto in trenches, but depth 2.5 - 3m	m	77		
5.3-I726	Ditto in trenches, but depth 3 - 3.5m	m	12		
I73	DWC HDPE Sewer, Nominal Bore: 300mm				
5.3-I732	300mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	1,449		
5.3-I733	Ditto in trenches, but depth 1.5 - 2m	m	380		
5.3-I734	Ditto in trenches, but depth 2 - 2.5m	m	61		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS K	<u>PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES</u>				
K15	Precast Concrete Manholes				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes with RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.3-K151	Manhole depth n.e 1.5m	Nr	84		
5.3-K152	Manhole depth 1.5 - 2m	Nr	142		
5.3-K153	Ditto but depth 2 - 2.5m	Nr	62		
5.3-K154	Ditto but depth 2.5 - 3m	Nr	7		
5.3-K155	Ditto but depth 3.0 - 3.5m	Nr	2		
5.3-K156	Ditto but depth 3.5 - 4m	Nr	1		
K16	Precast Concrete Manholes with Backdrop				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes on sewers with backdrop and RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.3-K164	Manholes with depth 2.5 - 3m	Nr	8		
5.3-K165	Ditto but depth 3.0 - 3.5m	Nr	3		
K6	Crossings				
K61	Under-River, Stream or Stormwater Canal Crossings, Width n.e 3m				
	Pipe nominal bore n.e 300mm				
5.3-K611.1	Excavate for trench in river bed n.e. 3m, preparation of surface, disposal of excavated materials, upholding sides of trench, backfilling and removal of redundant services.	m	50		
5.3-K611.2	Transport from Site Store, Install, Test and Commission Pipes on under-river crossing	m	50		
5.3-K611.2	Backfill the trench with Concrete C15/20 surround, include for vibration as directed by the Engineer	m ³	16		
5.3-K611.3	Backfill the trench with approved selected excavated granular material compacted in layers of 300mm as directed by Engineer	m ³	9		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	Other Crossings				
5.3-K641	Allow for crossing existing HEDGES, including reinstatement to original state. Nominal bore n.e. 300mm	Nr	80		
5.3-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	80		
5.3-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	80		
5.3-K671	Allow for crossing existing SEWER AND DRAINS, and reinstate these after construction of sewer has been completed. Pipe internal diameter n.e. 600mm	Nr	100		
5.3-K681.1	Allow for UNDERGROUND TELEPHONE, POWER AND FIBRE CABLE crossing as may be encountered during construction or as directed by the Engineer (provisional).	Nr	200		
5.3-K681.2	Allow for WATER MAIN CROSSINGS including reinstatement to original state as may be encountered during construction or as directed by the Engineer (provisional).	Nr	200		
K7	Reinstatement				
5.3-K732.1	Provide all equipment and materials, tunnel below road surface in common material (soil/murram) using tunnelling technique. The rate to include all preparatory works, any requisite shoring, strutting, installation of HDPE DWC Sewer Pipe and Steel Pipe casing, anchoring of the pipe, blanking of tunnel ends with mass concrete / masonry walls upon pipework installation and necessary grouting and reinstatement. Steel Pipe Casing nominal bore n.e. 900mm. All works to be executed in close liaison with relevant road authorities and rates to include facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works.	m	10		
5.3-K732.2	Extra over road crossing item 5.3-K732.1 above for tunnelling in rock, all classes (provisional)	m ³	20		
5.1-K732.3	Allow for any other Method Related charges the Tenderer feels may be required for the Micro-tunnelling Works above. These should be indicated below with pricing of each item				
	i)	Item	L.S		
	ii)	Item	L.S		
5.3-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	230		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.3-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	720		
5.3-K742.1	Breaking up, temporary and permanent reinstatement of all murram FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	500		
5.3-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	1,800		
5.3-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	10,233		
K8	Other Pipeline Ancillaries				
5.3-K810	Allow for temporary diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of sewer has been completed. All waterways to be kept operational during construction.	Item	L.S		
5.3-K853	Provide all materials and connect the new sewer line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	20		
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches (Provisional)				
5.3-L111.1	Excavation in rock Class A	m ³	590		
5.3-L111.2	-Ditto- but rock Class B	m ³	800		
5.3-L111.3	-Ditto- but rock Class C	m ³	1,000		
5.3-L117.1	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1.0m	m ³	38		
5.3-L117.2	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and total volume n.e 30%), depth n.e 1m (Provisional)	m ³	30		
5.3-L118	Allow for excavation of soft material below pipe invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	35		
	Extras to excavation and backfilling in Manholes (Provisional)				
5.3-L121.1	Excavation in rock Class A	m ³	220		
5.3-L121.2	-Ditto- but rock Class B	m ³	300		
5.3-L121.3	-Ditto- but rock Class C	m ³	350		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.3-L127.1	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1m	m ³	8		
5.3-L127.2	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and of total volume of plums n.e 30%), depth n.e 1m	m ³	6		
5.3-L128	Allow for excavation of soft material below manhole invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	8		
	Bed, Haunches and Surrounds				
	<u>Pipeline nominal bore n.e. 300mm</u>				
5.3-L312	Graded Aggregate / Sand as per specifications Beds 150 mm thick	m	20		
5.3-L322	Selected excavated granular material surround compacted in 150mm layers to Pipe as per specifications	m	7,163		
5.3-L332	Imported granular material surround compacted in 150mm layers to Pipe as per specifications	m	3,070		
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds, Pipe Nominal bore n.e 300mm</u>				
5.3-L542.1	Bed and haunch Surround Type B	m	50		
5.3-L542.2	Bed and haunch Surround Type C	m	872		
	<u>CLASS X: MISCELLANEOUS WORKS</u>				
X4	Rock Filled Gabion				
	<u>Slopes Structural Protection Measures (Gabions)</u>				
5.3-X410	Provide all materials and carry out laying of 2m x 1m x 1m approved galvanized rock filled gabions, McCaffery or approved equivalent, laid in stretches with 0.5m overlap and mesh wire diameter 5mm. Include for tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions. All preparatory works to be included in the rate.	Nr	10		
5.3-X420	Provide all materials and carry out laying of 0.23 - 0.5m thick gabion mattresses, McCaffery or approved equivalent, mesh wire to be galvanized and of minimum dia 5mm. Include approved hardcore fill, tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions.	m ²	8		
5.3-X421	Provide, fill and compact in 200 mm layers imported approved excavated material as backing to gabions as directed by the Engineer. Rate to include compaction tests.	m ³	20		
5.3-X422	Extra over for infilling of Gabions with 50mm layer Mass Concrete Class 15/40	m ³	4		
	<u>Surface Protection Measures</u>				
5.3-X610	Provide and carry out hydraulic mulch grass seeding to slopes as specified in the Drawings or as directed by the Engineer	m ²	300		
5.3-X611	Provide all materials and maintain approved grass planted in above item until it takes root to the satisfaction of the Engineer	m ²	300		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
X91	RIVER CROSSING ON PIERS				
	Details as per Drawing Provided for Aerial Crossings				
X911	Excavation				
	Rates to include for all strutting, shuttering, stabilizing excavation and preparation of excavated surfaces to receive permanent work.				
	Excavate for pier footings and Under-River Crossings, part backfill after construction and remainder, cart away to approved tips or use as fill on site, all as directed by the Engineer. Tips to be identified by the Contractor in liaison with the Local Authority.				
5.3-X911.1	Maximum depth n.e. 1.5m	m ³	16		
5.3-X911.2	Depth Exceeding 1.5m	m ³	15		
5.3-X911.3	E.O. excavation items for excavation in rock Class 'A' (Provisional) - Blasting not permitted	m ³	2		
5.3-X911.4	-Ditto - but rock Class 'B' (Provisional) - Blasting not permitted	m ³	2		
5.3-X911.5	-Ditto - but rock Class 'C' (Provisional) - Blasting not permitted	m ³	2		
X912	Concrete Works				
	Provide, mix and place concrete as directed				
5.3-X912	Plain concrete Class 15/20 in 75mm blinding layer under pier footings.	m ²	21		
X913	Vibrated, Reinforced Concrete Class 25/20 in:-				
5.3-X913.1	Footings	m ³	5		
5.3-X913.2	Piers	m ³	4		
5.3-X913.3	Precast / Inset Channel / Pier Head	m ³	6		
X914	Reinforcement				
	Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, propping, with spacers and tying as specified.				
5.3-X914.1	12mm and under	kg	600		
5.3-X914.2	16mm and over	kg	600		
X915	Formwork				
	Provide and fix shuttering including propping, strutting and striking all as specified.				
	(i) Vertical Formwork - Class F1 Finish				
5.3-X915.1	Sides of 300mm footings	m ²	80		
5.3-X915.2	Sides of piers in foundations	m ²	20		
	(ii) Vertical Formwork - Class F2 Finish				
5.3-X915.3	Outer faces of column piers - width 1.0m - 3.0m	m ²	10		
X916	Metal Works				
	G.M.S Clamps				
5.3-X9160	Provide all material, fabricate and fix 75mm x 6mm thick G.M.S clamp on Steel Pipe Sleeve dia n.e 400mm as detailed in Drag No. M455/W-02/SD/04. Rate to include 12mm Dia. Rawl bolts, Ruberoid, anchor plates, rods, bolts, etc., as detailed.	Nr	2		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
X92	Method Related Charges (Applicable to River, Stream and Storm Water Drain Crossings)				
5.3-X921	Allow for Diversion Works, including construction of cofferdam etc., for river/ stream/ storm water drain crossing works and reinstate after construction. The River / Waterway to be kept operational during construction. Bidder to submit method statement with Bid for execution of these works.	Item	L.S		
5.3-X922	Method related charges for keeping excavation free of water which may occur through ground water seepage, rain or other means.	Item	L.S		
5.3-X923	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
X93	Miscellaneous Works (Provisional)				
5.3-X931	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Water Supply Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	500		
5.3-X932	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Sewer Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	320		
5.3-X933	Provisional Sum of Kshs. 500,000 to be expended by the Engineer for liaison, facilitation with local residents / community and relevant authorities for access to construction sites, accidental damage, temporary access to working spaces during execution of the works, etc.	Item	P.S		500,000.00
5.3-X934	Exhaust and demolish existing Septic Tanks along the sewer line alignment. The foul water to be disposed in approved existing designated discharge points within the existing sewerage network, identified by the Contractor in liaison with and approved by Nairobi City Water and Sewerage Company Ltd, and approved by the Engineer. Rate to include for provision of temporary storage of septic water from house holds served by the demolished septic tanks before the sewer connection is completed (Provisional)	Nr	50		
5.3-X935	Provisional Sum of Kshs. 250,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		250,000.00
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.3: RETICULATION SEWERS - RIRUTA (OD 200 - OD 300; TOTAL LENGTH - 10.2KM)

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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	The Bidder is advised to take the following into consideration while pricing for the Works:				
	The sewer lines will be laid in Areas with numerous active Existing Services, both on the surface and buried; and along busy Streets / Roads in Commercial and Residential areas.				
	The works are to be carried out in congested Built-up areas with limited working space and limited access for Mechanical Equipment. Some areas are generally characterized by high ground water levels while others are predominantly rocky.				
	Majority of the sewer lines will be constructed mainly along road reserves with limited working spaces. Others are mainly along River Riparian Reserves where preparation of vehicular access will be required for transportation of materials.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges.				
	Execution of Works in such conditions are deemed to be included in the Contractor's Rates except where otherwise provided for in the Bills of Quantities. The Contractor will be required to submit Method Statement for execution of Works in these specific conditions for approval prior to execution of the Works. These include, but are not limited to the following; i) No blasting will be permitted ii) The Contractor to maintain uninterrupted continuity of Water Supply and Sewage Flow in the existing Mains iii) Pedestrians and Vehicular access to individual Shops / Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) The Contractor is to carry out pilot trenching to determine the location of buried existing services. vi) Uninterrupted smooth flow of traffic to be ensured at all times, with adequate signage. Contractor to facilitate for traffic control during execution of works along roads or at road crossings.				
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS A	<u>GENERAL ITEMS</u>				
	<u>Specified Requirements</u>				
	<u>Testing of works</u>				
	<i>Allow for water testing of sewers and manholes as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.</i>				
5.4-A260.1	200mm Diameter Sewer pipe	m	2,223		
	<i>Allow for cleaning and flushing of Existing Sewer Line sections to which new sewers are to be connected so as to dislodge sediments, stones and other debris. Rate to include provision of all the equipment, materials and labour as may be required for physical removal of debris</i>				
5.4-A260.2	200mm Diameter Sewer pipe	m	270		
5.4-A260.3	300mm Diameter Sewer pipe	m	540		
5.4-A260.4	450mm Diameter Sewer pipe	m	450		
	<u>Temporary Works</u>				
5.4-A271	Allow for temporary works for diversion of traffic during construction of sewers across roads, including sign posting, liaison with Traffic Police Department, County Authority, etc. all to the satisfaction of the Engineer. Include provision for maintaining temporary vehicular access to individual plots at all times.	Item	L.S		
5.4-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	L.S		
A3	Method Related Charges				
A35	Temporary Works				
5.4-A353	Allow for provision of Temporary Access to the Individual Plots or Business Premises during the Construction Works, approximate length of Access Structures of 4m.	Nr	30		
5.4-A359.1	Working within allowable Road Reserves, include costs for double / multiple handling of excavated materials if required.	Item	L.S		
5.4-A359.2	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	<u>Provisional Sums for Defined Works</u>				
A42.1	Allow Provisional Sum of Kshs.300,000 for Liaison, facilitation with local residents	Item	P.S		300,000.00
A42.2	Allow a Provisional Sum of Kshs. 500,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		500,000.00
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS B	<u>SITE INVESTIGATION</u>				
5.4-B111	Allow for pilot excavation to identify and establish the exact location of underground services such as Sewers, Water Pipes, Fiber Cable, etc. prior to actual excavation as directed by the Engineer. Depth n.e 3m	Nr	16		
CLASS D	<u>DEMOLITION AND SITE CLEARANCE</u>				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
	<u>General clearance</u>				
5.4-D110	Demolish and cart away natural and artificial articles, objects and obstructions which are above the original surface, n.e 3m on either side of the sewer lines	ha	1		
	<i>Cut down trees, grub up roots and cart away debris to designated spoil pit (Provisional)</i>				
5.4-D210.1	Trees with Girth: 500mm - 1m	Nr	9		
5.4-D210.2	Trees with Girth: 1m - 2m	Nr	6		
5.4-D220.1	Trees with Girth: 2m - 3m	Nr	2		
5.4-D220.2	Trees with Girth over 3m	Nr	3		
5.4-D310	Stumps with diameter less than 1m	Nr	10		
5.4-D320	Stumps with diameter exceeding 1m	Nr	12		
5.4-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	37		
5.4-D534	Allow for demolition of Masonry Structures along the sewer alignment (including Stone-pitched Drains). Rate to include requisite reinstatement Works	m ²	366		
CLASS I	<u>PIPEWORK - SEWERS</u>				
I7	High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC)				
	<i>Provide, lay, and joint DWC HDPE (SN8) Socket & Spigot sewers in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I72	DWC HDPE Sewer, Nominal Bore: 200mm				
5.4-I722	200mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	1,887		
5.4-I723	Ditto in trenches, but depth 1.5 - 2m	m	248		
5.4-I724	Ditto in trenches, but depth 2 - 2.5m	m	88		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS K	PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
K15	Precast Concrete Manholes				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes with RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.4-K151	Manhole depth n.e 1.5m	Nr	24		
5.4-K152	Manhole depth 1.5 - 2m	Nr	47		
5.4-K153	Ditto but depth 2 - 2.5m	Nr	8		
K6	Crossings				
5.4-K641	Allow for crossing existing HEDGES, including reinstatement to original state. Nominal bore n.e. 300mm	Nr	6		
5.4-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	10		
5.4-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	10		
5.4-K671	Allow for crossing existing SEWER AND DRAINS, and reinstate these after construction of sewer has been completed. Pipe internal diameter n.e. 600mm	Nr	24		
5.4-K681.1	Allow for UNDERGROUND TELEPHONE, POWER AND FIBRE CABLE crossing as may be encountered during construction or as directed by the Engineer (provisional).	Nr	24		
5.4-K681.2	Allow for WATER MAIN CROSSINGS including reinstatement to original state as may be encountered during construction or as directed by the Engineer (provisional).	Nr	50		
K7	Reinstatement				
	Trenchless Road Crossing				
5.4-K732.1	Provide all equipment and materials, tunnel below road surface in common material (soil/murram) using tunnelling technique (Mama Wahu Road) [For Sewerlines NG-S-4-2 & NG-S-4-5]. The rate to include all preparatory works, any requisite shoring, strutting, installation of HDPE DWC Sewer Pipe and Steel Pipe casing, anchoring of the pipe, blanking of tunnel ends with mass concrete / masonry walls upon pipework installation and necessary grouting and reinstatement. Steel Pipe Casing nominal bore n.e. 900mm. All works to be executed in close liaison with relevant road authorities and rates to include facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works.	m	35		
5.4-K732.2	Extra over road crossing item 5.4-K732.1 above for tunnelling in rock, all classes (provisional)	m ³	23		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.4-K732.3	Allow for any other Method Related charges the Tenderer feels may be required for the Micro-tunnelling Works above. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
5.4-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	76		
5.4-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	150		
5.4-K742.1	Breaking up, temporary and permanent reinstatement of all murram FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	130		
5.4-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	220		
5.4-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	2,223		
K8	Other Pipeline Ancillaries				
5.4-K810	Allow for temporary diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of sewer has been completed. All waterways to be kept operational during construction.	Item	L.S		
5.4-K853	Provide all materials and connect the new sewer line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	14		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches (Provisional)				
5.4-L111.1	Excavation in rock Class A	m ³	70		
5.4-L111.2	-Ditto- but rock Class B	m ³	100		
5.4-L111.3	-Ditto- but rock Class C	m ³	120		
5.4-L117.1	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1.0m	m ³	7		
5.4-L117.2	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and total volume n.e 30%), depth n.e 1m (Provisional)	m ³	6		
5.4-L118	Allow for excavation of soft material below pipe invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	7		
	Extras to excavation and backfilling in Manholes (Provisional)				
5.4-L121.1	Excavation in rock Class A	m ³	15		
5.4-L121.2	-Ditto- but rock Class B	m ³	20		
5.4-L121.3	-Ditto- but rock Class C	m ³	25		
5.4-L127.1	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1m	m ³	1		
5.4-L127.2	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and of total volume of plums n.e 30%), depth n.e 1m	m ³	1		
5.4-L128	Allow for excavation of soft material below manhole invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	1		
	Bed, Haunches and Surrounds				
	<u>Pipeline nominal bore n.e. 300mm</u>				
5.4-L312	Graded Aggregate / Sand as per specifications Beds 150 mm thick	m	110		
5.4-L322	Selected excavated granular material surround compacted in 150mm layers to Pipe as per specifications	m	1,556		
5.4-L332	Imported granular material surround compacted in 150mm layers to Pipe as per specifications	m	667		
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds, Pipe Nominal bore n.e 300mm</u>				
5.4-L542.1	Bed and haunch Surround Type B	m	20		
5.4-L542.2	Bed and haunch Surround Type C	m	484		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS X: MISCELLANEOUS WORKS</u>				
X93	Miscellaneous Works (Provisional)				
5.4-X931	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Water Supply Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	200		
5.4-X932	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Sewer Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	200		
5.4-X933	Provisional Sum of Kshs. 250,000 to be expended by the Engineer for liaison, facilitation with local residents / community and relevant authorities for access to construction sites, accidental damage, temporary access to working spaces during execution of the works, etc.	Item	P.S		250,000.00
5.4-X934	Exhaust and demolish existing Septic Tanks along the sewer line alignment. The foul water to be disposed in approved existing designated discharge points within the existing sewerage network, identified by the Contractor in liaison with and approved by Nairobi City Water and Sewerage Company Ltd, and approved by the Engineer. Rate to include for provision of temporary storage of septic water from house holds served by the demolished septic tanks before the sewer connection is completed (Provisional)	Nr	18		
5.4-X934	Provisional Sum of Kshs. 250,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		250,000.00
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BILL No. 5.4 COLLECTION SHEET

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.4: RETICULATION SEWERS - NGANDO (OD 200; TOTAL LENGTH - 2.2KM)

	Amount (Kshs.)
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Bill No. 5.4 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	The Bidder is advised to take the following into consideration while pricing for the Works:				
	The sewer lines will be laid in Areas with numerous active Existing Services, both on the surface and buried; and along busy Streets / Roads in Commercial and Residential areas.				
	The works are to be carried out in congested Built-up areas with limited working space and limited access for Mechanical Equipment. Some areas are generally characterized by high ground water levels while others are predominantly rocky.				
	Majority of the sewer lines will be constructed mainly along road reserves with limited working spaces. Others are mainly along River Riparian Reserves where preparation of vehicular access will be required for transportation of materials.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges				
	Execution of Works in such conditions are deemed to be included in the Contractor's Rates except where otherwise provided for in the Bills of Quantities. The Contractor will be required to submit Method Statement for execution of Works in these specific conditions for approval prior to execution of the Works. These include, but are not limited to the following; i) No blasting will be permitted ii) The Contractor to maintain uninterrupted continuity of Water Supply and Sewage Flow in the existing Mains iii) Pedestrians and Vehicular access to individual Shops / Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) The Contractor is to carry out pilot trenching to determine the location of buried existing services. vi) Uninterrupted smooth flow of traffic to be ensured at all times, with adequate signage. Contractor to facilitate for traffic control during execution of works along roads or at road crossings.				
CLASS A	GENERAL ITEMS				
	Specified Requirements				
	<u>Testing of works</u>				
	Allow for water testing of sewers and manholes as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.				
5.5-A260.1	200mm Diameter Sewer pipe	m	17,320		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.5-A260.2	300mm Diameter Sewer pipe	m	7,136		
	<i>Allow for cleaning and flushing of Existing Sewer Line sections to which new sewers are to be connected so as to dislodge sediments, stones and other debris. Rate to include provision of all the equipment, materials and labour as may be required for physical removal of debris</i>				
5.5-A260.3	200mm Diameter Sewer pipe	m	270		
5.5-A260.4	300mm Diameter Sewer pipe	m	1,080		
5.5-A260.5	450mm Diameter Sewer pipe	m	1,440		
	<u>Temporary Works</u>				
5.5-A271	Allow for temporary works for diversion of traffic during construction of sewers across roads, including sign posting, liaison with Traffic Police Department, County Authority, etc. all to the satisfaction of the Engineer. Include provision for maintaining temporary vehicular access to individual plots at all times.	Item	LS		
5.5-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	LS		
A3	Method Related Charges				
A35	Temporary Works				
5.5-A353	Allow for provision of Temporary Access to the Individual Plots or Business Premises during the Construction Works, approximate length of Access Structures of 4m.	Nr	40		
5.5-A359.1	Working within allowable Road Reserves, include costs for double / multiple handling of excavated materials if required.	Item	L.S		
5.5-A359.2	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 1,000,000 for Liaison, facilitation with local residents	Item	P.S		1,000,000.00
A42.2	Allow a Provisional Sum of Kshs. 2,500,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		2,500,000.00
CLASS B	<u>SITE INVESTIGATION</u>				
5.5-B111	Allow for pilot excavation to identify and establish the exact location of underground services such as Sewers, Water Pipes, Fiber Cable, etc. prior to actual excavation as directed by the Engineer. Depth n.e 3m	nr	20		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS D	<u>DEMOLITION AND SITE CLEARANCE</u>				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
	<u>General clearance</u>				
5.5-D110	Demolish and cart away natural and artificial articles, objects and obstructions which are above the original surface, n.e 3m on either side of the sewer lines	ha	16		
	<i>Cut down trees, grub up roots and cart away debris to designated spoil pit (Provisional)</i>				
5.5-D210.1	Trees with Girth: 500mm - 1m	Nr	243		
5.5-D210.2	Trees with Girth: 1m - 2m	Nr	251		
5.5-D220.1	Trees with Girth: 2m - 3m	Nr	171		
5.5-D220.2	Trees with Girth over 3m	Nr	55		
5.5-D310	Stumps with diameter less than 1m	Nr	193		
5.5-D320	Stumps with diameter exceeding 1m	Nr	154		
5.5-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	836		
5.5-D534	Allow for demolition of Masonry Structures along the sewer alignment (including Stone-pitched Drains). Rate to include requisite reinstatement Works	m ²	4,813		
CLASS E	<u>EARTHWORKS</u>				
E6	Filling				
5.5-E634	Selected excavated material from stack, fill and ram the materials around trench to achieve finished ground levels as directed by the Engineer	m ³	320		
5.5-E635	Approved import granular material and fill and ram materials around trench to achieve finished ground levels as directed by the Engineer	m ³	220		
CLASS I	<u>PIPEWORK - SEWERS</u>				
I4	Steel Pipes				
	<i>Provide, lay, and joint Steel Pipes (PN10) Sleeve with adequate internal surface protection works and flanged connections in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I4	Steel / Ferrous Pipe Sleeves				
5.5-I431	400mm dia Steel Pipe complete with flanged connections, not in trench	m	75		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.5-I432	Ditto but in trenches, depth n.e. 1.5m	m	20		
I7	High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC)				
	<i>Provide, lay, and joint DWC HDPE (SN8) Socket & Spigot sewers in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I72	DWC HDPE Sewer, Nominal Bore: 200mm				
5.5-I722	200mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	12,875		
5.5-I723	Ditto in trenches, but depth 1.5 - 2m	m	2,231		
5.5-I724	Ditto in trenches, but depth 2 - 2.5m	m	1,046		
5.5-I725	Ditto in trenches, but depth 2.5 - 3m	m	543		
5.5-I726	Ditto in trenches, but depth 3 - 3.5m	m	285		
5.5-I727	Ditto in trenches, but depth 3.5 - 4m	m	273		
5.5-I728	Ditto in trenches, but depth exceeding 4m	m	67		
I73	DWC HDPE Sewer, Nominal Bore: 300mm				
5.5-I732	300mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	3,730		
5.5-I733	Ditto in trenches, but depth 1.5 - 2m	m	1,787		
5.5-I734	Ditto in trenches, but depth 2 - 2.5m	m	663		
5.5-I735	Ditto in trenches, but depth 2.5 - 3m	m	432		
5.5-I736	Ditto in trenches, but depth 3 - 3.5m	m	309		
5.5-I737	Ditto in trenches, but depth 3.5 - 4m	m	176		
5.5-I738	Ditto in trenches, but depth exceeding 4m	m	39		
CLASS K	PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
K15	Precast Concrete Manholes				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes with RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.5-K151	Manhole depth n.e 1.5m	Nr	222		
5.5-K152	Manhole depth 1.5 - 2m	Nr	264		
5.5-K153	Ditto but depth 2 - 2.5m	Nr	65		
5.5-K154	Ditto but depth 2.5 - 3m	Nr	31		
5.5-K155	Ditto but depth 3.0 - 3.5m	Nr	17		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.5-K156	Ditto but depth 3.5 - 4m	Nr	4		
5.5-K157	Ditto in trenches, but depth exceeding 4m	Nr	4		
K16	Precast Concrete Manholes with Backdrop				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes on sewers with backdrop and RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.5-K162	Manhole depth 1.5 - 2m	Nr	10		
5.5-K163	Ditto but depth 2 - 2.5m	Nr	48		
5.5-K164	Manholes with depth 2.5 - 3m	Nr	52		
5.5-K165	Ditto but depth 3.0 - 3.5m	Nr	50		
5.5-K166	Ditto but depth 3.5 - 4m	Nr	23		
5.5-K167	Ditto but depth exceeding 4m	Nr	12		
K6	Crossings				
5.5-K641	Allow for crossing existing HEDGES, including reinstatement to original state. Nominal bore n.e. 300mm	Nr	120		
5.5-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	72		
5.5-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	76		
5.5-K671	Allow for crossing existing SEWER AND DRAINS, and reinstate these after construction of sewer has been completed. Pipe internal diameter n.e. 600mm	Nr	204		
5.5-K681.1	Allow for UNDERGROUND TELEPHONE, POWER AND FIBRE CABLE crossing as may be encountered during construction or as directed by the Engineer (provisional).	Nr	236		
5.5-K681.2	Allow for WATER MAIN CROSSINGS including reinstatement to original state as may be encountered during construction or as directed by the Engineer (provisional).	Nr	320		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
K7	Reinstatement				
	<u>Trenchless Road Crossing</u>				
5.5-K732.1	Provide all equipment and materials, tunnel below road surface in common material (soil/murram) using tunnelling technique (Muhuri Road & Kiuru Road) [For sewerlines UTH-S-3-7, UTH-S-1, UTH-S-3.-7-29, UTH-S-2]. The rate to include all preparatory works, any requisite shoring, strutting, installation of HDPE DWC Sewer Pipe and Steel Pipe casing, anchoring of the pipe, blanking of tunnel ends with mass concrete / masonry walls upon pipework installation and necessary grouting and reinstatement. Steel Pipe Casing nominal bore n.e. 900mm. All works to be executed in close liaison with relevant road authorities and rates to include facilitation of the same. The Bidder to submit Method Statement with Bid for execution of these Works.	m	100		
5.5-K732.2	Extra over road crossing item 5.5-K732.1 above for tunnelling in rock, all classes (provisional)	m ³	80		
5.5-K732.3	Allow for any other Method Related charges the Tenderer feels may be required for the Micro-tunnelling Works above. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
5.5-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	635		
5.5-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	1,400		
5.5-K742.1	Breaking up, temporary and permanent reinstatement of all murram FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	1,815		
5.5-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	1,490		
5.5-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	24,456		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
K8	Other Pipeline Ancillaries				
5.5-K810	Allow for temporary diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of sewer has been completed. All waterways to be kept operational during construction.	Item	L.S		
5.5-K853	Provide all materials and connect the new sewer line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	31		
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches (Provisional)				
5.5-L111.1	Excavation in rock Class A	m ³	1,800		
5.5-L111.2	-Ditto- but rock Class B	m ³	2,520		
5.5-L111.3	-Ditto- but rock Class C	m ³	3,000		
5.5-L117.1	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1.0m	m ³	100		
5.5-L117.2	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and total volume n.e 30%), depth n.e 1m (Provisional)	m ³	80		
5.5-L118	Allow for excavation of soft material below pipe invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	80		
	Extras to excavation and backfilling in Manholes (Provisional)				
5.5-L121.1	Excavation in rock Class A	m ³	390	1,200.00	
5.5-L121.2	-Ditto- but rock Class B	m ³	470	1,800.00	
5.5-L121.3	-Ditto- but rock Class C	m ³	650	2,400.00	
5.5-L127.1	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1m	m ³	26		
5.5-L127.2	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and of total volume of plums n.e 30%), depth n.e 1m	m ³	20		
5.5-L128	Allow for excavation of soft material below manhole invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	20		
	Bed, Haunches and Surrounds				
	Pipeline nominal bore n.e. 300mm				
5.5-L312	Graded Aggregate / Sand as per specifications Beds 150 mm thick	m	1,176		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.5-L322	Selected excavated granular material surround compacted in 150mm layers to Pipe as per specifications	m	16,164		
5.5-L332	Imported granular material surround compacted in 150mm layers to Pipe as per specifications	m	6,927		
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds, Pipe Nominal bore n.e 300mm</u>				
5.5-L542.1	Bed and haunch Surround Type B	m	56		
5.5-L542.2	Bed and haunch Surround Type C	m	3,592		
	<u>CLASS X: MISCELLANEOUS WORKS</u>				
X4	Rock Filled Gabion				
	<u>Slopes Structural Protection Measures (Gabions)</u>				
5.5-X410	Provide all materials and carry out laying of 2m x 1m x 1m approved galvanized rock filled gabions, McCaffery or approved equivalent, laid in stretches with 0.5m overlap and mesh wire diameter 5mm. Include for tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions. All preparatory works to be included in the rate.	Nr	150		
5.5-X420	Provide all materials and carry out laying of 0.23 - 0.5m thick gabion mattresses, McCaffery or approved equivalent, mesh wire to be galvanized and of minimum dia 5mm. Include approved hardcore fill, tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions.	m ²	260		
5.5-X421	Provide, fill and compact in 200 mm layers imported approved excavated material as backing to gabions as directed by the Engineer. Rate to include compaction tests.	m ³	182		
5.5-X422	Extra over for infilling of Gabions with 50mm layer Mass Concrete Class 15/40	m ³	35		
	<u>Surface Protection Measures</u>				
5.5-X610	Provide and carry out hydraulic mulch grass seeding to slopes as specified in the Drawings or as directed by the Engineer	m ²	6,446		
5.5-X611	Provide all materials and maintain approved grass planted in above item until it takes root to the satisfaction of the Engineer	m ²	6,446		
X91	<u>RIVER CROSSING ON PIERS</u>				
	Details as per Drawing Provided for Aerial Crossings				
X911	Excavation				
	<i>Rates to include for all strutting, shuttering, stabilizing excavation and preparation of excavated surfaces to receive permanent work.</i>				
	<i>Excavate for pier footings and Under-River Crossings, part backfill after construction and remainder, cart away to approved tips or use as fill on site, all as directed by the Engineer. Tips to be identified by the Contractor in liaison with the Local Authority.</i>				
5.5-X911.1	Maximum depth n.e. 1.5m	m ³	16		
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ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.5-X911.2	Depth Exceeding 1.5m	m ³	5		
5.5-X911.3	E.O. excavation items for excavation in rock Class 'A' (Provisional) - Blasting not permitted	m ³	1		
5.5-X911.4	-Ditto - but rock Class 'B' (Provisional) - Blasting not permitted	m ³	2		
5.5-X911.5	-Ditto - but rock Class 'C' (Provisional) - Blasting not permitted	m ³	2		
X912	Concrete Works				
	<i>Provide, mix and place concrete as directed</i>				
5.5-X912	Plain concrete Class 15/20 in 75mm blinding layer under pier footings.	m ²	11		
X913	Vibrated, Reinforced Concrete Class 25/20 in:-				
5.5-X913.1	Footings	m ³	4		
5.5-X913.2	Piers	m ³	2		
5.5-X913.3	Precast / Inset Channel / Pier Head	m ³	2		
X914	Reinforcement				
	<i>Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, propping, with spacers and tying as specified.</i>				
5.5-X915.5	12mm and under	kg	900		
5.5-X915.5	16mm and over	kg	900		
X915	Formwork				
	<i>Provide and fix shuttering including propping, strutting and striking all as specified.</i>				
	(i) Vertical Formwork - Class F1 Finish				
5.5-X915.1	Sides of 300mm footings	m ²	50		
5.5-X915.2	Sides of piers in foundations	m ²	40		
	(ii) Vertical Formwork - Class F2 Finish				
5.5-X915.3	Outer faces of column piers - width 1.0m - 3.0m	m ²	40		
X916	Metal Works				
	G.M.S Clamps				
5.5-X9160	Provide all material, fabricate and fix 75mm x 6mm thick G.M.S clamp on Steel Pipe Sleeve dia n.e 400mm as detailed in Drag No. M455/W-02/SD/04. Rate to include 12mm Dia. Rawle bolts, Ruberoid, anchor plates, rods, bolts, etc., as detailed.	Nr	2		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
X92	Method Related Charges (Applicable to River, Stream and Storm Water Drain Crossings)				
5.5-X921	Allow for Diversion Works, including construction of cofferdam etc., for river/ stream/ storm water drain crossing works and reinstate after construction. The River / Waterway to be kept operational during construction. Bidder to submit method statement with Bid for execution of these works.	Item	L.S		
5.5-X922	Method related charges for keeping excavation free of water which may occur through ground water seepage, rain or other means.	Item	L.S		
5.5-X923	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
X93	Miscellaneous Works (Provisional)				
5.5-X931	Provisional Sum of Kshs. 500,000 for carrying out Detailed Topographical Survey for purposes of preparation of construction drawings as directed by the Engineer.	Item	P.S		500,000.00
5.5-X932	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Water Supply Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	400		
5.5-X933	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Sewer Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	100		
5.5-X934	Provisional Sum of Kshs. 500,000 to be expended by the Engineer for liaison, facilitation with local residents / community and relevant authorities for access to construction sites, accidental damage, temporary access to working spaces during execution of the works, etc.	Item	P.S		500,000.00
5.5-X935	Exhaust and demolish existing Septic Tanks along the sewer line alignment. The foul water to be disposed in approved existing designated discharge points within the existing sewerage network, identified by the Contractor in liaison with and approved by Nairobi City Water and Sewerage Company Ltd, and approved by the Engineer. Rate to include for provision of temporary storage of septic water from house holds served by the demolished septic tanks before the sewer connection is completed (Provisional)	Nr	20		
5.5-X936	Provisional Sum of Kshs. 500,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		500,000.00
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BILL No. 5.5 COLLECTION SHEET

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.5: RETICULATION SEWERS - UTHIRU (OD 200 - OD 300; TOTAL LENGTH - 24.5KM)

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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	The Bidder is advised to take the following into consideration while pricing for the Works:				
	The sewer lines will be laid in Areas with numerous active Existing Services, both on the surface and buried; and along busy Streets / Roads in Commercial and Residential areas.				
	The works are to be carried out in congested Built-up areas with limited working space and limited access for Mechanical Equipment. Some areas are generally characterized by high ground water levels while others are predominantly rocky.				
	Majority of the sewer lines will be constructed mainly along road reserves with limited working spaces. Others are mainly along River Riparian Reserves where preparation of vehicular access will be required for transportation of materials.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges				
	Execution of Works in such conditions are deemed to be included in the Contractor's Rates except where otherwise provided for in the Bills of Quantities. The Contractor will be required to submit Method Statement for execution of Works in these specific conditions for approval prior to execution of the Works. These include, but are not limited to the following; i) No blasting will be permitted ii) The Contractor to maintain uninterrupted continuity of Water Supply and Sewage Flow in the existing Mains iii) Pedestrians and Vehicular access to individual Shops / Plots, Houses, etc. to be maintained at all times. Where necessary, alternative temporary access to be provided iv) Safety hoarding, lighting, bands, warning signs, etc. to be maintained at all times. v) The Contractor is to carry out pilot trenching to determine the location of buried existing services. vi) Uninterrupted smooth flow of traffic to be ensured at all times, with adequate signage. Contractor to facilitate for traffic control during execution of works along roads or at road				
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS A	GENERAL ITEMS				
	Specified Requirements				
	<i>Testing of works</i>				
	<i>Allow for water testing of sewers and manholes as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.</i>				
5.6-A260.1	200mm Diameter Sewer pipe	m	1,534		
	<i>Allow for cleaning and flushing of Existing Sewer Line sections to which new sewers are to be connected so as to dislodge sediments, stones and other debris. Rate to include provision of all the equipment, materials and labour as may be required for physical removal of debris</i>				
5.6-A260.2	200mm Diameter Sewer pipe	m	130		
5.6-A260.3	300mm Diameter Sewer pipe	m	160		
5.6-A260.4	450mm Diameter Sewer pipe	m	140		
	<i>Temporary Works</i>				
5.6-A271	Allow for temporary works for diversion of traffic during construction of sewers across roads, including sign posting, liaison with Traffic Police Department, County Authority, etc. all to the satisfaction of the Engineer. Include provision for maintaining temporary vehicular access to individual plots at all times.	Item	L.S		
5.6-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	L.S		
A3	Method Related Charges				
A35	Temporary Works				
5.6-A353	Allow for provision of Temporary Access to the Individual Plots or Business Premises during the Construction Works, approximate length of Access Structures of 4m.	Nr	20		
5.6-A359.1	Working within allowable Road Reserves, include costs for double / multiple handling of excavated materials if required.	Item	L.S		
5.6-A359.2	Allow for any other method related charges the Bidder feels may be required. These should be indicated below with pricing of each item:				
	i)	Item	L.S		
	ii)	Item	L.S		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 100,000 for Liaison, facilitation with local residents	Item	P.S		100,000.00
A42.2	Allow a Provisional Sum of Kshs. 250,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		250,000.00
CLASS B	<u>SITE INVESTIGATION</u>				
5.6-B111	Allow for pilot excavation to identify and establish the exact location of underground services such as Sewers, Water Pipes, Fiber Cable, etc. prior to actual excavation as directed by the Engineer. Depth n.e 3m	Nr	6		
CLASS D	<u>DEMOLITION AND SITE CLEARANCE</u>				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
	<u>General clearance</u>				
5.6-D110	Demolish and cart away natural and artificial articles, objects and obstructions which are above the original surface, n.e 3m on either side of the sewer lines	ha	1		
	<i>Cut down trees, grub up roots and cart away debris to designated spoil pit (Provisional)</i>				
5.6-D210.1	Trees with Girth: 500mm - 1m	Nr	8		
5.6-D210.2	Trees with Girth: 1m - 2m	Nr	5		
5.6-D220.1	Trees with Girth: 2m - 3m	Nr	3		
5.6-D220.2	Trees with Girth over 3m	Nr	6		
5.6-D310	Stumps with diameter less than 1m	Nr	12		
5.6-D320	Stumps with diameter exceeding 1m	Nr	12		
5.6-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	50		
5.6-D534	Allow for demolition of Masonry Structures along the sewer alignment (including Stone-pitched Drains). Rate to include requisite reinstatement Works	m ²	360		
CLASS E	<u>EARTHWORKS</u>				
E6	Filling				
5.6-E634	Selected excavated material from stack, fill and ram the materials around trench to achieve finished ground levels as directed by the Engineer	m ³	22		
5.6-E635	Approved import granular material and fill and ram materials around trench to achieve finished ground levels as directed by the Engineer	m ³	32		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS I	PIPEWORK - SEWERS				
I7	High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC)				
	<i>Provide, lay, and joint DWC HDPE (SN8) Socket & Spigot sewers in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
I72	DWC HDPE Sewer, Nominal Bore: 200mm				
5.6-I722	200mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	970		
5.6-I723	Ditto in trenches, but depth 1.5 - 2m	m	214		
5.6-I724	Ditto in trenches, but depth 2 - 2.5m	m	189		
5.6-I725	Ditto in trenches, but depth 2.5 - 3m	m	109		
5.6-I726	Ditto in trenches, but depth 3 - 3.5m	m	34		
5.6-I727	Ditto in trenches, but depth 3.5 - 4m	m	14		
5.6-I728	Ditto in trenches, but depth 4 - 4.5m	m	4		
CLASS K	PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
K15	Precast Concrete Manholes				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes with RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.6-K151	Manhole depth n.e 1.5m	Nr	12		
5.6-K152	Ditto but depth 1.5 - 2m	Nr	12		
5.6-K153	Ditto but depth 2 - 2.5m	Nr	2		
5.6-K154	Ditto but depth 2.5 - 3m	Nr	1		
K16	Precast Concrete Manholes with Backdrop				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes on sewers with backdrop and RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.6-K164	Manholes with depth 2.0 - 2.5m	Nr	2		
5.6-K164	Manholes with depth 2.5 - 3m	Nr	9		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.6-K165	Ditto but depth 3.0 - 3.5m	Nr	4		
5.6-K166	Ditto but depth 3.5 - 4m	Nr	1		
5.6-K167	Ditto but depth exceeding 4m	Nr	2		
K6	Crossings				
K61	Under-River, Stream or Stormwater Canal Crossings, Width n.e 3m				
	Pipe nominal bore n.e 300mm				
5.6-K611.1	Excavate for trench in river bed n.e. 3m, preparation of surface, disposal of excavated materials, upholding sides of trench, backfilling and removal of redundant services.	m	5		
5.6-K611.2	Transport from Site Store, Install, Test and Commission Pipes on under-river crossing	m	5		
5.6-K611.2	Backfill the trench with Concrete C15/20 surround, include for vibration as directed by the Engineer	m ³	2		
5.6-K611.3	Backfill the trench with approved selected excavated granular material compacted in layers of 300mm as directed by Engineer	m ³	1		
	Other Crossings				
5.6-K641	Allow for crossing existing HEDGES, including reinstatement to original state. Nominal bore n.e. 300mm	Nr	3		
5.6-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	4		
5.6-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	5		
5.6-K671	Allow for crossing existing SEWER AND DRAINS, and reinstate these after construction of sewer has been completed. Pipe internal diameter n.e. 600mm	Nr	8		
5.6-K681.1	Allow for UNDERGROUND TELEPHONE, POWER AND FIBRE CABLE crossing as may be encountered during construction or as directed by the Engineer (provisional).	Nr	12		
5.6-K681.2	Allow for WATER MAIN CROSSINGS including reinstatement to original state as may be encountered during construction or as directed by the Engineer (provisional).	Nr	26		
K7	Reinstatement				
5.6-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murrum, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	28		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.6-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	81		
5.6-K742.1	Breaking up, temporary and permanent reinstatement of all murram FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	73		
5.6-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	146		
5.6-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	1,534		
K8	Other Pipeline Ancillaries				
5.6-K810	Allow for temporary diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of sewer has been completed. All waterways to be kept operational during construction.	Item	LS		
5.6-K853	Provide all materials and connect the new sewer line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	4		
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches (Provisional)				
5.6-L111.1	Excavation in rock Class A	m ³	130		
5.6-L111.2	-Ditto- but rock Class B	m ³	180		
5.6-L111.3	-Ditto- but rock Class C	m ³	210		
5.6-L117.1	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1.0m	m ³	6		
5.6-L117.2	Allow for excavation of soft material below pipe invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and total volume n.e 30%), depth n.e 1m (Provisional)	m ³	7		
5.6-L118	Allow for excavation of soft material below pipe invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	6		
	Extras to excavation and backfilling in Manholes (Provisional)				
5.6-L121.1	Excavation in rock Class A	m ³	35		
5.6-L121.2	-Ditto- but rock Class B	m ³	50		
5.6-L121.3	-Ditto- but rock Class C	m ³	60		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.6-L127.1	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Mass Concrete, depth n.e 1m	m ³	2		
5.6-L127.2	Allow for excavation of soft material below manhole invert level and backfill with approved C15/20 Plum Concrete (size of plums n.e 150mm and of total volume of plums n.e 30%), depth n.e 1m	m ³	1		
5.6-L128	Allow for excavation of soft material below manhole invert level and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth n.e 1m (Provisional)	m ³	2		
	Bed, Haunches and Surrounds				
	<u>Pipeline nominal bore n.e. 300mm</u>				
5.6-L312	Graded Aggregate / Sand as per specifications Beds 150 mm thick	m	220		
5.6-L322	Selected excavated granular material surround compacted in 150mm layers to Pipe as per specifications	m	1,071		
5.6-L332	Imported granular material surround compacted in 150mm layers to Pipe as per specifications	m	459		
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds, Pipe Nominal bore n.e 300mm</u>				
5.6-L542.1	Bed and haunch Surround Type C	m	80		
	CLASS X: MISCELLANEOUS WORKS				
X4	Rock Filled Gabion				
	<u>Slopes Structural Protection Measures (Gabions)</u>				
5.6-X410	Provide all materials and carry out laying of 2m x 1m x 1m approved galvanized rock filled gabions, McCaffery or approved equivalent, laid in stretches with 0.5m overlap and mesh wire diameter 5mm. Include for tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions. All preparatory works to be included in the rate.	Nr	8		
5.6-X420	Provide all materials and carry out laying of 0.23 - 0.5m thick gabion mattresses, McCaffery or approved equivalent, mesh wire to be galvanized and of minimum dia 5mm. Include approved hardcore fill, tying of adjacent gabions with approved wire and 16mm dia anchor rods to suit site conditions.	m ²	8		
5.6-X421	Provide, fill and compact in 200 mm layers imported approved excavated material as backing to gabions as directed by the Engineer. Rate to include compaction tests.	m ³	10		
5.6-X422	Extra over for infilling of Gabions with 50mm layer Mass Concrete Class 15/40	m ³	1		
	<u>Surface Protection Measures</u>				
5.6-X610	Provide and carry out hydraulic mulch grass seeding to slopes as specified in the Drawings or as directed by the Engineer	m ²	2,760		
5.6-X611	Provide all materials and maintain approved grass planted in above item until it takes root to the satisfaction of the Engineer	m ²	2,760		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
X93	Miscellaneous Works (Provisional)				
5.6-X931	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Water Supply Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	100		
5.6-X932	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Sewer Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	100		
5.6-X933	Provisional Sum of Kshs. 250,000 to be expended by the Engineer for liaison, facilitation with local residents / community and relevant authorities for access to construction sites, accidental damage, temporary access to working spaces during execution of the works, etc.	Item	P.S		250,000.00
5.6-X934	Exhaust and demolish existing Septic Tanks along the sewer line alignment. The foul water to be disposed in approved existing designated discharge points within the existing sewerage network, identified by the Contractor in liaison with and approved by Nairobi City Water and Sewerage Company Ltd, and approved by the Engineer. Rate to include for provision of temporary storage of septic water from house holds served by the demolished septic tanks before the sewer connection is completed (Provisional)	Nr	10		
5.6-X935	Provisional Sum of Kshs. 250,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		250,000.00
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.6: RETICULATION SEWERS - KANGEMI (OD 200; TOTAL LENGTH - 1.5KM)

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Bill No. 5.6 Total (Exclusive of Value Added Tax - VAT) carried to Grand Summary Sheet	

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.7: TERTIARY SEWERS (OD 160 - OD 200; TOTAL LENGTH - 12.0KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	This Bill entails Tertiary Sewers which have been provided to facilitate connection of target 1,600Nr Sewer Connections to the Sewer System. The Sewer Connection Works will commence during the Construction Period and extend to the Defects Liability Period (DLP).				
	The total length of Tertiary Sewers of 12km provided in this Bill is Provisional. The Actual lengths and locations of the Sewers to be provided by the Engineer during construction depending on the approved household connections before Contractor procures necessary materials.				
	These works are to be carried out in congested built up areas with limited working space. No wayleave has been arranged for and all the working area shall be organized by the contractor at his own cost.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges				
	Sections of the sewer line to be laid beside existing active Utilities (electrical, water, etc.) and storm water drain. The Contractor to maintain uninterrupted continuity of Water Supply and Sewage Flow in the existing Mains.				
	Use of Bulk excavation machines may not be possible and double haulage of excavated materials may be necessary.				
	The Bidder should allow for the above items in their rates.				
CLASS A	GENERAL ITEMS				
	Specified Requirements				
	<u>Testing of works</u>				
	Allow for water testing of sewers and manholes as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.				
5.7-A260.1	160mm Diameter Sewer pipe	m	7,200		
5.7-A260.2	200mm Diameter Sewer pipe	m	4,800		
	<u>Temporary Works</u>				
5.7-A271	Allow for temporary works for diversion of traffic during construction of sewers across roads, including sign posting, liaison with Traffic Police Department, County Authority, etc. all to the satisfaction of the Engineer. Include provision for maintaining temporary vehicular access to individual plots at all times.	Item	L.S		
5.7-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	L.S		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.7: TERTIARY SEWERS (OD 160 - OD 200; TOTAL LENGTH - 12.0KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
A3	Method Related Charges				
A35	Temporary Works				
5.7-A353	Allow for provision of Temporary Access to the Individual Plots or Business Premises during the Construction Works using Access Structures of approximate length of 4m.	Nr	120		
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs.500,000 for Liaison, facilitation with local residents	Item	P.S		500,000.00
A42.2	Allow a Provisional Sum of Kshs.1000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		1,000,000.00
CLASS D	DEMOLITION AND SITE CLEARANCE				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
	<u>General clearance</u>				
5.7-D110	Demolish and cart away natural and artificial articles, objects and obstructions which are above the original surface, n.e 3m on either side of the sewer lines	ha	7		
	<i>Cut down trees, grub up roots and cart away debris to designated spoil pit (Provisional)</i>				
5.7-D210.1	Trees with Girth: 500mm - 1m	Nr	50		
5.7-D210.2	Trees with Girth: 1m - 2m	Nr	40		
5.7-D220.1	Trees with Girth: 2m - 3m	Nr	30		
5.7-D220.2	Trees with Girth over 3m	Nr	50		
5.7-D310	Stumps with diameter less than 1m	Nr	80		
5.7-D320	Stumps with diameter exceeding 1m	Nr	60		
5.7-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	60		
5.7-D534	Allow for demolition of Masonry Structures along the sewer alignment (including Stone-pitched Drains). Rate to include requisite reinstatement Works	m ²	760		
CLASS I	PIPEWORK - SEWERS				
I7	High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC)				
	<i>Provide, lay, and joint DWC HDPE (SN8) Socket & Spigot sewers in standard lengths to specified alignment and invert levels. Rates to include for surveying and setting out, stripping top soil, excavation, shoring, disposal of excavated material, backfilling of pipe trenches thereafter and joint sealing of pipes to new manholes along the trench</i>				
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.7: TERTIARY SEWERS (OD 160 - OD 200; TOTAL LENGTH - 12.0KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
I71	DWC HDPE Sewer, Nominal Bore n.e. 200mm				
5.7-I712	160mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	5,040		
5.7-I713	Ditto in trenches, but depth 1.5 - 2m	m	2,160		
I72	DWC HDPE Sewer, Nominal Bore: 200mm				
5.7-I722	200mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	3,360		
5.7-I723	Ditto in trenches, but depth 1.5 - 2m	m	1,440		
CLASS K	PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
K15	Precast Concrete Manholes				
	<i>Provide all materials and construct 1200mm internal diameter Precast Reinforced Concrete Ring Manholes with RC Base and Cover and Pipe Benching to details shown on drawings. Include for supply and installation of Heavy duty triangular polyresin composite manhole frame and cover as well as step irons. Rates to include for excavation, preparation of surfaces, disposal of excavated materials, shoring, inset concrete surround for sealing of rings and backfilling, and provision of box out and sealing for all pipes.</i>				
5.7-K151	Manhole depth n.e 1.5m	Nr	241		
5.7-K152	Manhole depth 1.5 - 2m	Nr	102		
K6	Crossings				
5.7-K641	Allow for crossing existing HEDGES, including reinstatement to original state. Nominal bore n.e. 300mm	Nr	80		
5.7-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	100		
5.7-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	80		
5.7-K671	Allow for crossing existing SEWER AND DRAINS, and reinstate these after construction of sewer has been completed. Pipe internal diameter n.e. 600mm	Nr	200		
5.7-K681.1	Allow for UNDERGROUND TELEPHONE, POWER AND FIBRE CABLE crossing as may be encountered during construction or as directed by the Engineer (provisional).	Nr	150		
5.7-K681.2	Allow for WATER MAIN CROSSINGS including reinstatement to original state as may be encountered during construction or as directed by the Engineer (provisional).	Nr	200		
K7	Reinstatement				
5.7-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murrum, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	120		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.7: TERTIARY SEWERS (OD 160 - OD 200; TOTAL LENGTH - 12.0KM)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5.7-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murrum, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	240		
5.7-K742.1	Breaking up, temporary and permanent reinstatement of all murrum FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	600		
5.7-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	800		
5.7-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	12,000		
K8	Other Pipeline Ancillaries				
5.7-K810	Allow for temporary diversion of drains or waterways where they might interfere with the construction and reinstatement after construction of sewer has been completed. All waterways to be kept operational during construction.	Item	L.S		
5.7-K853	Provide all materials and connect the new sewer line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	120		
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches (Provisional)				
5.7-L111.1	Excavation in rock Class A	m ³	1,200		
5.7-L111.2	-Ditto- but rock Class B	m ³	1,900		
5.7-L111.3	-Ditto- but rock Class C	m ³	2,400		
	Extras to excavation and backfilling in Manholes (Provisional)				
5.7-L121.1	Excavation in rock Class A	m ³	120		
5.7-L121.2	-Ditto- but rock Class B	m ³	175		
5.7-L121.3	-Ditto- but rock Class C	m ³	210		
	Bed, Haunches and Surrounds				
	Pipeline nominal bore n.e. 300mm				
5.7-L322	Selected excavated granular material surround compacted in 150mm layers to Pipe as per specifications	m	8,400		
5.7-L332	Imported granular material surround compacted in 150mm layers to Pipe as per specifications	m	3,600		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.7: TERTIARY SEWERS (OD 160 - OD 200; TOTAL LENGTH - 12.0KM)

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds, Pipe Nominal bore n.e 300mm</u>				
5.7-L542.1	Bed and haunch Surround Type C	m	950		
X93	<u>CLASS X: MISCELLANEOUS WORKS</u>				
5.7-X931	Provide all requisite materials, pipes, fittings, etc. for realignment of Existing Water Supply Pipes, diameter n.e 300mm. The rate to include for exposing of the Existing Pipes, excavation, laying, jointing, testing, etc.	m	600		
5.7-X932	Provisional Sum of Kshs. 500,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		500,000.00
PAGE TOTAL CARRIED TO COLLECTION SHEET					

BILL No. 5.7 COLLECTION SHEET

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.7: TERTIARY SEWERS (OD 160 - OD 200; TOTAL LENGTH - 30.0KM)

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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.8 : HOUSEHOLD SEWER CONNECTIONS (640 NR)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	Typical Arrangement for a Consumer Sewer Connection is shown in the Standard Drawing Drg No. M455/W-02/SD/25.				
	The approximate number of connections to be connected to the Sewerage System is 640Nr. The connection works are to be carried out in liaison with Nairobi City Water and Sewerage Company (NCWSC), who will receive, process and approve the applications for connections. The Contractor to obtain from NCWSC the exact number of connections and their locations before ordering materials and carrying out any works under this Bill.				
	Consumer Sewer Connection Works will commence during the Construction Period and extend to the Defects Liability Period (DLP). The connections will be carried out as soon as the sewers are commissioned. The Contractor should allow for this in their rates. There will be no extra cost of carrying out the Connection Works during DLP.				
	These works are to be carried out in congested built up areas with limited working space. No wayleave has been arranged for and all the working area shall be organized by the contractor at his own cost.				
	The sewer lines alignments are characterized by paved footpaths and/ or access roads. The Contractor shall be expected to execute the works while ensuring minimal or no damage to the existing paved surfaces beyond the pipe trenches. The cost of reinstatement shall be limited to the specified trench widths. Any damages caused shall be deemed to be included in the contractor's rates. Any measures to prevent damage or to carry out reinstatement in case of damages to the paved surfaces beyond pipe trenches to be included in the Method Related Charges				
	Sections of the sewer line to be laid beside existing active Utilities (electrical, water, etc.) and storm water drain within the project area. Contractor to maintain uninterrupted continuity of Water Supply & Sewage Flow in existing Mains.				
CLASS A	<u>GENERAL ITEMS</u>				
	<u>Specified Requirements</u>				
	<u>Testing of works</u>				
	<i>Allow for water testing of sewers and inspection chambers as specified including water for testing, requisite Materials, Personnel, Testing Equipment etc. and safe disposal of used water.</i>				
5.8-A260.1	160mm Diameter Sewer pipe	m	9,600		
	<u>Temporary Works</u>				
5.8-A277	Allow for keeping trenches and other excavation free of water which may have entered through ground seepage, surface run-off or by other means as directed by the Engineer.	Item	L.S		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.8 : HOUSEHOLD SEWER CONNECTIONS (640 NR)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
A42	Provisional Sums for Defined Works				
A42.1	Allow Provisional Sum of Kshs. 500,000 for Liaison, facilitation with local residents	Item	P.S		500,000.00
A42.2	Allow a Provisional Sum of Kshs.1000,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	P.S		1,000,000.00
CLASS D	<u>DEMOLITION AND SITE CLEARANCE</u>				
	<i>Rate to include for removal of debris, carting away and disposal to tips identified by the Contractor in liaison with Local Authorities</i>				
5.8-D524	Allow for demolition of Concrete Structures (including Inverted Block Drains, concrete slabs, etc.) along the sewer alignment. Rate to include requisite reinstatement Works	m ³	15		
CLASS I	<u>PIPEWORK - SEWERS</u>				
I7	High Density Polyethylene Pipes - HDPE (Double Wall Corrugated - DWC, SN4)				
	A - Supply of Pipes				
	Excavation, laying and jointing is included in 'B' - Pipe Laying				
	Supply, Transport to Site and Store. The rate to include jointing materials, bolts, gaskets, rubber rings, etc.				
I71	DWC HDPE Sewer, Nominal Bore n.e. 200mm				
5.8-I712	160mm dia DWC HDPE Sewer Pipe	m	9,600		
	B - Pipe Laying				
	The rate quoted shall be deemed to include excavation and backfilling with selected excavated material, of pipe trenches. The rates shall also include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority, transport of material from site store to working areas, laying and jointing of pipes and fittings.				
5.8-I712	160mm dia DWC HDPE Sewer in trenches, depth n.e. 1.5m	m	7,680		
5.8-I712	Ditto in trenches, but depth 1.5 - 2m	m	1,920		
	<u>CLASS J: PIPEWORK - FITTINGS AND VALVES</u>				
	<i>Supply, transport to site and store 45° HDPE DWC Y-Junctions. The Rate to include rubber rings, etc.</i>				
5.8-J621.1	160mm off 200mm outside diameter	Nr	60		
5.8-J621.2	160mm off 300mm outside diameter	Nr	10		
	<i>Transport from site store, lay, joint and test 45° HDPE DWC Y-Junctions. The Rate to include rubber rings, etc.</i>				
5.8-J621.3	160mm off 200mm outside diameter	Nr	60		
5.8-J621.4	160mm off 300mm outside diameter	Nr	10		
PAGE TOTAL CARRIED TO COLLECTION SHEET					

CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.8 : HOUSEHOLD SEWER CONNECTIONS (640 NR)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
CLASS K	<u>PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES</u>				
K21	Masonry Inspection Chambers				
5.8-K211	Excavate for, provide all materials and construct 600 x 450mm Masonry Inspection Chamber, in accordance with details shown in drawings. Include for provision and fixing of light duty rectangular mild steel frame and cover and concrete filled cover. The rate should include two flexible joints adjacent to the Inspection Chamber, boxout and sealing for pipes, etc. Depth n.e 1m	Nr	640		
K6	Crossings				
5.8-K651	Allow for crossing existing boundary WALLS, including reinstatement to original state. Nominal bore n.e. 600mm	Nr	40		
5.8-K661	Allow for crossing existing FENCES (chain link, barbed wire etc.), including reinstatement to original state. Nominal bore n.e. 600mm	Nr	50		
5.8-K671	Allow for crossing existing drains and sewers, and reinstate these after construction of sewer has been completed. Pipe inside diameter n.e. 200mm (Provisional)	Nr	120		
K7	Reinstatement				
5.8-K732.4	Breaking up, temporary and permanent reinstatement of PAVED (Bitumen, Concrete Block Paving, etc.) road with suitable selected excavated material and 300mm thick well graded stabilized gravel with 3% cement content base, compacted in layers of 150mm thick using an 8-10 tone roller, 150mm deep approved compacted hardcore and Surfacing Course to the original material, including supply and application of approved binder layer for bitumen roads, all to the satisfaction of the Engineer. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	78		
5.8-K732.5	Breaking up, temporary and permanent reinstatement of MURRAM road with 300mm thick well graded stabilized gravel with 3% cement content base compacted using a 8-10 tone roller to the satisfaction of the Engineer. Nominal bore n.e. 900mm. Contractor to include for road cutting, excavation of compacted hardcore / murram, control of Traffic, diversion signage, controls, safety precautions and any other associated works in his rate.	m	116		
5.8-K742.2	Breaking up, temporary and permanent reinstatement of all Paved (Bitumen, Cabro, Reinforced Concrete, etc.) FOOTPATHS to the satisfaction of the Engineer. Nominal bore n.e. 900mm	m	640		
5.8-K751	Allow for reinstatement of land along the sewer trench after completion of the Works to the satisfaction of the Engineer.	m	9,600		
K8	Other Pipeline Ancillaries				
5.8-K853	Provide all materials and connect the new consumer connection line to the existing Sewer. Contractor to include for all requisite fittings, breaking of existing manholes, dealing with sewage flow, boxing out of manholes/ sealing, etc. all to the satisfaction of the Engineer. Nominal bore n.e 300mm	Nr	120		
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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.8 : HOUSEHOLD SEWER CONNECTIONS (640 NR)**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>CLASS L: SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</u>				
	(Note: Blasting not allowed for any rock excavation)				
L11	Extras to excavation and backfilling in pipe trenches and Inspection Chambers (Provisional)				
5.8-L111.1	Excavation in rock Class A	m ³	315		
5.8-L111.2	-Ditto- but rock Class B	m ³	370		
5.8-L111.3	-Ditto- but rock Class C	m ³	600		
	Bed, Haunches and Surrounds				
	<u>Mass Concrete Class 15/20 in 150mm Thick Beds, Haunches and Surrounds, Pipe Nominal bore n.e 300mm</u>				
5.8-L542	Bed and haunch Surround Type C	m	384		
X93	<u>CLASS X: MISCELLANEOUS WORKS</u>				
5.8-X931	Provisional Sum of Kshs. 500,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	P.S		500,000.00
PAGE TOTAL CARRIED TO COLLECTION SHEET					

BILL No. 5.8 COLLECTION SHEET

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.8: HOUSEHOLD CONNECTIONS (1,600 NR)

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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.9 : SEWERAGE RELOCATION WORKS ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS A - GENERAL ITEMS				
	<u>Testing of the Works</u>				
A260.2	Carrying out test on 375mm pipeline as specified or directed by the Engineer. Include provision of all equipment and materials	m	150		
A260.2	Carrying out test on 450 mm pipeline as specified or directed by the Engineer. Include provision of all equipment and materials	m	1,550		
A260.3	Carrying out test on 525 mm pipeline as specified or directed by the Engineer. Include provision of all equipment and materials	m	50		
A260.5	Set-out pipeline, showing ground and pipe profile. Produce sewer pipeline construction/as built drawings	m	1,750		
A42	<u>Provisional Sums for Defined Works</u>				
A42.1	Allow Provisional Sum of Kshs. 100,000 for Liaison, facilitation with local residents	Item	100,000.00		100,000.00
A42.2	Allow a Provisional Sum of Kshs. 150,000/= for re-alignment of existing services, both buried and above ground, as may be required and directed on site, to create space for laying of proposed Transmission Mains. This item covers re-alignment/re-routing of existing water mains, Telecommunication cables, buried and overhead power lines where appropriate.	Item	150,000.00		150,000.00
	CLASS B - SITE INVESTIGATION				
B111	Trial holes where ordered to prove location, construction size etc, of pipelines, services or existing structures, max depth ne 1m (Provisional)	nr	10		
B112	Trial holes where ordered to prove location, construction size etc, of pipelines, services or existing structures, max depth 1-2m (Provisional)	nr	10		
B113	Trial holes where ordered to prove location, construction size etc, of pipelines, services or existing structures, max depth 2-3m (Provisional)	nr	10		
B114	Trial holes where ordered to prove location, construction size etc, of pipelines, services or existing structures, max depth 3-5m (Provisional)	nr	10		
	CLASS D - DEMOLITION AND SITE CLEARANCE				
D100	General site clearance through undeveloped land over the wayleave, include for any additional clearance required	ha	1		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.9 : SEWERAGE RELOCATION WORKS ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS I: PIPEWORK - PIPES				
	PRECAST CONCRETE PIPES TO BS 5911 WITH SPIGOT AND SOCKET RIGID JOINTS				
	Supply of Pipes				
I 133.2	Nominal bore 375mm Precast concrete pipe	m	150		
I 133.3	Nominal bore 450mm Precast concrete pipe	m	1,550		
I 133.4	Nominal bore 525mm Precast concrete pipe	m	50		
I434.1	Nominal internal diameter 450mm Steel pipes for aerial crossings	m	90		
	Installation of Pipes				
	The rates entered against the items in this section shall include for stripping top soil, laying aside and subsequently replacing over refilled trench, excavation in trench in material other than rock, shuttering where necessary, refilling and compacting, spreading surplus soil evenly over and alongside pipe trench compacting, supply lay and joint pipes to correct line and level and reinstatement of land Depths are stated from ground level to invert level.				
	Nominal bore 375mm in trenches				
I 225.1	Depth 2.5m - 3.0m	m	100		
I 226.1	Depth 3.0m - 3.5m	m	50		
	Nominal bore 450mm in trenches				
I 232.2	Depth n.e. 1.5m	m	70		
I 235.2	Depth 2.5m - 3.0m	m	1,200		
I 236.2	Depth 3.0m - 3.5m	m	300		
I 237.2	Depth 3.5m - 4.0m	m	50		
	Nominal bore 525mm in trenches				
I 232.3	Depth n.e. 1.5m	m	80		
I 236.3	Depth 3.0m - 3.5m	m	50		
I434.1	Steel pipes nominal internal diameter 450mm for aerial crossings complete with fittings	m	90		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.9 : SEWERAGE RELOCATION WORKS ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	Excavation quantities are given net. The rates entered are to include for manhole concrete slabs and covers, step irons or ladder, excavation, working room, trimming the base of the excavation, shuttering where necessary, refilling and compacting around the finished manholes, and disposing of surplus spoil local to the trench. Surplus spoil is to be evenly spread.				
	Manholes				
	Manhole as per NCWSC Standard Drawings SR/743/1, size 1200mm, rings, reinforced concrete manhole slab, step-irons and heavy duty Cast Iron triangular access cover.				
K 151.4	Ditto- but depth 2.5m - 3.0m	nr	10		
K 151.5	Ditto- but depth 3.0m - 3.5m	nr	40		
	Manhole as per NCWSC Standard Drawings SR/743/1, size 1200mm, rings, reinforced concrete manhole slab, step-irons and heavy duty Cast Iron triangular access cover with back drop.				
K 161.3	Ditto- but depth 2.0m - 2.5m	nr	1		
K 161.4	Ditto- but depth 2.5m - 3.0m	nr	5		
K 161.5	Ditto- but depth 3.0m - 3.5m	nr	5		
K 161.6	Ditto- but depth 3.5m - 4.0m	nr	1		
K 161.7	Ditto- but depth >4.0m	nr	1		
	CLASS L: SUPPORTS AND PROTECTION ANCILLARIES TO LAYING AND EXCAVATION				
	Extras to Excavation and Backfilling				
	(Note: Blasting not allowed for any rock excavation)				
	<i>In Pipe Trenches</i>				
L111	Excavation of rock of all classes (Provisional)	m3	4,375		
L117	Excavation of soft material below the final surface and backfilling with mass concrete, depth not exceeding 1.0m (Provisional)	m3	50		
L118	Allow for excavation of soft material below final surface of pipe trench and backfill with approved hardcore, well compacted in layers of 200mm thickness, depth not exceeding 1.0m (Provisional)	m3	30		
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CKE1135- NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE - OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE****BID No. AWWDA/AFD/NWSP/W-02/2023****SECTION 5: SEWER RETICULATION NETWORK****BILL No. 5.9 : SEWERAGE RELOCATION WORKS ALONG THE NAIROBI EXPRESSWAY**

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<i>Bed, Haunches and Surrounds as per NCWSC Standard Drawings Ref. SR/743/2</i>				
	<i>Mass Concrete Grade 15/20 in 150mm Thick Beds, Haunches and Surrounds</i>				
	<u>525mm nominal bore pipeline</u>				
L442	Bed and haunch Type D (Concrete 0.3449m ³ /m)	m	50		
	<u>375mm nominal bore pipeline</u>				
L442	Bed and haunch Type D (Concrete 0.4093m ³ /m)	m	20		
L442	Bed and haunch Type C (Concrete 0.3485m ³ /m)	m	130		
	<u>450mm nominal bore pipeline</u>				
L443.1	Bed and haunch Type D (Concrete 0.4818m ³ /m)	m	150		
L443.1	Bed and haunch Type C (Concrete 0.4059m ³ /m)	m	1,400		
X93	<u>CLASS X: MISCELLANEOUS WORKS</u>				
5.8-X931	Provisional Sum of Kshs. 100,000 for other Miscellaneous Works that may be required on site to be carried out as directed by the Engineer.	Item	100,000.00		100,000.00
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BILL No. 5.9 COLLECTION SHEET

CKE1135 - NAIROBI WATER AND SANITATION PROJECT

CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT

BID No. AWWDA/AFD/NWSP/W-02/2023

SECTION 5: SEWER RETICULATION NETWORK

BILL No. 5.9 : SEWERAGE RELOCATION WORKS ALONG THE NAIROBI EXPRESSWAY

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CKE1135 - NAIROBI WATER AND SANITATION PROJECT**CONSTRUCTION WORKS FOR KABETE-OLESERENI PIPELINE, WEST AND SOUTH NAIROBI WATER AND SEWERAGE PROJECT****BID No. AWWDA/AFD/NWSP/W-02/2023****GRAND SUMMARY**

Bill	BILL DESCRIPTION	AMOUNT
Section 1	P & G	
Section 1 Total (A)		
Section 2	Kabete-Olesereni Pipeline	
Bill No. 2.1	Kabete-Olesereni Pipeline (Supply of Pipes, Fittings, Valves and Ancillaries; DN 600, Total length 19.62 km)	
Bill No. 2.2	Kabete-Olesereni Pipeline (Pipeline Construction; DN 600, Total length 19.62 km)	
Section 2 Total (B)		
Section 3	Water Distribution Mains and Household Water Connections	
Bill No. 3.1	Wilson Distribution Main, Line WL02 (DN 600; Total length 4.25 km)	
Bill No. 3.2	Extension of Water Reticulation Network within Wilson Area (OD 63 - OD 250; Total length 2.86 km)	
Bill No. 3.3	Extension of Water Reticulation Network within area around Ngong Forest (OD 63 - OD 250; Total length 2.53 km)	
Bill No. 3.4	Extension of Water Reticulation Network within Karen Plains (OD 63 - OD 110; Total length 8.6 km)	
Bill No. 3.5	Kabiria Distribution Main, Line KB01 (OD355; Total length 1.57 km)	
Bill No. 3.6	Extension of Water Reticulation Network within Kangemi and Kawangware Area (OD 63 - OD 110; Total length 5.17 km)	
Bill No. 3.7.1	Extension of Water Reticulation Network within Kirigu (OD 63 - OD 110; Total length 7.17 km)	
Bill No. 3.7.2	Proposed Distribution Network for Kinoo Dagoretti Areas (OD 63 - OD 110; Length 20.75km)	
Bill No. 3.8	Household Water Connections (560 Nr)	
Bill No. 3.9	Operationalization Works for Transmission Pipeline along the Nairobi Express Way	
Section 3 Total (C)		
Section 4	Water Storage Reservoir	
Bill No. 4.1	Karen Storage Reservoir (5,500 m ³ Capacity)	
Section 4 Total (D)		
Section 5	Sewer Reticulation Network	
Bill No. 5.1	Reticulation Sewers - Dagoretti (OD 200 - OD 300; Total Length - 14.4km)	
Bill No. 5.2	Reticulation Sewers - Kawangware (OD 200 - OD 300; Total Length - 9.7km)	
Bill No. 5.3	Reticulation Sewers - Riruta (OD 200 - OD 300; Total Length - 10.2km)	
Bill No. 5.4	Reticulation Sewers - Ngando (OD 200; Total Length - 2.2km)	
Bill No. 5.5	Reticulation Sewers - Uthiru (OD 200 - OD 300; Total Length - 24.5km)	
Bill No. 5.6	Reticulation Sewers - Kangemi (OD 200; Total Length - 1.5km)	
Bill No. 5.7	Tertiary Sewers (OD 160 - OD 200; Total Length - 12.0km)	
Bill No. 5.8	Household Sewer Connections (640 Nr)	
Bill No. 5.9	Sewerage Relocation Works along the Nairobi Express Way	
Section 5 Total (E)		
Sub-Total [Excl. VAT]; (F = A+B+C+D+E)		
Add 10% Contingencies (G)		
Total [Excl. VAT]; (H = F+G)		
Add 16% VAT (I = 16% of H)		
Grand Total [Incl. 16% VAT]; (J = I+H)		

Environmental, Social, Health and Safety (ESHS) Cost Schedule

The Cost Schedule for Environmental, Social, Health and safety (ESHS) Requirements has been included for Pricing by the Bidder in the Preliminaries and General Items Bill (Bill No. 1).

Security Cost Schedule

The Cost Schedule for Security Requirements has been included for Pricing by the Bidder in the Preliminaries and General Items Bill (Bill No. 1).

Technical Proposal

The Bidder must provide in its Bid the following information and details in the format of the Forms provided:

- a) Environmental, Social, Health and Safety (ESHS) Methodology
- b) List of Subcontractors (if any)
- c) Subcontractors ESHS undertaking (if applicable)
- d) Site Organisation and Method Statement
- e) Construction Schedule
- f) Personnel proposed (forms PER-1 and PER-2)
- g) Equipment proposed (form EQU)
- h) Schedule of Projected Cash Flow (based on the Construction Schedule)
- i) Schedule of Manufacturers (Vendor List) for the following key materials/equipment:
 - i) Ferrous Pipes and Fittings (Steel or Ductile Iron)
 - ii) HDPE Pressure Pipes and Fittings for Water Pipelines
 - iii) Double Walled Corrugated (DWC) Pipes for Sewers
 - iv) Gate Valves and Butterfly Valves
 - v) Altitude Valves
 - vi) Air Valves
 - vii) Electromagnetic Flow Meters (Battery Powered)
 - viii) Mechanical Flow Meters
 - ix) Cement
 - x) Reinforcement Steel

For each item above the Bidder must provide detailed Technical Data Sheets from the manufacturer and indicate the name of the manufacturer, Country of Origin, make of the item where applicable and the standard to which the item is manufactured (ISO/EN/BS/AWWA/DIN. etc).

(a) Environmental, Social, Health and Safety (ESHS) Methodology

The Bidder shall provide an ESHS Methodology providing information on how the Bidder shall meet the requirements and objectives specified in Section VII - Works Requirements - ESHS Specifications.

The ESHS Methodology submitted shall be in the form of a preliminary draft of the Worksite Environmental and Social Management Plan (Worksite - ESMP), the content of which is detailed in Appendix 1 to ESHS Specifications.

In order to address the highly sensitive ESHS issues highlighted during the project's environmental and social impact assessment, **the ESHS Methodology shall provide detailed information on the management of the items listed in the table of paragraph 1. "Essential ESHS issues of worksite management" in Section VII – Works Requirements.** The purpose is not for the Bidder to provide one more time policies and internal procedures which were requested in the Prequalification phase but to provide a concrete ESHS methodology adapted to the worksites environment.

A Bid for which the ESHS Methodology is evaluated as non-substantially responsive (i.e. with material deviation, reservation or omission) to the ESHS Specifications shall be rejected.

(b) List of Subcontractors (if any)

Proposed Subcontractors for Key Activities/Sub-Activities

The following subcontractors and/or manufacturers are proposed for carrying out the key activity/sub-activity indicated (*if none, Bidder to indicate "Not Applicable"*)

Key Activity/Sub-Activity	Proposed Subcontractors	Nationality

Bidders shall submit an undertaking from each proposed subcontractor to confirm that they have read, understand and will comply with the ESHS obligations using the form hereby attached.

(c) Form of Subcontractor ESHS Undertaking (*if applicable*)

Date: _____

Bid No.: AWWDA/AFD/NWSP/W-02/2023

Contract title: Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project

To: Chief Executive Officer
Athi Water Works Development Agency
P.O. Box 45283 – 00100
Nairobi, Kenya

We, the undersigned, confirm that we have read, understand and will comply with the ESHS Specifications for the above-mentioned contract.

Name of the proposed subcontractor: _____

Name and title of the person signing this undertaking on behalf of the subcontractor: _____

[Signature of the person named above]

[Date signed]

Name of the person duly authorized to sign the Bid on behalf of the Bidder: _____

Title of the person signing the Bid: _____

Signature of the person named above: _____

Date signed (day/month/year): _____

(d) Site Organisation and Method Statement

Each Bidder shall set out details of the Site Organization and Method Statement for the Works to demonstrate how it will meet the Employer's objective and requirements. As a minimum, the Method Statement shall address the following:

- a) Details of the arrangements and methods which the Bidder proposes to implement for the construction of the Works, in sufficient detail to demonstrate their adequacy to achieve the requirements of the Contract including completion within the Time for Completion stated in the Particular Conditions of Contract;
- b) Outline of the arrangements of the Bidder to manage coordination of Site access;
- c) Comments on the geotechnical and subsurface aspects of the Works including materials, material sources and any constraints;
- d) Comments on logistics and traffic management;
- e) Outline of the arrangements and organisation of the Bidder to ensure compliance with the Works Requirements;
- f) Outline of the arrangements of the Bidder to carry out testing upon completion as specified in the Works Requirements;

(e) Construction Schedule

Each Bidder shall set out a detailed Program and Schedule for mobilisation and construction of the Works to be performed, including estimated starting and finishing dates for individual components and identification of major milestones and critical path. The proposed Program and Schedule shall be developed according to Works Requirements and shall address the following:

- a) Details of the proposed schedule for obtaining permits that may be necessary in order to commence the Works, including the preparation of required studies, supporting information, and applications;
- b) Details of the proposed timelines for mobilization including where necessary, importation into Kenya of Key Plant and Equipment, establishment of site offices and facilities, mobilization of staff, etc.
- c) Details of the proposed timeline for carrying out the Works within the Time for Completion, in the form of a bar chart showing notably the critical path;
- d) Details of the proposed timeline for the testing, commissioning and handing over of the completed Works;

(f) Personnel

Form PER-1: Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements stated in Section III, Evaluation and Qualification Criteria. The data on their experience should be supplied using the Form below for each candidate.

1.	Title of position (*)
	Name
2.	Title of position (*)
	Name
3.	Title of position (*)
	Name
4.	Title of position (*)
	Name

(*): As listed in Section III, Evaluation and Qualification Criteria.

Form PER-2: Resume of Proposed Personnel

Name of Bidder: _____

Position: _____

Personnel information	Name: _____	Date of birth: _____
	Professional qualifications: _____ _____	
Present employment	Name of employer: _____	
	Address of employer: _____ _____	
	Telephone: _____	Contact (manager / personnel officer): _____
	Fax: _____	Email: _____
	Job title: _____ _____	Years with present employer: _____

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience

(g) Form EQU: Equipment

The Bidder 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 Bidder.

Item of equipment	
Equipment information	Name of manufacturer: _____ _____
	Model and power rating: _____ _____
Current status	Capacity: _____ _____
	Year of manufacture: _____ _____
Source	Current location: _____ _____
	Details of current commitments: _____ _____ _____
Source	Indicate source of the equipment: <input type="checkbox"/> Owned <input type="checkbox"/> Leased <input type="checkbox"/> Rented <input type="checkbox"/> Specially manufactured

Omit the following information for equipment owned by the Bidder.

Owner	Name of owner: _____	
	Address of owner: _____ _____ _____	
	Telephone: _____	Contact name and title: _____ _____
	Fax: _____	Email: _____
Agreements	Details of rental / lease / manufacture agreements specific to the project: _____ _____ _____ _____	

(h) Schedule of Projected Cash-Flow
(Based on the Construction Schedule)

Bidder to provide a schedule of Projected Cash-Flow which should be based on an Outline Programme for execution of the Works.

(i) Schedule of Manufacturers (Vendor List) for Key Materials / Equipment

No.	Material/Equipment	Name and Address of Manufacturer (where applicable)	Country of Origin	Name & Address of Supplier (including Country)	Make/Model (Where Applicable)	Applicable Quality Standard to which Material/Equipment Conforms
i)	<u>Ferrous Pipes and Fittings</u> Contractor to specify here below the material to be used for Ferrous Pipes and Fittings and method of jointing i.e. Steel Pipeline with Field Welded Joints OR Ductile Iron Pipeline with Standard Push-in Joints.					
ii)	HDPE Pressure Pipes and Fittings for Water Pipelines					
iii)	Double Walled Corrugated (DWC) Pipes for Sewers					
iv)	Gate Valves and Butterfly Valves					
v)	Altitude Valves					
vi)	Air Valves					
vii)	Electromagnetic Flow Meters (Battery Powered)					
viii)	Mechanical Flow Meters					
ix)	Cement					
x)	Reinforcement Steel					

Note: Bidder to submit Technical Data Sheets from the proposed manufacturers for each of the items above.
If the Bidder fails to provide adequate details as required above, the Bid may be deemed incomplete and consequently rejected.

Bidders Qualification Forms

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

**Form ELI-1.1:
Bidder Information Form**

Date: _____

Tender No. and title: *AWWDA/AFD/NWSP/W-02/2023,
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Nairobi Water and Sewerage Project*

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Bidder's name: _____ <i>[insert full name]</i>
In case of Joint Venture (JV), name of each member: _____ <i>[insert full name of each member in JV]</i>
In case of a JV, Bidder's actual or intended country of constitution: _____ <i>[indicate country of constitution]</i>
Bidder's actual or intended year of constitution: _____ <i>[indicate year of constitution]</i>
Bidder's legal address (in country of constitution): _____ <i>[insert street / number / town or city / country]</i>
Bidder's authorized representative information: Name: _____ <i>[insert full name]</i> Address: _____ <i>[insert street / number / town or city / country]</i> Telephone/Fax numbers: _____ <i>[insert telephone/fax numbers, including country and city codes]</i> Email address: _____ <i>[indicate email address]</i>
1. Attached are copies of original documents of: <input type="checkbox"/> Articles of Constitution (or equivalent documents of association) of the legal entity named above; <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1; <input type="checkbox"/> In case of State-owned enterprise or institution, in accordance with ITB 4.3, documents establishing: <ul style="list-style-type: none">• Legal and financial autonomy;• Operation under commercial law;• Establishing that the Bidder is not a dependent agency of the Employer.
2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership including current contact details i.e. telephone numbers and email addresses.

Form ELI-1.2: Bidder's JV Information Form

[The following table shall be filled by each member of a Joint Venture and, if applicable, by any specialized subcontractor, and in that case substitute "Bidder's JV member" for "specialized subcontractor".]

Date: _____

Tender No. and title: *AWWDA/AFD/NWSP/W-02/2023,
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Bidder's JV name: _____ <i>[insert full name]</i>
Bidder's JV member's name: _____ <i>[insert full name Bidder's JV Member]</i>
Bidder's JV member's country of constitution: _____ <i>[indicate country of constitution]</i>
Bidder's JV member's year of constitution: _____ <i>[indicate year of constitution]</i>
Bidder's JV member's legal address (in country of constitution): _____ <i>[insert street / number / town or city / country]</i>
Bidder's JV member's authorized representative information: Name: _____ <i>[insert full name]</i> Address: _____ <i>[insert street / number / town or city / country]</i> Telephone/Fax numbers: _____ <i>[insert telephone/fax numbers, including country and city codes]</i> Email address: _____ <i>[indicate email address]</i>
1. Attached are copies of original documents of: <input type="checkbox"/> Articles of Constitution (or equivalent documents of association) of the legal entity named above; <input type="checkbox"/> In case of State-owned enterprise or institution, in accordance with ITB 4.3, documents establishing: <ul style="list-style-type: none">• Legal and financial autonomy;• Operation under commercial law;• Establishing that the Bidder is not a dependent agency of the Employer.
2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership including current contact details i.e. telephone numbers and email addresses.

Form CON-2: Historical Contract Non-Performance, Pending Litigation and Litigation History

[The following table shall be filled in for the Bidder and for each member of a Joint Venture]

Bidder's Name: _____

Date: _____

JV Member's Name _____

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Non-Performed Contracts in accordance with Section III - Evaluation and Qualification Criteria			
<input type="checkbox"/> Contract non-performance did not occur since 1 st January 2018 specified in Section III, Evaluation and Qualification Criteria, criterion 2.1.			
<input type="checkbox"/> Contract(s) not performed since 1 st January 2018 specified in Section III, Evaluation and Qualification Criteria, criterion 2.1, as indicated below:			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and EUR equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street / number / city of town / country]</i> Reason(s) for non-performance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>

Pending Litigation, in accordance with Section III - Evaluation and Qualification Criteria			
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, criterion 2.3 <input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, criterion 2.3, as indicated below:			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), EUR Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert amount]</i>	Contract Identification: <i>[Indicate complete contract name, number, and any other identification]</i> Name of Employer: <i>[Insert full name]</i> Address of Employer: <i>[Insert street / number / city of town / country]</i> Matter in dispute: <i>[Indicate main issues in dispute]</i> Party who initiated the dispute: <i>[Indicate "Employer" or "Contractor"]</i> Status of dispute: <i>[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]</i>	<i>[insert amount]</i>
<i>[insert year]</i>	<i>[insert amount]</i>	...	<i>[insert amount]</i>
...

Form FIN – 3.1: Financial Situation and Performance

[The following table shall be filled in for the Bidder and for each member of a Joint Venture.]

Bidder's Name: _____

Date: _____

IPC No. and title: AWWDA/AFD/NWSP/W-02/2023,
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Nairobi Water and Sewerage Project
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1. Financial data

Type of Financial information in [indicate currency]	Historic information for previous <i>three (3) years</i> (amount in [indicate currency, currency exchange rate: EUR equivalent])		
	Year 1	Year 2	Year 3
Statement of financial position (information from balance sheet)			
Total assets (TA)			
Total financial liabilities ¹⁹			
Total equity/Net worth (NW)			
Current assets			
Current liabilities			
Working capital (WC)			
Information from income statement			
Total revenue			
Earnings before interest, taxes, depreciation, and amortization (EBITDA) ²⁰			
Earnings before taxes (EBT)			
Cash flow information			
Cash flow from operating activities			

¹⁹ Means any financial indebtedness for and in respect of:

- a) any monies borrowed on a short, medium or long-term basis;
- b) any bank overdraft;
- c) any amounts raised pursuant to any bills of exchange issued to a third party (or any dematerialised equivalent of such instrument);
- d) any amounts raised pursuant to any note purchase facility or the issue of bonds, notes, debentures, loan stock or any similar instruments;
- e) the amount of any liability in respect of any lease or hire purchase contract which would be treated as a finance or capital lease;
- f) receivables sold or discounted (other than any receivables to the extent they are sold on a non-recourse basis).

²⁰ Means, for any given year, the aggregate of:

- (+) net income
- (+) tax expense
- (+/-) extraordinary income or expense
- (+/-) financial result
- (+/-) net foreign exchange losses or gains
- (+) net depreciation and amortization allowances and provisions

2. Financial documents

The Bidder and in case of a JV, each member shall provide copies of financial statements for **three (3)** years pursuant Section III - Evaluation and Qualifications Criteria, criterion 3.1. The financial statements shall:

- a) Reflect the financial situation of the Bidder or in case of a JV, each member, and not an affiliated entity (such as parent company or group member);
 - b) Be independently audited or certified in accordance with local legislation;
 - c) Be complete, including all notes to the financial statements;
 - d) Correspond to accounting periods already completed and audited.
- ☐ Attached are copies of financial statements²¹ for the **three (3)** years required above and complying with the requirements

²¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of bid, the reason for this should be justified.

Form FIN-3.2: Annual Turnover

Bidder's Name: _____

Date: _____

JV Member's Name _____

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Year	Annual turnover data		
	Amount and currency ²²	Exchange rate	EUR equivalent
<i>[Indicate calendar year]</i>	<i>[insert amount and indicate currency]</i>	<i>[insert exchange rates used to calculate the EUR equivalent]</i>	<i>[insert EUR equivalent]</i>
		Average Annual Turnover²³	

²² The indicated turnover amounts must be identical as those appearing on the financial statements.

²³ See Section III, Evaluation and Qualification Criteria, criterion 3.2.

Form FIN-3.3: Financial Resources

[The following table shall be filled in for the Bidder and all parties combined in case of a Joint Venture]

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 (EUR equivalent)
1		
2		
3		
...		

Form FIN-3.4: Current Contract Commitments / Works in Progress

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

Current Contract Commitments					
No.	Name of Contract	Employer's Contact Address, Telephone and Fax	Value of Outstanding Work (Current EUR Equivalent)	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months (EUR/month)
1					
2					
3					
4					
5					
...					

Form EXP-4.1: General Construction Experience

[The following table shall be filled in for the Bidder and in the case of a JV Bidder, each Member]

Bidder's Name: _____

Date: _____

JV Member's Name _____

IPC No. and title: AWWDA/AFD/NWSP/W-02/2023,
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[Identify contracts that demonstrate continuous construction work over the past [number] years pursuant to Section III, Evaluation and Qualification Criteria, criterion 4.1. List contracts chronologically, according to their commencement (starting) dates.]

Starting Year ²⁴	Ending Year	Contract Identification	Role of Bidder
<i>[Indicate year]</i> _____	<i>[Indicate year]</i> _____	Contract name: <i>[insert full name]</i> Brief Description of the Works performed by the Bidder: <i>[describe works performed briefly]</i> Amount of contract: <i>[insert amount in currency, mention currency used, exchange rate and EUR equivalent]</i> Name of Employer: <i>[indicate full name]</i> Address: <i>[indicate street/number/town or city/country]</i>	<i>[insert "Prime Contractor" or "JV Member" or "Subcontractor" or "Management Contractor"]</i> _____
...

²⁴ See Section III, Evaluation and Qualification Criteria, criterion 4.1.

Form EXP-4.2(a): Specific Construction and Contract Management Experience

[The following table shall be filled in for contracts performed by the Bidder or each member of a Joint Venture]

Bidder's Name: _____

Date: _____

JV Member's Name: *[insert full name]*

IPC No. and title: AWWDA/AFD/NWSP/W-02/2023,
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Similar Contract No: _____ of 2	Information		
Contract Identification:	_____ <i>[Insert contract name and number, if applicable]</i>		
Award Date:	_____ <i>[Insert day, month, year, e.g. 15 June, 2015]</i>		
Completion Date:	_____ <i>[Insert day, month, year, e.g. 03 October, 2017]</i>		
Role in Contract: <i>[check the appropriate box]</i>	<input type="checkbox"/> Prime Contractor	<input type="checkbox"/> Member in JV	<input type="checkbox"/> Management Contractor
Total Contract Amount:	_____ <i>[Insert total contract amount in local currency]</i>		_____ <i>[Insert Exchange rate and total contract amount in EUR equivalent]</i>
If member is a JV or subcontractor, specify participation in total Contract amount:	_____ % <i>[Insert a percentage amount]</i>	_____ <i>[Insert total contract amount in local currency]</i>	_____ <i>[Insert exchange rate and total contract amount in EUR equivalent]</i>
Employer's Name:	_____ <i>[Insert full name]</i>		
Current Address:	_____ <i>[Indicate street / number / town or city / country]</i>		
Current Telephone / Fax numbers:	_____ <i>[Insert current telephone / fax numbers, including country and city area codes]</i>		
Current Email:	_____ <i>[Insert current email address, if available]</i>		

Form EXP - 4.2(a) (cont.)

Specific Construction and Contract Management Experience (cont.)

Bidder's Name: _____
JV Member's Name: _____

Similar Contract No: _____ of 2	Information
Description of the similarity in accordance with criterion 4.2(a) of Section III - Evaluation and Qualification Criteria:	
1. Amount	_____ [insert amount in local currency, exchange rate, EUR in words and in figures]
2. Physical size of required works items	_____ [Insert physical size of items]
3. Complexity	_____ [Insert description of complexity]
4. Methods/Technology	_____ [Insert specific aspects of the methods/technology involved in the Contract]
5. Construction rate for key activities	_____ [Insert rates and items]
6. Other Characteristics	_____ [Insert other characteristics, as described in Section VII - Works Requirement – Scope of Works]

Note: The Bidder shall provide a Legally Certified Completion Certificate for each completed Contract or a Supporting Letter from the Employer for an ongoing Contract indicating percentage of works completed for each of the references.

Form EXP-4.2(b): Construction Experience in Key Activities

Bidder's Name: _____

Date: _____

JV Member's Name: _____

Subcontractor's Name²⁵ (as per ITB 34.2 and 34.4): *[insert full name]*

IPC No. and title: AWWDA/AFD/NWSP/W-02/2023,
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1. **Key Activity No. 1:** *Construction of Large Water Transmission Pipelines (Steel or Ductile Iron), size DN 600mm and above, length 15km and above at a rate of at least 2.0km per month within a city / built-up urban area*

Information				
Contract Identification:	_____			
	<i>[Insert contract name and number, if applicable]</i>			
Award Date:	_____			
	<i>[Insert day, month, year, e.g. 15 June, 2015]</i>			
Completion Date:	_____			
	<i>[Insert day, month, year, e.g. 03 October, 2017]</i>			
Role in Contract: <i>[Check the appropriate box]</i>	<input type="checkbox"/> Prime Contractor	<input type="checkbox"/> Member in JV	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total Contract Amount:	_____			_____
	<i>[insert total contract amount in contract currency(ies)]</i>			<i>[insert exchange rate and total Contract amount in EUR equivalent]</i>
Quantity (length of pipeline constructed under the contract per year or part of the year (indicate No. of Months))	Size (diameter) of Pipeline (mm)	Total quantity in the Contract (km) (i)	Percentage participation (%) (ii)	Actual Quantity Performed (km) (i) x (ii)
Year 1				
Year 2				
Year 3				
Year 4				
Employer's Name:	_____			
	<i>[Insert full name]</i>			
Current Address:	_____			
	<i>[Indicate street / number / town or city / country]</i>			
Current Telephone / Fax numbers:	_____			
	<i>[Insert current telephone/fax numbers, including country and city area codes]</i>			
Current Email:	_____			
	<i>[Insert current email address, if available]</i>			

Note: Bidder to provide a Legally Certified Completion Certificate for each completed Contract or a Supporting Letter from the Employer for an ongoing Contract indicating percentage of works completed for each of the references

²⁵ If permitted by the Employer under "specialized works" (criterion 4.2(b) in the table of the Qualification Criteria of Section III, Evaluation and Qualification Criteria.

**Form EXP-4.2(b) (cont.):
Construction Experience in Key Activities (cont.)**

Bidder's Name: _____
JV Member's Name: _____

Key Activity No. 1 (cont.)

Description of the key activities in accordance with criterion 4.2(b) of Section III - Evaluation and Qualification Criteria	
Project Characteristics	<i>Bidder to insert response to inquiry indicated in left column</i>
i) Size(s)/Diameter(s) of Pipes laid in mm	
ii) Length of Pipeline in Km (if Pipeline had sections of varying diameters, indicate length of each diameter section)	
iii) Pipe Material(s) (e.g. Steel, Ductile Iron, etc.)	
iv) Method(s) of Jointing of Pipes & Fittings (e.g. couplings, flanged joints, welded joints, etc.)	
v) Duration of Pipeline Construction Activity (if in different sections, give durations for each section)	<i>Start Date (Month/Year)</i> _____ <i>Finish Date (Month/Year)</i> _____
vi) Bidder to provide briefly (within the space provided here) Name, Location and Description of the Project Area and any other Technical Information regarding the reference Project and Key activity to demonstrate the Bidder's relevant experience and capabilities for similar works	

Form EXP - 4.2(b)

Construction Experience in Key Activities

Bidder's Name: _____

Date: _____

JV Member's Name: _____

Subcontractor's Name²⁶ (as per ITB 34.2 and 34.4): *[insert full name]*

IPC No. and title: *AWWDA/AFD/NWSP/W-02/2023,
Construction Works for Kabete-Olesereni Pipeline, West and South
Nairobi Water and Sewerage Project*

Page _____ of _____ pages

2. **Key Activity No. 2:** *Construction of Water Distribution Pipelines and/or Sewers, sizes ranging from 63mm to 600mm diameter at a rate of at least 6km per month in built-up urban areas*

Information				
Contract Identification:	_____ <i>[Insert contract name and number, if applicable]</i>			
Award Date:	_____ <i>[Insert day, month, year, e.g. 15 June, 2015]</i>			
Completion Date:	_____ <i>[Insert day, month, year, e.g. 03 October, 2017]</i>			
Role in Contract: <i>[Check the appropriate box]</i>	<input type="checkbox"/> Prime Contractor	<input type="checkbox"/> Member in JV	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total Contract Amount:	_____ <i>[insert total contract amount in contract currency(ies)]</i>		_____ <i>[insert exchange rate and total Contract amount in EUR equivalent]</i>	
Quantity (Length of Pipelines laid) under the contract per year or part of the year (indicate No. of Months)	Size(s)/ Diameter(s) of Pipelines Laid (mm)	Total quantity in the Contract (km) (i)	Percentage participation (%) (ii)	Actual Quantity Performed (km) (i) x (ii)
Year 1				
Year 2				
Year 3				
Year 4				
Employer's Name:	_____ <i>[Insert full name]</i>			
Current Address:	_____ <i>[Indicate street / number / town or city / country]</i>			
Current Telephone / Fax numbers:	_____ <i>[Insert current telephone/fax numbers, including country and city area codes]</i>			
Current Email:	_____ <i>[Insert current email address, if available]</i>			

Note: *Bidder to provide a Legally Certified Completion Certificate for each completed Contract or a Supporting Letter from the Employer for an ongoing Contract indicating percentage of works completed for each of the references*

²⁶ If permitted by the Employer under "specialized works" (criterion 4.2(b) in the table of the Qualification Criteria of Section III, Evaluation and Qualification Criteria.

**Form EXP-4.2(b) (cont.):
Construction Experience in Key Activities (cont.)**

Bidder's Name: _____
JV Member's Name: _____

Key Activity No. 2 (cont.)

Description of the key activities in accordance with criterion 4.2(b) of Section III – Evaluation and Qualification Criteria	
Project Characteristics	<i>Bidder to insert response to inquiry indicated in left column</i>
i) Length in m and Size(s) / Diameter(s) in mm of Pipes laid (indicate whether Water Pipes or Sewers)	
ii) Pipe Material(s) e.g. Steel, Ductile Iron, etc.(indicate lengths of pipeline laid for each material)	
iii) Method(s) of Jointing of Pipes & Fittings (e.g. push-on joints, butt fusion, couplings, flanged joints, welded joints, etc.)	
iv) Duration of Pipeline Construction Activity (if in different sections, give durations for each section)	<i>Start Date (Month/Year)</i> _____ <i>Finish Date (Month/Year)</i> _____
v) Bidder to provide briefly (within the space provided here) Name, Location and Description of the Project Area and any other Technical Information regarding the reference Project and Key activity to demonstrate the Bidder's relevant experience and capabilities for similar works	

Form EXP - 4.2(b)

Construction Experience in Key Activities

Bidder's Name: _____

Date: _____

JV Member's Name: _____

Subcontractor's Name²⁷ (as per ITB 34.2 and 34.4): *[insert full name]*

IPC No. and title: *AWWDA/AFD/NWSP/W-02/2023,
Construction Works for Kabete-Olesereni Pipeline, West and South
Nairobi Water and Sewerage Project*

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3. Key Activity No. 3: Construction of Reinforced Concrete Water Retaining Structures (e.g. Water Storage Tanks) of capacity 5,000m³ or larger

Information			
Contract Identification:	_____		
	<i>[Insert contract name and number, if applicable]</i>		
Award Date:	_____		
	<i>[Insert day, month, year, e.g. 15 June, 2015]</i>		
Completion Date:	_____		
	<i>[Insert day, month, year, e.g. 03 October, 2017]</i>		
Role in Contract: <i>[Check the appropriate box]</i>	<input type="checkbox"/> Prime Contractor	<input type="checkbox"/> Member in JV	<input type="checkbox"/> Management Contractor
	<input type="checkbox"/> Subcontractor		
Total Contract Amount:	_____		_____
	<i>[insert total contract amount in contract currency(ies)]</i>		<i>[insert exchange rate and total Contract amount in EUR equivalent]</i>
Quantity (Volume of concrete produced and placed under the contract per year or part of the year (indicate No. of Months)	Total quantity in the Contract (m ³) (i)	Percentage participation (%) (ii)	Actual Quantity Performed (m ³) (i) x (ii)
Year 1			
Year 2			
Year 3			
Year 4			
Employer's Name:	_____		
	<i>[Insert full name]</i>		
Current Address:	_____		
	<i>[Indicate street / number / town or city / country]</i>		
Current Telephone / Fax numbers:	_____		
	<i>[Insert current telephone/fax numbers, including country and city area codes]</i>		
Current Email:	_____		
	<i>[Insert current email address, if available]</i>		

Note: Bidder to provide a Legally Certified Completion Certificate for each completed Contract or a Supporting Letter from the Employer for an ongoing Contract indicating percentage of works completed for each of the references

²⁷ If permitted by the Employer under "specialized works" (criterion 4.2(b) in the table of the Qualification Criteria of Section III, Evaluation and Qualification Criteria.

**Form EXP-4.2(b) (cont.):
Construction Experience in Key Activities (cont.)**

Bidder's Name: _____
JV Member's Name: _____

Key Activity No. 3 (cont.)

Description of the key activities in accordance with criterion 4.2(b) of Section III - Evaluation and Qualification Criteria	
Project Characteristics	<i>Bidder to insert response to inquiry indicated in left column</i>
i) Type and Description of Reinforced Concrete Structures constructed e.g. Water Storage Tanks, Water/Wastewater Treatment Structures such as Sedimentation Tanks, Filters, etc. Indicate number of the structures, physical dimensions and capacities of the structures	
ii) Total Volume of concrete produced and placed for the above structures (m ³)	
iii) Total Quantity of Reinforcement Steel used (Tons)	
iv) Duration of Reinforced Concrete Structures Construction Work	<i>Start Date (Month/Year)</i> _____ <i>Finish Date (Month/Year)</i> _____
v) Applicant to provide briefly (within the space provided here) any other Technical Information regarding the reference Project and Key activity to demonstrate the Applicant's relevant experience and capabilities for similar works	

**Form CER:
Quality Management / Environmental, Social, Health and Safety (ESHS)
Certification**

Bidder's Name: _____

Date: _____

JV Member's Name: _____

IPC No. and title: AWWDA/AFD/NWSP/W-02/2023,
Construction Works for Kabete-Olesereni Pipeline, West and South
Nairobi Water and Sewerage Project

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Certification *[Quality / Environmental / Health and Security]*
[Bidder to Delete as appropriate]

DESCRIPTION	INFORMATION
Identification of the certificate:	_____ <i>[Insert full name of the certificate]</i>
Date of Issue:	_____ <i>[Insert day, month, year of first certificate award]</i>
Areas covered by the certificate:	_____ <i>[Insert activities and locations]</i>
Expiry Date:	_____ <i>[Insert day, month, year]</i>
Issuer's Name:	_____ <i>[Insert full name]</i>
Address:	_____ <i>[Insert street / number / town or city / country]</i>
Telephone/Fax numbers:	_____ <i>[Insert phone/fax numbers, including country and city area codes]</i>
Email:	_____ <i>[Insert email address, if available]</i>
Compliance with international standards:	The certificate is <i>[ISO 9001, ISO 14001, ISO 45001]</i> <i>[select as appropriate]</i> <div style="text-align: center;"><input type="checkbox"/> Yes / <input type="checkbox"/> No</div>
If no, proof of conformity with ISO standards by the Bidder:	The Bidder shall provide a conformity assessment of its certificate by an internationally recognized Accredited Certification Body.

The Bidder shall fill this Form for each Certification required under criterion 5.1 of Section III, Evaluation and Qualification Criteria

Form EXP-ESHS: Environmental, Social, Health and Safety (ESHS) Experience

Bidder's Name: _____

Date: _____

JV Member's Name: _____

IPC No. and title: AWWDA/AFD/NWSP/W-02/2023,
Construction Works for Kabete-Olesereni Pipeline, West and South
Nairobi Water and Sewerage Project
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Similar Contract No: _____ of 2	Information		
Contract Identification:	_____ [Insert contract name and number, if applicable]		
Short Project Description (main scope and key values of project):	_____ [Insert short project description]		
Award Date:	_____ [Insert day, month, year]		
Completion Date:	_____ [Insert day, month, year]		
Role in contract: [Check the appropriate box]	<input type="checkbox"/> Prime Contractor	<input type="checkbox"/> Member in JV	<input type="checkbox"/> Management Contractor
Total Contract Amount:	_____ [Insert total contract amount in local currency]		_____ [Insert total contract amount in EUR equivalent]
If party in a JV or subcontractor, specify participation of Total Contract Amount:	_____% [Insert a percentage amount]	_____ [Insert total contract amount in local currency]	_____ [Insert total contract amount in EUR equivalent]
Employer's Name:	_____ [Insert full name]		
Address:	_____ [Insert street / number / town or city / country]		
Telephone/Fax numbers:	_____ [Insert telephone / fax numbers, including country and city area codes]		
Email:	_____ [Insert email address, if available]		

Similar Contract No:_____ of 2	Information
<p>Description of the ESHS challenges and measures implemented under the contract:</p> <p>a) ESHS Challenge</p> <p>b) ESHS Risk Assessment Level</p> <p>c) ESHS implemented measures (as per criterion 5.3 of Section III - Evaluation and Qualification Criteria)</p>	<p><i>[Insert description]</i></p> <p><i>[Insert classification of risk assessment as per development bank classification if applicable]</i></p> <p><i>[Provide a document supporting the implementation of ESHS measures, acceptable to the Employer¹]</i></p>

¹ For example, ESHS activity reports, ESHS final reports, ESHS inspection reports, supervision Engineer's reports, etc. Only documents evidencing implementation of ESHS measures shall be accepted.

Form of Bid Security

Demand Guarantee

Beneficiary: *The Chief Executive Officer, Athi Water Works Development Agency*

Invitation of Bids No.: *AWWDA/AFD/NWSP/W-02/2023*

Date: _____

Bid Guarantee No.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "**the Bidder**") has submitted or will submit to the Beneficiary its bid (hereinafter called "**the Bid**") for the execution of **Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project** under Invitation for Bids No. **AWWDA/AFD/NWSP/W-02/2023** ("**the IFB**").

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

At the request of the Bidder, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's first 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 Bidder:

- a) Has withdrawn its Bid during the period of Bid validity set forth in the Bidder's Letter of Bid ("**the Bid Validity Period**"), or any extension thereto provided by the Bidder; or
- b) Having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Bidder, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the performance security, in accordance with the Instructions to Bidders ("**ITB**") of the Beneficiary's Bidding Documents.

This guarantee will expire:

- a) if the Bidder is the successful Bidder, upon our receipt of copies of the contract agreement signed by the Bidder and the performance security issued to the Beneficiary in relation to such contract agreement; or
- b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Bidder of the results of the bidding process; or (ii) twenty-eight days after the end of the Bid 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.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

[Signature(s)]

Section V – Eligibility Criteria

Eligibility in AFD-Financed Procurement

1. Financing allocated by AFD to a Contracting Authority has been entirely untied since 1st January 2002. To the exception of any equipment or any sector which is subject to an embargo by the United Nations, the European Union or France, all goods, works, plants, consulting services and non-consulting services are eligible for AFD financing regardless of the country of origin of the supplier, contractor, subcontractor, consultant or subconsultant inputs or resources used in the implementation processes. The Contracting Authority means the Purchaser, the Employer, the Client, as the case may be, for the procurement of goods, works, plants, consulting services or non-consulting services.
2. Natural or legal Persons¹ (including all members of a joint venture or any of their suppliers, contractors, subcontractors, consultants or subconsultants) shall not be awarded an AFD-financed contract if, on the date of submission of an application, a bid or a proposal, or on the date of award of a contract, they:
 - 2.1 Are bankrupt or being wound up or ceasing their activities, are having their activities administered by the courts, have entered into receivership, or are in any analogous situation arising from a similar procedure;
 - 2.2 Have been:
 - a) convicted, within the past five years by a court decision, which has the force of res judicata in the country where the contract is implemented, of fraud, corruption or of any other offense committed during a procurement process or performance of a contract, unless they provide supporting information together with their Statement of Integrity (Form available as Appendix to the Application, Bid or Proposal Submission Form) which shows that this conviction is not relevant in the context of the Contract;
 - b) subject to an administrative sanction within the past five years by the European Union or by the competent authorities of the country where they are constituted, for fraud, corruption or for any other offense committed during a procurement process or performance of a contract, unless they provide supporting information together with their Statement of Integrity (Form available as Appendix to the Application, Bid or Proposal Submission Form) which shows that this sanction is not relevant in the context of the Contract;
 - c) convicted, within the past five years by a court decision, which has the force of res judicata, of fraud, corruption or of any other offense committed during the procurement process or performance of an AFD-financed contract;
 - 2.3 Are listed for financial sanctions by the United Nations, the European Union and/or France for the purposes of fight-against-terrorist financing or threat to international peace and security;
 - 2.4 Have been subject within the past five years to a contract termination fully settled against them for significant or persistent failure to comply with their contractual obligations during contract performance, unless this termination was challenged and dispute resolution is still pending or has not confirmed a full settlement against them;
 - 2.5 Have not fulfilled their fiscal obligations regarding payments of taxes in accordance with the legal provisions of either the country where they are constituted or the Contracting Authority's country;
 - 2.6 Are subject to an exclusion decision of the World Bank and are listed on the website <http://www.worldbank.org/debarr>, unless they provide supporting information together with their Statement of Integrity (Form available as Appendix to the Application, Bid or Proposal

¹ Means any Person whether natural or legal, firm, company, corporation, government, state or state agency or any association, or group of two or more of the foregoing (whether or not having separate legal status).

Submission Form) which shows that this exclusion is not relevant in the context of the Contract;

- 2.7 Have created false documents or committed misrepresentation in documentation requested by the Contracting Authority as part of the procurement process of the Contract.
3. State-owned entities may compete only if they can establish that they (i) are legally and financially autonomous, and (ii) operate under commercial law. To be eligible, a state-owned entity shall establish to AFD's satisfaction, through all relevant documents, including its Charter and other information AFD may request, that it: (i) is a legal entity separate from their state (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to their state, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt.

Section VI – AFD Policy – Corrupt and Fraudulent Practices - Environmental and Social Responsibility

1. Corrupt and Fraudulent Practices

The Contracting Authority and the suppliers, contractors, subcontractors, consultants or subconsultants must observe the highest standard of ethics during the procurement process and performance of the contract. The Contracting Authority means the Purchaser, the Employer, the Client, as the case may be, for the procurement of goods, works, plants, consulting services or non-consulting services.

By signing the Statement of Integrity the suppliers, contractors, subcontractors, consultants or subconsultants declare that (i) “it did not engage in any practice likely to influence the contract award process to the Contracting Authority’s detriment, and that it did not and will not get involved in any anti-competitive practice”, and that (ii) “the procurement process and the performance of the contract did not and shall not give rise to any act of corruption or fraud”.

Moreover, AFD requires including in the Procurement Documents and AFD-financed contracts a provision requiring that suppliers, contractors, subcontractors, consultants or subconsultants will permit AFD to inspect their accounts and records relating to the procurement process and performance of the AFD-financed contract, and to have them audited by auditors appointed by AFD.

AFD reserves the right to take any action it deems appropriate to check that these ethics rules are observed and reserves, in particular, the rights to:

- a) Reject a proposal for a contract award if it is established that during the selection process the bidder or consultant that is recommended for the award has been convicted of corruption, directly or by means of an agent, or has engaged in fraud or anti-competitive practices in view of being awarded the Contract;
- b) Declare misprocurement when it is established that, at any time, the Contracting Authority, the suppliers, contractors, subcontractors, consultants or subconsultants their representatives have engaged in acts of corruption, fraud or anti-competitive practices during the procurement process or performance of the contract without the Contracting Authority having taken appropriate action in due time satisfactory to AFD to remedy the situation, including by failing to inform AFD at the time they knew of such practices.

AFD defines, for the purposes of this provision, the terms set forth below as follows:

- a) Corruption of a Public Officer means:
 - The act of promising, offering or giving to a Public Officer, directly or indirectly, an undue advantage of any kind for himself or for another Person¹ or entity, for such Public Officer to act or refrain from acting in his official capacity; or
 - The act by which a Public Officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another Person or entity, for such Public Officer to act or refrain from acting in his official capacity.
- b) A Public Officer shall be construed as meaning:
 - Any person who holds a legislative, executive, administrative or judicial mandate (within the country of the Contracting Authority) regardless of whether that natural Person was nominated or elected, regardless of the permanent or temporary, paid or unpaid nature of the position and regardless of the hierarchical level the natural Person occupies;
 - Any other natural Person who performs a public function, including for a State institution or a State-owned company, or who provides a public service;

¹ Means any Person whether natural or legal, firm, company, corporation, government, state or state agency or any association, or group of two or more of the foregoing (whether or not having separate legal status).

- Any other natural Person defined as a Public Officer by the national laws of the country of the Contracting Authority.
- c) Corruption of a Private Person² means:
- The act of promising, offering or giving to any Private Person, directly or indirectly, an undue advantage of any kind for himself or for another Person or entity, for such Private Person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations; or;
 - The act by which any Private Person solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another Person or entity, for such Private Person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations.
- d) Fraud means any dishonest conduct (act or omission), whether or not it constitutes a criminal offence, deliberately intended to deceive others, to intentionally conceal items, to violate or vitiate consent, to circumvent legal or regulatory requirements and/or to violate internal rules in order to obtain illegitimate profit.
- e) Anti-competitive practices mean:
- Any concerted or implied practices which have as their object or effect the prevention, restriction or distortion of competition within a marketplace, especially where they (i) limit access to the marketplace or free exercise of competition by other undertakings, (ii) prevent free, competition-driven price determination by artificially causing price increases or decreases, (iii) restrict or control production, markets, investments or technical progress; or (iv) divide up market shares or sources of supply;
 - Any abuse by one undertaking or a group of undertakings which hold a dominant position on an internal market or on a substantial part of it;
 - Any practice whereby prices are quoted or set unreasonably low, the object of which is to eliminate an undertaking or any of its products from a market or to prevent it from entering the market.

2. Environmental and Social Responsibility

In order to promote sustainable development, AFD seeks to ensure that internationally recognised environmental and social standards are complied with. Suppliers, contractors, subcontractors, consultants or subconsultants for AFD-financed contracts shall consequently undertake in the Statement of Integrity to:

- a) Comply with and ensure that all their subcontractors or subconsultants comply with international environmental and labour standards, consistent with applicable law and regulations in the country of implementation of the contract, including the fundamental conventions of the International Labour Organisation (ILO) and international environmental treaties;
- b) Implement environmental and social risks mitigation measures when specified in the environmental and social management plan (ESMP) provided by the Contracting Authority.

² Means any natural Person other than a Public Officer.

PART 2 - Works Requirements

Section VII – Works Requirements

1. SCOPE OF WORKS

The Scope of Works is as follows:

- i) Construction of the Kabete-Oleserani Pipeline, DN 600 Ferrous (Steel or Ductile Iron) Pipeline, length 19.6 km
- ii) Construction of Water Distribution Pipelines, HDPE and Ferrous (Steel or Ductile Iron Pipeline) size 63mm to 600mm diameter, total length 37 km in Kangemi, Kawangware, Wilson Airport Area, , Kabiria, Ngong Forest, Karen Plains and Kirigu areas.
- iii) Water distribution network in Kinoo Area, OD 50 to OD 160, total length 20 km
- iv) Construction of 1Nr Reinforced Concrete Water Storage Tank at Karen, capacity 5,500m³.
- v) Construction of Reticulation Sewers, OD 200 to OD 300 Double Wall Corrugated (DWC) HDPE Pipes, approximate total length 63 km in Dagoretti, Ngando, Riruta, , Kawangware, Kangemi and Uthiru areas.
- vi) Consumer Water Connections - 560Nr Water Connections
- vii) Consumer Sewer Connections - 640Nr Sewer Connections including approx. 12km of Tertiary / Service Lines (DWC Pipes OD 160 / OD 200) to facilitate the Connections

2. SPECIFICATIONS

The Specifications to be used for the Works are:

- (i) Technical Specifications
- (ii) Specifications for Environmental, Social, Health and Safety (ESHS) Management of the Works
- (iii) Security Specifications

The Specifications are given in Volume II of the Bidding Document.

3. DRAWINGS

The Drawings for the Works are given in Volume III of the Bidding Document.

PART 3 - Conditions of Contract (CC) and Contracts Forms

Section VIII – General Conditions (GC)

Athi Water Works Development Agency

[Name of Employer]

Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project

[Name of Contract]

The General Conditions that follow are the Multilateral Development Banks Harmonized Edition of the Conditions of Contract for Construction prepared and copyrighted by the International Federation of Consulting Engineers (*Fédération Internationale des Ingénieurs-Conseils*, or *FIDIC*), FIDIC 2010-All rights reserved.

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1 General Provisions

- 1.1 Definitions In the Conditions of Contract ("these Conditions"), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.
- 1.1.1 The Contract
- 1.1.1.1 **"Contract"** means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.
- 1.1.1.2 **"Contract Agreement"** means the contract agreement referred to in Sub-Clause 1.6 [*Contract Agreement*].
- 1.1.1.3 **"Letter of Acceptance"** means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression "Letter of Acceptance" means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.
- 1.1.1.4 **"Letter of Tender"** means the document entitled letter of tender or letter of bid, which was completed by the Contractor and includes the signed offer to the Employer for the Works.
- 1.1.1.5 **"Specification"** means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.
- 1.1.1.6 **"Drawings"** means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.
- 1.1.1.7 **"Schedules"** means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.
- 1.1.1.8 **"Tender"** means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.
- 1.1.1.9 **"Bill of Quantities", "Daywork Schedule" and "Schedule of Payment Currencies"** mean the documents so named (if any) which are comprised in the Schedules.
- 1.1.1.10 **"Contract Data"** means the pages completed by the Employer entitled contract data which constitute Part A of the Particular Conditions.

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|-------|--|---|
| 1.1.2 | Parties and
Persons | <p>1.1.2.1 "Party" means the Employer or the Contractor, as the context requires.</p> <p>1.1.2.2 "Employer" means the person named as employer in the Contract Data and the legal successors in title to this person.</p> <p>1.1.2.3 "Contractor" means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).</p> <p>1.1.2.4 "Engineer" means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [<i>Replacement of the Engineer</i>].</p> <p>1.1.2.5 "Contractor's Representative" means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [<i>Contractor's Representative</i>], who acts on behalf of the Contractor.</p> <p>1.1.2.6 "Employer's Personnel" means the Engineer, the assistants referred to in Sub-Clause 3.2 [<i>Delegation by the Engineer</i>] and all other staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the Employer or the Engineer, as Employer's Personnel.</p> <p>1.1.2.7 "Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.</p> <p>1.1.2.8 "Subcontractor" means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.</p> <p>1.1.2.9 "DB" means the person or three persons appointed under Sub-Clause 20.2 [<i>Appointment of the Dispute Board</i>] or Sub-Clause 20.3 [<i>Failure to Agree on the Composition of the Dispute Board</i>].</p> <p>1.1.2.10 "FIDIC" means the <i>Fédération Internationale des Ingénieurs-Conseils</i>, the international federation of consulting engineers.</p> <p>1.1.2.11 "Bank" means the financing institution (if any) named in the Contract Data.</p> <p>1.1.2.12 "Borrower" means the person (if any) named as the borrower in the Contract Data.</p> |
| 1.1.3 | Dates, Tests,
Periods and
Completion | <p>1.1.3.1 "Base Date" means the date 28 days prior to the latest date for submission of the Tender.</p> <p>1.1.3.2 "Commencement Date" means the date notified under Sub-Clause 8.1 [<i>Commencement of Works</i>].</p> <p>1.1.3.3 "Time of Completion" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [<i>Time for Completion</i>], as stated in the Contract Data (with any extension under</p> |

- Sub-Clause 8.4 [*Extension of Time for Completion*]), calculated from the Commencement Date.
- 1.1.3.4 **"Tests on Completion"** means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [*Tests on Completion*] before the Works or a Section (as the case may be) are taken over by the Employer.
- 1.1.3.5 **"Taking-Over Certificate"** means a certificate issued under Clause 10 [*Employer's Taking Over*].
- 1.1.3.6 **"Test after Completion"** means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Employer.
- 1.1.3.7 **"Defects Notification Period"** means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [*Completion of Outstanding Work and Remedying Defects*], which extends over 365 days except if otherwise stated in the Contract Data (with any extension under Sub-Clause 11.3 [*Extension of Defects Notification Period*]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].
- 1.1.3.8 **"Performance Certificate"** means the certificate issued under Sub-Clause 11.9 [*Performance Certificate*].
- 1.1.3.9 **"Day"** means a calendar day and **"year"** means 365 days.
- 1.1.4 Money and Payments
- 1.1.4.1 **"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.
- 1.1.4.2 **"Contract Price"** means the price defined in Sub-Clause 14.1 [*The Contract Price*], and includes adjustments in accordance with the Contract.
- 1.1.4.3 **"Cost"** means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.
- 1.1.4.4 **"Final Payment Certificate"** means the payment certificate issued under Sub-Clause 14.13 [*Issue of Final Payment Certificate*].
- 1.1.4.5 **"Final Statement"** means the statement defined in Sub-Clause 14.11 [*Application for Final Payment Certificate*].
- 1.1.4.6 **"Foreign Currency"** means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.
- 1.1.4.7 **"Interim Payment Certificate"** means a payment certificate issued under Clause 14 [*Contract Price and Payment*].
- 1.1.4.8 **"Local Currency"** means the currency of the Country.
- 1.1.4.9 **"Payment Certificate"** means a payment certificate issued under Clause 14 [*Contract Price and Payment*].
- 1.1.4.10 **"Provisional Sum"** means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any

part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 *[Provisional Sums]*.

- 1.1.4.11 "**Retention Money**" means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 *[Application for Interim Payment Certificates]* and pays under Sub-Clause 14.9 *[Payment of Retention Money]*.
- 1.1.4.12 "**Statement**" means a statement submitted by the Contractor as part of an application, under Clause 14 *[Contract Price and Payment]*, for a payment certificate.
- 1.1.5 Works and Goods
 - 1.1.5.1 "**Contractor's Equipment**" means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Employer's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.
 - 1.1.5.2 "**Goods**" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.
 - 1.1.5.3 "**Materials**" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.
 - 1.1.5.4 "**Permanent Works**" means the permanent works to be executed by the Contractor under the Contract.
 - 1.1.5.5 "**Plant**" means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.
 - 1.1.5.6 "**Section**" means a part of the Works specified in the Contract Data as a Section (if any).
 - 1.1.5.7 "**Temporary Works**" means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.
 - 1.1.5.8 "**Works**" mean the Permanent Works and the Temporary Works, or either of them as appropriate.
- 1.1.6 Other Definitions
 - 1.1.6.1 "**Contractor's Documents**" means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.
 - 1.1.6.2 "**Country**" means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.
 - 1.1.6.3 "**Employer's Equipment**" means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Employer.
 - 1.1.6.4 "**Force Majeure**" is defined in Clause 19 *[Force Majeure]*.
 - 1.1.6.5 "**Laws**" means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.

- 1.1.6.6 **"Performance Security"** (means the security (or securities, if any) under Sub-Clause 4.2 [*Performance Security*].
- 1.1.6.7 **"Site"** means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.
- 1.1.6.8 **"Unforeseeable"** means not reasonably foreseeable by an experienced contractor by the Base Date.
- 1.1.6.9 **"Variation"** means any change to the Works, which is instructed or approved as a variation under Clause 13 [*Variations and Adjustments*].
- 1.1.6.10 **"Notice of Dissatisfaction"** means the notice given by either Party to the other under Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*] indicating its dissatisfaction and intention to commence arbitration.

1.2 Interpretation

In the Contract, except where the context requires otherwise:

- a) Words indicating one gender include all genders;
- b) Words indicating the singular also include the plural and words indicating the plural also include the singular;
- c) Provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;
- d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and
- e) The word "tender" is synonymous with "bid" and "tenderer" with "Bidder" and the words "tender documents" with "bidding documents".

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

In these Conditions, provisions including the expression "Cost plus profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Contract Data.

1.3 Communications

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

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

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice

- is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.
- 1.4 Law and Language The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.
- The ruling language of the Contract shall be that stated in the Contract Data.
- The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.
- 1.5 Priority of Documents The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:
- a) The Contract Agreement (if any);
 - b) The Letter of Acceptance;
 - c) The Letter of Tender;
 - d) The Particular Conditions – Part A;
 - e) The Particular Conditions – Part B;
 - f) These General Conditions;
 - g) The Specification;
 - h) The Drawings; and
 - i) The Schedules and any other documents forming part of the Contract.
- If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.
- 1.6 Contract Agreement The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.
- 1.7 Assignment Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:
- a) May assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and
 - b) May, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.
- 1.8 Care and Supply of Documents The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.
- Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.
- The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents

(if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

1.9 Delayed Drawings or Instructions

The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

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

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

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

1.10 Employer's Use of Contractor's Documents

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

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

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

The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of)

- the Employer for purposes other than those permitted under this Sub-Clause.
- 1.11 Contractor's Use of Employer's Documents
- As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract.
- They shall not, without the Employer's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.
- 1.12 Confidential Details
- The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.
- Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.
- 1.13 Compliance with Laws
- The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:
- a) The Employer shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and
 - b) The Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.
- 1.14 Joint and Several Liability
- If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:
- a) These persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;
 - b) These persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and
 - c) The Contractor shall not alter its composition or legal status without the prior consent of the Employer.
- 1.15 Inspections and Audit by the Bank
- The Contractor shall permit the Bank and/or persons appointed by the Bank to inspect the Site and/or the Contractor's accounts and records relating to the performance of the Contract and to have such accounts and records audited by auditors appointed by the Bank if required by the Bank.

2 The Employer

- 2.1 Right of Access to the Site
- The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.
- If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 *[Programme]*.
- If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 *[Contractor's Claims]* to:
- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 *[Extension of Time for Completion]*; and
 - b) Payment of any such Cost plus profit, which shall be included in the Contract Price.
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 *[Determinations]* to agree or determine these matters.
- However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.
- 2.2 Permits, Licences or Approval
- The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:
- a) Copies of the Laws of the Country which are relevant to the Contract but are not readily available, and
 - b) Any permits, licences or approvals required by the Laws of the Country:
 - (i) Which the Contractor is required to obtain under Sub-Clause 1.13 *[Compliance with Laws]*;
 - (ii) For the delivery of Goods, including clearance through customs; and
 - (iii) For the export of Contractor's Equipment when it is removed from the Site.
- 2.3 Employer's Personnel
- The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:
- a) Co-operate with the Contractor's efforts under Sub-Clause 4.6 *[Co-operation]*; and
 - b) Take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of

Sub-Clause 4.8 *[Safety Procedures]* and under
Sub-Clause 4.18 *[Protection of the Environment]*.

- 2.4 Employer's Financial Arrangements The Employer shall submit, before the Commencement Date and thereafter within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 *[Contract Price and Payment]*. Before the Employer makes any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in his notice of the extent to which such funds will be available.

- 2.5 Employer's Claims If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 *[Electricity, Water and Gas]*, under Sub-Clause 4.20 *[Employer's Equipment and Free-Issue Materials]*, or for other services requested by the Contractor.

The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 *[Determinations]* to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 *[Extension of Defects Notification Period]*.

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

3 The Engineer

- 3.1 Engineer's Duties and Authority The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Engineer.

However, whenever the Engineer exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval.

Except as otherwise stated in these Conditions:

- a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer;
- b) The Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;
- c) Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
- d) Any act by the Engineer in response to a Contractor's request except as otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.

The following provisions shall apply:

The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions:

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

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

- 3.2 Delegation by the Engineer
- The Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [*Determinations*].
- Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:
- a) Any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the work, Plant or Materials;
 - b) If the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.
- 3.3 Instructions of the Engineer
- The Engineer may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [*Variations and Adjustments*] shall apply.
- The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer or a delegated assistant:
- a) Gives an oral instruction;
 - b) Receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction; and
 - c) Does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation;
- then the confirmation shall constitute the written instruction of the Engineer or delegated assistant (as the case may be).
- 3.4 Replacement of the Engineer
- If the Employer intends to replace the Engineer, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer. If the Contractor considers the intended replacement Engineer to be unsuitable, he has the right to raise objection against him by notice to the Employer, with supporting particulars, and the Employer shall give full and fair consideration to this objection.
- 3.5 Determinations
- Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach

agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars, within 28 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [*Claims, Disputes and Arbitration*].

4 The Contractor

- 4.1 Contractor's General Obligations The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.

The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

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

The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.

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

- a) The Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
- b) These Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [*Law and Language*], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs;
- c) The Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and
- d) Prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle,

reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over of the Works and Sections*] until these documents and manuals have been submitted to the Engineer.

4.2 Performance
Security

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the Contract Data and denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance, and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor, and shall be in the form annexed to the Particular Conditions, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.

Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in cost and/or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

4.3 Contractor's
Representative

The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [*Contractor's Personnel*], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer's prior consent, and the Engineer shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [*Instructions of the Engineer*].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

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

4.4 Subcontractors

The Contractor shall not subcontract the whole of the Works.

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

- a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
- b) The prior consent of the Engineer shall be obtained to other proposed Subcontractors;
- c) The Contractor shall give the Engineer not less than 28 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
- d) Each subcontract shall include provisions which would entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 4.5 [*Assignment of Benefit of Subcontract*] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [*Termination by Employer*].

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

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

4.5 Assignment of Benefit of Subcontractor

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Employer, then the Contractor shall do so. Unless otherwise

stated in the assignment, the Contractor shall have no liability to the Employer for the work carried out by the Subcontractor after the assignment takes effect.

4.6 Co-operation

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

- a) The Employer's Personnel;
- b) Any other contractors employed by the Employer; and
- c) The personnel of any legally constituted public authorities;

who may be employed in the execution on or near the Site of any work not included in the Contract.

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

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

4.7 Setting Out

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 *[Contractor's Claims]* to:

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

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 *[Determinations]* to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

- 4.8 Safety Procedures The Contractor shall:
- a) Comply with all applicable safety regulations;
 - b) Take care for the safety of all persons entitled to be on the Site;
 - c) Use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons;
 - d) Provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [*Employer's Taking Over*]; and
 - e) Provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.
- 4.9 Quality Assurance The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system.
- Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.
- Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.
- 4.10 Site Data The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.
- To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):
- a) The form and nature of the Site, including sub-surface conditions;
 - b) The hydrological and climatic conditions;
 - c) The extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects;
 - d) The Laws, procedures and labour practices of the Country; and
 - e) The Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

4.11 Sufficiency of the
Accepted Contract
Amount

The Contractor shall be deemed to:

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

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

4.12 Unforeseeable
Physical Conditions

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

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

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

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

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

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

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

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

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

4.13 Rights of Way and Facilities

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

4.14 Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

- a) The convenience of the public; or
- b) The access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

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

4.15 Access Route

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

Except as otherwise stated in these Conditions:

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

4.16 Transport of Goods

Unless otherwise stated in the Particular Conditions:

- a) The Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
- b) The Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
- c) The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses

(including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

- 4.17 Contractor's Equipment
The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.
- 4.18 Protection of Environment
The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.
The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.
- 4.19 Electricity, Water and Gas
The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.
The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.
The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 *[Employer's Claims]* and Sub-Clause 3.5 *[Determinations]*. The Contractor shall pay these amounts to the Employer.
- 4.20 Employer's Equipment and Free-issues Materials
The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:
a) The Employer shall be responsible for the Employer's Equipment; except that
b) The Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.
The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 *[Employer's Claims]* and Sub-Clause 3.5 *[Determinations]*. The Contractor shall pay these amounts to the Employer.
The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Employer shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed

by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.

After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

4.21 Progress Reports

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

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

Each report shall include:

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

4.22 Security of the Site

Unless otherwise stated in the Particular Conditions:

- a) The Contractor shall be responsible for keeping unauthorised persons off the Site, and

- b) Authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer, as authorised personnel of the Employer's other contractors on the Site.

4.23 Contractor's
Operations on Site

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

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

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

4.24 Fossils

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

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

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

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

5 Nominated Subcontractors

5.1 Definition of
"Nominated
Subcontractor"

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

- a) Who is stated in the Contract as being a nominated Subcontractor; or
- b) Whom the Engineer, under Clause 13 [*Variations and Adjustments*], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [*Objection to Notification*].

- 5.2 Objection to Nomination
- The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees in writing to indemnify the Contractor against and from the consequences of the matter:
- a) There are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
 - b) The nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or
 - c) The nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
 - (i) Undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;
 - (ii) Indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities; and
 - (iii) Be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [*Payment to nominated Subcontractors*].
- 5.3 Payments to Nominated Subcontractors
- The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [*Provisional Sums*], except as stated in Sub-Clause 5.4 [*Evidence of Payments*].
- 5.4 Evidence of Payments
- Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:
- a) Submits this reasonable evidence to the Engineer, or
 - b)
 - (i) Satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts; and
 - (ii) Submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,
- then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor

shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.

6 Staff and Labour

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| 6.1 | Engagement of Staff and Labour | <p>Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing.</p> <p>The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the Country.</p> |
| 6.2 | Rates of Wages and Conditions of Labour | <p>The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.</p> <p>The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of the Country for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.</p> |
| 6.3 | Persons in the Service of Employer | <p>The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.</p> |
| 6.4 | Labour Laws | <p>The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.</p> <p>The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.</p> |
| 6.5 | Working Hours | <p>No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:</p> <ul style="list-style-type: none"> a) Otherwise stated in the Contract; b) The Engineer gives consent; or c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer. |
| 6.6 | Facilities for Staff and Labour | <p>Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.</p> <p>The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.</p> |
| 6.7 | Health and Safety | <p>The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for</p> |

Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

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

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

HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labour (including all the Contractor's employees, all Subcontractors and any other Contractor's or Employer's personnel employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behaviour with respect to, of Sexually Transmitted Diseases (STD) - or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular; (ii) provide male or female condoms for all Site staff and labour as appropriate; and (iii) provide for STI and HIV/AIDS screening, diagnosis, counselling and referral to a dedicated national STI and HIV/AIDS programme, (unless otherwise agreed) of all Site staff and labour.

The Contractor shall include in the programme to be submitted for the execution of the Works under Sub-Clause 8.3 an alleviation programme for Site staff and labour and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation programme shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the programme shall detail the resources to be provided or utilised and any related sub-contracting proposed. The programme shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this programme shall not exceed the Provisional Sum dedicated for this purpose.

6.8 Contractor's
Superintendence

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

Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [*Law and Language*]) and of the operations

- to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.
- 6.9 Contractor's Personnel
- The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:
- a) Persists in any misconduct or lack of care;
 - b) Carries out duties incompetently or negligently;
 - c) Fails to conform with any provisions of the Contract; or
 - d) Persists in any conduct which is prejudicial to safety, health, or the protection of the environment.
- If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.
- 6.10 Records of Contractor's Personnel and Equipment
- The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.
- 6.11 Disorderly Conduct
- The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.
- 6.12 Foreign Personnel
- The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national or government permission required for bringing in the Contractor's personnel.
- The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.
- 6.13 Supply of Foodstuffs
- The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.
- 6.14 Supply of Water
- The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.
- 6.15 Measures against Insect and Pest Nuisance
- The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.16	Alcoholic Liquor or Drugs	The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.
6.17	Arms and Ammunition	The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.
6.18	Festivals and Religious Customs	The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.
6.19	Funeral Arrangements	The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.
6.20	Prohibition of Forced or Compulsory Labour	The Contractor shall not employ forced labour, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.
6.21	Prohibition of Harmful Child Labour	The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.
6.22	Employment Records Workers	The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [<i>Records of Contractor's Personnel and Equipment</i>].
6.23	Workers' Organisations	In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce.
6.24	Non-Discrimination and Equal Opportunity	The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where the relevant labour laws provide for non-discrimination

in employment, the Contractor shall comply with such laws. When the relevant labour laws are silent on non-discrimination in employment, the Contractor shall meet this Sub-Clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.

7 Plant, Materials and Workmanship

7.1 Manner of Execution The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

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

7.2 Samples The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

- a) Manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost; and
- b) Additional samples instructed by the Engineer as a Variation.

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

7.3 Inspection The Employer's Personnel shall at all reasonable times:

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

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

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

7.4 Testing This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor

shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

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

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

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 *[Contractor's Claims]* to:

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

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

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

7.5 Rejection

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

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

7.6 Remedial Work

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

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

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

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

7.7 Ownership of Plant and Materials

Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

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

7.8 Royalties

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

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

8 Commencement, Delays Suspension

8.1 Commencement of Works

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

- a) Signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;
- b) Delivery to the Contractor of reasonable evidence of the Employer's financial arrangements (under Sub-Clause 2.4 *[Employer's Financial Arrangements]*);
- c) Except if otherwise specified in the Contract Data, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 *[Compliance with Laws]* as required for the commencement of the Works;
- d) Receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 *[Advance Payment]* provided that the corresponding bank guarantee has been delivered by the Contractor.

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

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

- 8.2 Time for Completion The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:
- a) Achieving the passing of the Tests on Completion; and
 - b) Completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].
- 8.3 Programme The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [*Commencement of Works*]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:
- a) The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing;
 - b) Each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [*Nominated Subcontractors*]);
 - c) The sequence and timing of inspections and tests specified in the Contract; and
 - d) A supporting report which includes:
 - (i) A general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works; and
 - (ii) Details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.
- Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.
- The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [*Variation Procedure*].
- If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.
- 8.4 Extension of Time for Completion The Contractor shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [*Taking Over of the Works and Sections*] is or will be delayed by any of the following causes:

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

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

8.5 Delays Caused by Authorities

If the following conditions apply, namely:

- a) The Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country;
- b) These authorities delay or disrupt the Contractor's work; and
- c) The delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [*Extension of Time for Completion*].

8.6 Rate of Progress

If, at any time:

- a) Actual progress is too slow to complete within the Time for Completion; and/or
- b) Progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [*Programme*],

other than as a result of a cause listed in Sub-Clause 8.4 [*Extension of Time for Completion*], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [*Programme*], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

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

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

- 8.7 Delay Damages If the Contractor fails to comply with Sub-Clause 8.2 [*Time for Completion*], the Contractor shall subject to notice under Sub-Clause 2.5 [*Employer's Claims*] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Contract Data.
- These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [*Termination by Employer*] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.
- 8.8 Suspension of Work The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.
- The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.
- 8.9 Consequences of Suspension If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [*Suspension of Work*] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:
- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*]; and
 - b) Payment of any such Cost, which shall be included in the Contract Price.
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.
- The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [*Suspension of Work*].
- 8.10 Payment for Plant and Materials in Event of Suspension The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:
- a) The work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days; and
 - b) The Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.
- 8.11 Prolonged Suspension If the suspension under Sub-Clause 8.8 [*Suspension of Work*] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension

as an omission under Clause 13 [*Variations and Adjustments*] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [*Termination by Contractor*].

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

9 Tests on Completion

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

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

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

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

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

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

- 9.3 Retesting If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [*Rejection*] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

- 9.4 Failure to Pass Tests on Completion If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [*Retesting*], the Engineer shall be entitled to:

- a) Order further repetition of Tests on Completion under Sub-Clause 9.3 [*Retesting*];
- b) If the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the

same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [*Failure to Remedy Defects*]; or

- c) Issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [*Employer's Claims*] and Sub-Clause 3.5 [*Determinations*].

10 Employer's Taking Over

10.1 Taking Over of the Works and Sections

Except as stated in Sub-Clause 9.4 [*Failure to Pass Tests on Completion*], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [*Time for Completion*] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 28 days after receiving the Contractor's application:

- a) Issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
- b) Reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

- a) The part which is used shall be deemed to have been taken over as from the date on which it is used;
- b) The Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and
- c) If requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 *[Contractor's Claims]* to payment of any such Cost plus profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 *[Determinations]* to agree or determine this Cost and profit.

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

10.3 Interference with
Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 *[Contractor's Claims]* to:

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

- b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

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

10.4 Surfaces Requiring Reinstatement

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

11 Defects Liability

11.1 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

- a) Complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer; and
- b) Execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

11.2 Cost of Remedying Defects

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

- a) Any design for which the Contractor is responsible;
- b) Plant, Materials or workmanship not being in accordance with the Contract; or
- c) Failure by the Contractor to comply with any other obligation.

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

11.3 Extension of Defects Notification Period

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

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

11.4 Failure to Remedy Defects

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

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

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

11.5 Removal of
Defective Work

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

11.6 Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

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

11.7 Right of Access

Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.

11.8 Contractor to Search

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

11.9 Performance
Certificate

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

The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works,

including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.

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

11.10 Unfulfilled
Obligations

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

11.11 Clearance of Site

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

If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

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

12 Measurement and Evaluation

12.1 Works to be
Measured

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

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

- a) Promptly either attend or send another qualified representative to assist the Engineer in making the measurement; and
- b) Supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

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

- 12.2 Method of Measurement
- Except as otherwise stated in the Contract and notwithstanding local practice:
- a) Measurement shall be made of the net actual quantity of each item of the Permanent Works; and
 - b) The method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.
- 12.3 Evaluation
- Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.
- For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contract or, if there is no such item, specified for similar work.
- Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.
- However, a new rate or price shall be appropriate for an item of work if:
- a)
 - (i) The measured quantity of the item is changed by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule;
 - (ii) This change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount;
 - (iii) This change in quantity directly changes the Cost per unit quantity of this item by more than 1%; and
 - (iv) This item is not specified in the Contract as a "fixed rate item";
- Or
- b)
 - (i) The work is instructed under Clause 13 [*Variations and Adjustments*];
 - (ii) No rate or price is specified in the Contract for this item; and
 - (iii) No specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.
- Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as applicable. If no rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.
- Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.
- 12.4 Omissions
- Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

- a) The Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- b) The omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- c) This cost is not deemed to be included in the evaluation of any substituted work;

then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine this cost, which shall be included in the Contract Price.

13 Variations and Adjustments

13.1 Right to Vary

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

Each Variation may include:

- a) Changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation);
- b) Changes to the quality and other characteristics of any item of work;
- c) Changes to the levels, positions and/or dimensions of any part of the Works;
- d) Omission of any work unless it is to be carried out by others;
- e) Any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work; or
- f) Changes to the sequence or timing of the execution of the Works.

The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.

13.2 Value Engineering

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

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

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

- a) The Contractor shall design this part;
- b) Sub-paragraphs (a) to (d) of Sub-Clause 4.1 [*Contractor's General Obligations*] shall apply; and
- c) If this change results in a reduction in the contract value of this part, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:
 - (i) Such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [*Adjustments for Changes in Legislation*] and Sub-Clause 13.8 [*Adjustments for Changes in Cost*]; and
 - (ii) The reduction (if any) in the value to the Employer of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.

However, if amount (i) is less than amount (ii), there shall not be a fee.

13.3 Variation Procedure

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

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

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

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

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

13.4 Payment in Applicable Currencies

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

13.5 Provisional Sums

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to

which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:

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

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

13.6 Daywork

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

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

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

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

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

13.7 Adjustments for Changes in Legislation

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

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give

notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 *[Contractor's Claims]* to:

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

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

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

13.8 Adjustments for Changes in costs

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

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

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

$$P_n = a + b \frac{L_n}{L_0} + c \frac{E_n}{E_0} + d \frac{M_n}{M_0} + \dots$$

Where:

"**P_n**" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated in the Contract Data;

"**a**" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

"**b**", "**c**", "**d**", etc. are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

"**L_n**", "**E_n**", "**M_n**", etc. are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date

49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"Lo", "Eo", "Mo", etc. are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

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

In cases where the "currency of index" is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

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

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14 Contract Price and Payment

14.1 The Contract Price

Unless otherwise stated in the Particular Conditions:

- a) The Contract Price shall be agreed or determined under Sub-Clause 12.3 *[Evaluation]* and be subject to adjustments in accordance with the Contract;
- b) The Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 *[Adjustments for Changes in Legislation]*;
- c) Any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
 - (i) of the Works which the Contractor is required to execute, or
 - (ii) for the purposes of Clause 12 *[Measurement and Evaluation]*; and
- d) The Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.

Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the

14.2 Advance Payment

Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

The Employer shall make an advance payment, as an interest-free loan for mobilisation and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.

The Engineer shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 *[Application for Interim Payment Certificates]*) and after the Employer receives (i) the Performance Security in accordance with Sub-Clause 4.2 *[Performance Security]* and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

Unless stated otherwise in the Contract Data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 *[Issue of Interim Payment Certificates]*, as follows:

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

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 *[Termination by Employer]*, Clause 16 *[Suspension and Termination by Contractor]* or Clause 19 *[Force Majeure]* (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 *[Termination by Employer]*, except for Sub-Clause 15.5 *[Employer's Entitlement to Termination for Convenience]*, payable by the Contractor to the Employer.

14.3 Application for
Interim Payment
Certificates

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

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

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

14.4 Schedule of
Payments

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

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

If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which

he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

14.5 Plant and Materials
Intended for the
Works

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

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

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

- a) The Contractor has:
 - (i) Kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection; and
 - (ii) Submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

- b) The relevant Plant and Materials:
 - (i) Are those listed in the Schedules for payment when shipped;
 - (ii) Have been shipped to the Country, en route to the Site, in accordance with the Contract; and
 - (iii) Are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [*Advance Payment*] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or:

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

The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the

documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

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

14.6 Issue of Interim
Payment Certificates

No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Engineer on the Statement if any.

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

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

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

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

14.7 Payment

The Employer shall pay to the Contractor:

- a) The first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [*Performance Security*] and Sub-Clause 14.2 [*Advance Payment*], whichever is later;
- b) The amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and
- c) The amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate; or, at a time when the Bank's loan or credit (from which part of

the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 *[Termination by Contractor]*.

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

14.8 Delayed Payment

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

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency.

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

14.9 Payment or Retention Money

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

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

However, if any work remains to be executed under Clause 11 *[Defects Liability]*, the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 *[Adjustments for Changes in Legislation]* and Sub-Clause 13.8 *[Adjustments for Changes in Cost]*.

Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2. On receipt by the Employer of the required

guarantee, the Engineer shall certify and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

14.10 Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [*Application for Interim Payment Certificates*], showing:

- a) The value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works;
- b) Any further sums which the Contractor considers to be due; and
- c) An estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*].

14.11 Application for Final Payment Certificate

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

- a) The value of all work done in accordance with the Contract; and
- b) Any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However, if following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*] or Sub-Clause 20.5 [*Amicable*

- Settlement*], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.
- 14.12 Discharge
- When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.
- 14.13 Issue of Final Payment Certificate
- Within 28 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [*Application for Final Payment Certificate*] and Sub-Clause 14.12 [*Discharge*], the Engineer shall deliver, to the Employer and to the Contractor, the Final Payment Certificate which shall state:
- a) The amount which he fairly determines is finally due; and
 - b) After giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.
- If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [*Application for Final Payment Certificate*] and Sub-Clause 14.12 [*Discharge*], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.
- 14.14 Cessation of Employer's Liability
- The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:
- a) In the Final Statement; and also
 - b) (Except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [*Statement at Completion*].
- However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

14.15 Currencies of
Payment

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

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

15 Termination by Employer

15.1 Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

15.2 Termination by
Employer

The Employer shall be entitled to terminate the Contract if the Contractor:

- a) Fails to comply with Sub-Clause 4.2 *[Performance Security]* or with a notice under Sub-Clause 15.1 *[Notice to Correct]*;
- b) Abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract;
- c) Without reasonable excuse fails:
 - (i) To proceed with the Works in accordance with Clause 8 *[Commencement, Delays and Suspension]*; or
 - (ii) To comply with a notice issued under Sub-Clause 7.5 *[Rejection]* or Sub-Clause 7.6 *[Remedial Work]*, within 28 days after receiving it;

- d) Subcontracts the whole of the Works or assigns the Contract without the required agreement;
- e) Becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events; or
- f) Gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:
 - (i) For doing or forbearing to do any action in relation to the Contract; or
 - (ii) For showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

In any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

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|------|----------------------------------|--|
| 15.3 | Valuation at Date of Termination | As soon as practicable after a notice of termination under Sub-Clause 15.2 <i>[Termination by Employer]</i> has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 <i>[Determinations]</i> to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract. |
| 15.4 | Payment after Termination | After a notice of termination under Sub-Clause 15.2 <i>[Termination by Employer]</i> has taken effect, the Employer may: |

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

15.5 Employer's
Entitlement to
Termination for
Convenience

The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [*Termination by Contractor*].

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Cessation of Work and Removal of Contractor's Equipment*] and shall be paid in accordance with Sub-Clause 16.4 [*Payment on Termination*].

15.6 Corrupt or fraudulent
Practices

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days' notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [*Termination by Employer*].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [*Contractor's Personnel*].

For the purposes of this Sub-Clause:

- a) "**Corrupt practice**" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- b) "**Fraudulent practice**" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
- c) "**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;
- d) "**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;
- e) "**Obstructive practice**" is:

- (i) Deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation 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
- (ii) Acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under Sub-Clause 1.15 *[Inspections and Audits by the Bank]*.

16 Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 *[Issue of Interim Payment Certificates]* or the Employer fails to comply with Sub-Clause 2.4 *[Employer's Financial Arrangements]* or Sub-Clause 14.7 *[Payment]*, the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 *[Employer's Financial Arrangements]*, the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 *[Delayed Payment]* and to termination under Sub-Clause 16.2 *[Termination by Contractor]*.

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 *[Contractor's Claims]* to:

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

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

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

- a) The Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 *[Contractor's Entitlement to Suspend Work]* in respect of a failure to comply with Sub-Clause 2.4 *[Employer's Financial Arrangements]*;

- b) The Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate;
- c) The Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 *[Payment]* within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 *[Employer's Claims]*);
- d) The Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract;
- e) The Employer fails to comply with Sub-Clause 1.6 *[Contract Agreement]* or Sub-Clause 1.7 *[Assignment]*;
- f) A prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 *[Prolonged Suspension]*; or
- g) The Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events;
- h) The Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 *[Commencement of Works]*.

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

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 *[Payment]* for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 *[Delayed Payment]*, take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

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

16.3 Cessation of Work
and Removal of
Contractor's
Equipment

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

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

- 16.4 Payment on Termination
- After a notice of termination under Sub-Clause 16.2 [*Termination by Contractor*] has taken effect, the Employer shall promptly:
- a) Return the Performance Security to the Contractor;
 - b) Pay the Contractor in accordance with Sub-Clause 19.6 [*Optional Termination, Payment and Release*]; and
 - c) Pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17 Risk and Responsibility

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

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

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [*Insurance Against Injury to Persons and Damage to Property*].

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

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

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [*Employer's Risks*], the Contractor shall rectify the loss or damage at the

Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

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

17.3 Employer's Risks

The risks referred to in Sub-Clause 17.4 [*Consequences of Employer's Risks*] below, insofar as they directly affect the execution of the Works in the Country, are:

- a) War, hostilities (whether war be declared or not), invasion, act of foreign enemies;
- b) Rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country;
- c) Riot, commotion or disorder within the Country by persons other than the Contractor's Personnel;
- d) Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity;
- e) Pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds;
- f) Use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract;
- g) Design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible; and
- h) Any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

17.4 Consequences of Employer's Risks

If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.

If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*]; and
- b) Payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [*Employer's Risks*], Cost plus profit shall be payable.

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

17.5 Intellectual and
Industrial Property
Right

In this Sub-Clause, “infringement” means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and “claim” means a claim (or proceedings pursuing a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

- a) An unavoidable result of the Contractor's compliance with the Contract; or
- b) A result of any Works being used by the Employer:
 - (i) For a purpose other than that indicated by, or reasonably to be inferred from, the Contract; or
 - (ii) In conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

17.6 Limitation of Liability

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

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

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

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

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

18 Insurances

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

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

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

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

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:

- a) Evidence that the insurances described in this Clause have been effected; and
- b) Copies of the policies for the insurances described in Sub-Clause 18.2 [*Insurance for Works and Contractor's Equipment*] and Sub-Clause 18.3 [*Insurance against Injury to Persons and Damage to Property*].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed

of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [*Employer's Claims*] or Sub-Clause 20.1 [*Contractor's Claims*], as applicable.

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

18.2 Insurance for Works
and Contractor's
Equipment

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [*General Requirements for Insurances*], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [*Defects Liability*]).

The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

- a) Shall be effected and maintained by the Contractor as insuring Party;

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

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

18.3 Insurance against
Injury to Persons
and Damages to
Property

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

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

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

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

18.4 Insurance for
Contractor's
Personnel

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The insurance shall cover the Employer and the Engineer against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19 Force Majeure

19.1 Definition of Force
Majeure

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

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

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

- (i) War, hostilities (whether war be declared or not), invasion, act of foreign enemies;

- (ii) Rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war;
- (iii) Riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel;
- (iv) Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; and
- (v) Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

- 19.2 Notice of Force Majeure
- If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.
- The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.
- Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.
- 19.3 Duty to Minimise Delay
- Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.
- A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.
- 19.4 Consequences of Force Majeure
- If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [*Notice of Force Majeure*], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:
- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*]; and
 - b) If the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [*Definition of Force Majeure*] and, in sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [*Insurance for Works and Contractor's Equipment*].
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

- 19.5 Force Majeure Affecting Subcontractor
- If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.
- 19.6 Optional Termination, Payment and Release
- If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [*Notice of Force Majeure*], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Cessation of Work and Removal of Contractor's Equipment*].
- Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:
- The amounts payable for any work carried out for which a price is stated in the Contract;
 - The Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;
 - Other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
 - The Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and
 - The Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.
- 19.7 Release from Performance
- Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:
- The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract; and
 - The sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [*Optional Termination, Payment and Release*] if the Contract had been terminated under Sub-Clause 19.6.

20 Claims, Disputes and Arbitration

- 20.1 Contractor's Claims
- If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing

the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

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.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer 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 Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

- a) This fully detailed claim shall be considered as interim;
- b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
- c) The Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer 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.

Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [*Extension of Time for Completion*], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

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.

If the Engineer does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer to the Dispute Board in accordance with Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*].

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

20.2 Appointment of the
Dispute Board

Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*]. The Parties shall appoint a DB by the date stated in the Contract Data.

The DB shall comprise, as stated in the Contract Data, either one or three suitably qualified persons ("the members"), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons.

If the Parties have not jointly appointed the DB 21 days before the date stated in the Contract Data and the DB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members has been agreed by the Parties and is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the General Conditions of Dispute Board Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, 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

If at any time the Parties so agree, they may jointly refer a matter to the DB for it to give its opinion. Neither Party shall consult the DB on any matter without the agreement of the other Party.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the

appointment of the DB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 *[Discharge]* shall have become effective.

20.3 Failure to Agree on
the Composition of
the Dispute Board

If any of the following conditions apply, namely:

- a) The Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of Sub-Clause 20.2 *[Appointment of the Dispute Board]*;
- b) Either Party fails to nominate a member (for approval by the other Party), or fails to approve a member nominated by the other Party, of a DB of three persons by such date;
- c) The Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date; or
- d) The Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment;

then the appointing entity or official named in the Contract Data shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

20.4 Obtaining Dispute
Board's Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DB's decision, then either Party may, within 28 days after receiving the decision, give a Notice of Dissatisfaction to the other Party indicating its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give a Notice of Dissatisfaction to the other Party.

In either event, this Notice of Dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [*Failure to Comply with Dispute Board's Decision*] and Sub-Clause 20.8 [*Expiry of Dispute Board's Appointment*], neither Party shall be entitled to commence arbitration of a dispute unless a Notice of Dissatisfaction has been given in accordance with this Sub-Clause.

If the DB has given its decision as to a matter in dispute to both Parties, and no Notice of Dissatisfaction has been given by either Party within 28 days after it received the DB's decision, then the decision shall become final and binding upon both Parties.

20.5 Amicable Settlement Where a Notice of Dissatisfaction has been given under Sub-Clause 20.4 above, 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 Dissatisfaction in accordance with Sub-Clause 20.4 above should move to commence arbitration after the fifty-sixth day from the day on which a Notice of Dissatisfaction was given, even if no attempt at an amicable settlement has been made.

20.6 Arbitration Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows:

- a) If the contract is with foreign contractors, International arbitration (1) with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution; or, if so specified in the Contract Data, (2) international arbitration in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or (3) if neither an arbitration institution nor UNCITRAL arbitration rules are specified in the Contract Data, with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules;
- b) If the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer's country.

The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

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

Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

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

- 20.7 Failure to Comply with Dispute Board's Decision
- In the event that a Party fails to comply with a final and binding DB decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 *[Arbitration]*. Sub-Clause 20.4 *[Obtaining Dispute Board's Decision]* and Sub-Clause 20.5 *[Amicable Settlement]* shall not apply to this reference.
- 20.8 Expiry of Dispute Board's Appointment
- If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DB in place, whether by reason of the expiry of the DB's appointment or otherwise:
- a) Sub-Clause 20.4 *[Obtaining Dispute Board's Decision]* and Sub-Clause 20.5 *[Amicable Settlement]* shall not apply; and
 - b) The dispute may be referred directly to arbitration under Sub-Clause 20.6 *[Arbitration]*.

APPENDIX A – General Conditions of Dispute Board Agreement

1. Definitions:

Each "Dispute Board Agreement" is a tripartite agreement by and between:

- a) The "Employer";
- b) The "Contractor"; and
- c) The "Member", who is defined in the Dispute Board Agreement as being:
 - (i) The sole member of the "DB" and, where this is the case, all references to the "Other Members" do not apply, or
 - (ii) One of the three persons who are jointly called the "DB" (or "Dispute Board") and, where this is the case, the other two persons are called the "Other Members".

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2. General Provisions:

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

- a) The Commencement Date defined in the Contract;
- b) When the Employer, the Contractor and the Member have each signed the Dispute Board Agreement; or
- c) When the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days' notice of resignation to the Employer and to the Contractor, and the Dispute Board Agreement shall terminate upon the expiry of this period.

3. Warranties:

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is:

- a) Experienced in the work which the Contractor is to carry out under the Contract;
- b) Experienced in the interpretation of contract documentation; and
- c) Fluent in the language for communications defined in the Contract.

4. General Obligations of the Member:

The Member shall:

- a) Have no interest financial or otherwise in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;
- b) Not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;

- c) Have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;
- d) Not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);
- e) Comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;
- f) Not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;
- g) Not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;
- h) Ensure his/her availability for all Site visits and hearings as are necessary;
- i) Become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file;
- j) Treat the details of the Contract and all the DB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any); and
- k) Be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

5. General Obligations of the Employer and the Contractor:

The Member regarding the Contract, otherwise than in the normal course of the DB's activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

- a) Be appointed as an arbitrator in any arbitration under the Contract;
- b) Be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
- c) Be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the DB under Sub-Clause 20.4 of the Conditions of Contract, which will require the Member to make a Site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment:

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

- a) A retainer fee per calendar month, which shall be considered as payment in full for:
 - (i) Being available on 28 days' notice for all Site visits and hearings;
 - (ii) Becoming and remaining conversant with all project developments and maintaining relevant files;
 - (iii) All office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and
 - (iv) All services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

- b) A daily fee which shall be considered as payment in full for:
 - (i) Each day or part of a day up to a maximum of two days' travel time in each direction for the journey between the Member's home and the Site, or another location of a meeting with the Other Members (if any);
 - (ii) Each working day on Site visits, hearings or preparing decisions; and
 - (iii) Each day spent reading submissions in preparation for a hearing;
- c) All reasonable expenses including necessary travel expenses (air fare in less than first class, hotel and subsistence and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, and faxes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause;
- d) Any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a Site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer

shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7. Termination:

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member:

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

9. Disputes:

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity thereof shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

PROCEDURAL RULES

1. Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the Site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.
2. The timing of and agenda for each Site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of Site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.
3. Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be coordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each Site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.
4. The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.
5. If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:
 - a) Act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case; and
 - b) Adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.
6. The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.
7. Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.
8. The Employer and the Contractor empower the DB, among other things, to:
 - a) Establish the procedure to be applied in deciding a dispute;
 - b) Decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it;
 - c) Conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules;
 - d) Take the initiative in ascertaining the facts and matters required for a decision;
 - e) Make use of its own specialist knowledge, if any;
 - f) Decide upon the payment of financing charges in accordance with the Contract;
 - g) Decide upon any provisional relief such as interim or conservatory measures; and
 - h) Open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

9. The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:
- a) It shall convene in private after a hearing, in order to have discussions and prepare its decision;
 - b) It shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
 - c) If a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision; unless:
 - (i) Either the Employer or the Contractor does not agree that they do so; or
 - (ii) The absent Member is the chairman and he/she instructs the other Members not to make a decision.

APPENDIX B – Corrupt and Fraudulent Practices – Environmental and Social Responsibility

1. Corrupt and Fraudulent Practices

The Contracting Authority and the suppliers, contractors, subcontractors, consultants or subconsultants must observe the highest standard of ethics during the procurement process and performance of the contract. The Contracting Authority means the Purchaser, the Employer, the Client, as the case may be, for the procurement of goods, works, plants, consulting services or non-consulting services.

By signing the Statement of Integrity the suppliers, contractors, subcontractors, consultants or subconsultants declare that (i) “it did not engage in any practice likely to influence the contract award process to the Contracting Authority’s detriment, and that it did not and will not get involved in any anti-competitive practice”, and that (ii) “the procurement process and the performance of the contract did not and shall not give rise to any act of corruption or fraud”.

Moreover, AFD requires including in the Procurement Documents and AFD-financed contracts a provision requiring that suppliers, contractors, subcontractors, consultants or subconsultants will permit AFD to inspect their accounts and records relating to the procurement process and performance of the AFD-financed contract, and to have them audited by auditors appointed by AFD.

AFD reserves the right to take any action it deems appropriate to check that these ethics rules are observed and reserves, in particular, the rights to:

- a) Reject a proposal for a contract award if it is established that during the selection process the bidder or consultant that is recommended for the award has been convicted of corruption, directly or by means of an agent, or has engaged in fraud or anti-competitive practices in view of being awarded the Contract;
- b) Declare misprocurement when it is established that, at any time, the Contracting Authority, the suppliers, contractors, subcontractors, consultants or subconsultants their representatives have engaged in acts of corruption, fraud or anti-competitive practices during the procurement process or performance of the contract without the Contracting Authority having taken appropriate action in due time satisfactory to AFD to remedy the situation, including by failing to inform AFD at the time they knew of such practices.

AFD defines, for the purposes of this provision, the terms set forth below as follows:

- a) Corruption of a Public Officer means:
 - The act of promising, offering or giving to a Public Officer, directly or indirectly, an undue advantage of any kind for himself or for another Person¹ or entity, for such Public Officer to act or refrain from acting in his official capacity; or
 - The act by which a Public Officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another Person or entity, for such Public Officer to act or refrain from acting in his official capacity.
- b) A Public Officer shall be construed as meaning:
 - Any person who holds a legislative, executive, administrative or judicial mandate (within the country of the Contracting Authority) regardless of whether that natural Person was nominated or elected, regardless of the permanent or temporary, paid or unpaid nature of the position and regardless of the hierarchical level the natural Person occupies;
 - Any other natural Person who performs a public function, including for a State institution or a State-owned company, or who provides a public service;
 - Any other natural Person defined as a Public Officer by the national laws of the country of the Contracting Authority.

¹ Means any Person whether natural or legal, firm, company, corporation, government, state or state agency or any association, or group of two or more of the foregoing (whether or not having separate legal status).

- c) Corruption of a Private Person² means:
- The act of promising, offering or giving to any Private Person, directly or indirectly, an undue advantage of any kind for himself or for another Person or entity, for such Private Person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations; or;
 - The act by which any Private Person solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another Person or entity, for such Private Person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations.
- d) Fraud means any dishonest conduct (act or omission), whether or not it constitutes a criminal offence, deliberately intended to deceive others, to intentionally conceal items, to violate or vitiate consent, to circumvent legal or regulatory requirements and/or to violate internal rules in order to obtain illegitimate profit.
- e) Anti-competitive practices mean:
- Any concerted or implied practices which have as their object or effect the prevention, restriction or distortion of competition within a marketplace, especially where they (i) limit access to the marketplace or free exercise of competition by other undertakings, (ii) prevent free, competition-driven price determination by artificially causing price increases or decreases, (iii) restrict or control production, markets, investments or technical progress; or (iv) divide up market shares or sources of supply;
 - Any abuse by one undertaking or a group of undertakings which hold a dominant position on an internal market or on a substantial part of it;
 - Any practice whereby prices are quoted or set unreasonably low, the object of which is to eliminate an undertaking or any of its products from a market or to prevent it from entering the market.

2. Environmental and Social Responsibility

In order to promote sustainable development, AFD seeks to ensure that internationally recognised environmental and social standards are complied with. Suppliers, contractors, subcontractors, consultants or subconsultants for AFD-financed contracts shall consequently undertake in the Statement of Integrity to:

- a) Comply with and ensure that all their subcontractors or subconsultants comply with international environmental and labour standards, consistent with applicable law and regulations in the country of implementation of the contract, including the fundamental conventions of the International Labour Organisation (ILO) and international environmental treaties;
- b) Implement environmental and social risks mitigation measures when specified in the environmental and social management plan (ESMP) provided by the Contracting Authority.

² Means any natural Person other than a Public Officer.

**APPENDIX C -
Eligibility Criteria**

Eligibility in AFD-Financed Procurement

1. Financing allocated by AFD to a Contracting Authority has been entirely untied since 1st January 2002. To the exception of any equipment or any sector which is subject to an embargo by the United Nations, the European Union or France, all goods, works, plants, consulting services and non-consulting services are eligible for AFD financing regardless of the country of origin of the supplier, contractor, subcontractor, consultant or subconsultant inputs or resources used in the implementation processes. The Contracting Authority means the Purchaser, the Employer, the Client, as the case may be, for the procurement of goods, works, plants, consulting services or non-consulting services.
2. Natural or legal Persons¹ (including all members of a joint venture or any of their suppliers, contractors, subcontractors, consultants or subconsultants) shall not be awarded an AFD-financed contract if, on the date of submission of an application, a bid or a proposal, or on the date of award of a contract, they:
 - 2.1 Are bankrupt or being wound up or ceasing their activities, are having their activities administered by the courts, have entered into receivership, or are in any analogous situation arising from a similar procedure;
 - 2.2 Have been:
 - a) convicted, within the past five years by a court decision, which has the force of res judicata in the country where the contract is implemented, of fraud, corruption or of any other offense committed during a procurement process or performance of a contract, unless they provide supporting information together with their Statement of Integrity (Form available as Appendix to the Application, Bid or Proposal Submission Form) which shows that this conviction is not relevant in the context of the Contract;
 - b) subject to an administrative sanction within the past five years by the European Union or by the competent authorities of the country where they are constituted, for fraud, corruption or for any other offense committed during a procurement process or performance of a contract, unless they provide supporting information together with their Statement of Integrity (Form available as Appendix to the Application, Bid or Proposal Submission Form) which shows that this sanction is not relevant in the context of the Contract;
 - c) convicted, within the past five years by a court decision, which has the force of res judicata, of fraud, corruption or of any other offense committed during the procurement process or performance of an AFD-financed contract;
 - 2.3 Are listed for financial sanctions by the United Nations, the European Union and/or France for the purposes of fight-against-terrorist financing or threat to international peace and security;
 - 2.4 Have been subject within the past five years to a contract termination fully settled against them for significant or persistent failure to comply with their contractual obligations during contract performance, unless this termination was challenged and dispute resolution is still pending or has not confirmed a full settlement against them;
 - 2.5 Have not fulfilled their fiscal obligations regarding payments of taxes in accordance with the legal provisions of either the country where they are constituted or the Contracting Authority's country;
 - 2.6 Are subject to an exclusion decision of the World Bank and are listed on the website <http://www.worldbank.org/debarr>, unless they provide supporting information together with

¹ Means any Person whether natural or legal, firm, company, corporation, government, state or state agency or any association, or group of two or more of the foregoing (whether or not having separate legal status).

their Statement of Integrity (Form available as Appendix to the Application, Bid or Proposal Submission Form) which shows that this exclusion is not relevant in the context of the Contract;

- 2.7 Have created false documents or committed misrepresentation in documentation requested by the Contracting Authority as part of the procurement process of the Contract.
3. State-owned entities may compete only if they can establish that they (i) are legally and financially autonomous, and (ii) operate under commercial law. To be eligible, a state-owned entity shall establish to AFD's satisfaction, through all relevant documents, including its Charter and other information AFD may request, that it: (i) is a legal entity separate from their state (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to their state, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt.

Section IX – Particular Conditions (PC)

The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.

Part A – Contract Data

Conditions	Sub-Clause	Data
Employer's name and address	1.1.2.2 & 1.3	The Chief Executive Officer Athi Water Works Development Agency Athi Water Plaza, Muthaiga North Road Off Kiambu Road P.O. Box 45283 – 00100 Nairobi, Kenya
Engineer's name and address	1.1.2.4 & 1.3	Chief Manager, Water & Sanitation Services Athi Water Works Development Agency Athi Water Plaza, Muthaiga North Road Off Kiambu Road P.O. Box 45283 – 00100 Nairobi, Kenya
Bank's Name	1.1.2.11	<i>Agence Française de Développement ("AFD")</i> , being specified that, according to French laws and regulations, AFD is not a bank but a Specialized Financial Institution (" <i>Institution Financière Spécialisée</i> ").
Borrower's Name	1.1.2.12	Government of Kenya
Time for Completion of the Works	1.1.3.3	730 days (24 Months)
Defects Notification Period	1.1.3.7	365 days.
Sections	1.1.5.6	The Works are in four (4) Sections as follows: i) Construction of the Kabete-Oleserani Pipeline ii) Construction of Storage Reservoirs –Karen Reservoir iii) Construction of Water Distribution Pipelines and Consumer Water Connections iv) Construction of Reticulation Sewers and Consumer Sewer Connections The Contractor may complete and hand over each of the above Sections of the Works separately.
ESHS Specifications	1.1.6.11	ESHS Specifications are applicable: Yes <input checked="" type="checkbox"/> / No <input type="checkbox"/>
Exceptionally Adverse Climatic Conditions	1.1.6.15	<i>Additional Sub-Clause</i> "Exceptionally Adverse Climatic Conditions" means: <ul style="list-style-type: none">• Precipitation- above 151mm Monthly average• Day time temperatures- below 15°C (59°F)• Day time Humidity- 77%
Governing Law	1.4	The Law of the Republic of Kenya. Contractor to comply with all Laws of Kenya including all Statutory Requirements with regards to Operations in Kenya as a Contractor.
Ruling Language	1.4	English
Language for Communications	1.4	English
Time for Access to the Site	2.1	No later than the final Commencement Day.

Conditions	Sub-Clause	Data
		The Employer shall give the Contractor right of access to the Site upon submission of evidence that the insurances specified in PCC 18 have been effected.
Engineer's Duties and Authority	3.1	<p>The Engineer shall obtain specific approval of the Employer before taking the following actions:</p> <ul style="list-style-type: none"> • Issuing any instruction resulting in substantial changes to the Works, or an increase of the Accepted Contract Amount and/or an extension of the Time for Completion; • Proceeding to Determination under Sub-Clause 3.5;
Contractor's General Obligations	4.1	<p>The Contractor shall provide the following documents as part of the Contract and as specified in the Specification:</p> <ul style="list-style-type: none"> • Shop drawings to be approved by the Engineer prior to starting the Works; • "As-built" drawings to be approved by the Engineer prior to taking over of the Works; and • Operation and Maintenance Manuals.
Performance Security	4.2	<p>The performance security will be in the form of a <i>demand guarantee (in form of unconditional bank guarantee) in the amount(s) 10 per cent</i> of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.</p> <p>If the Unconditional Guarantee is issued by a bank located outside the Employer's Country, the issuing bank shall have a correspondent bank located in the Employer's Country to make it enforceable.</p>
Subcontractors	4.4	Direct payment of Subcontractors is allowed: Yes
Normal Working Hours	6.5	As per the Laws of Kenya
Commencement of Works	8.1	<p>The Commencement Date shall be:</p> <ul style="list-style-type: none"> • <i>As instructed by the Engineer in the Engineer's order to commence works</i>
Delay Damages for the Works	8.7 & 14.15(b)	0.1% of the Contract Price per day.
Maximum Amount of Delay Damages	8.7	7.5% of the final Contract Price
Percentage for Adjustment of Provisional Sums	13.5(b)(ii)	7.0%
Adjustments for Changes in Cost	13.8	The prices quoted by the bidder <u>shall Not be subject to Adjustment over the original Contract period.</u> However, if an Extension of Time is granted in accordance with sub-clause 8.4 [Extension of Time for Completion] of the General Conditions of Contract (GCC), Price Adjustment shall be applicable on the balance of works that could not be

Conditions	Sub-Clause	Data
		<p>carried out during the original Contract Period for reasons not attributable to the Contractor as assessed by the Engineer using the Adjustment for Changes in Cost formula given in sub-clause 13.8 of the GCC. . The month of the Base Date is the month of the Deadline for Bid Submission</p> <p>To minimize the risk of price escalation, the Contractor is required, within 3 months of receipt of Advance Payment, to place orders, pay deposit to suppliers and secure the following key materials:</p> <ul style="list-style-type: none"> • All Pipes and Fittings (Steel, Ductile Iron, HDPE and DWC Pipes), • Valves (Gate Valves, Butterfly Valves, Air Valves, Altitude Valves) • Flow Meters (Electromagnetic and Mechanical Meters) • Reinforcement Steel. <p>Contractor to submit to the Engineer documentary evidence of the secured orders, deposits paid.</p>
Contract Price	14.1	The Contract Price is an Admeasurement Contract Price (unit price contract)
	14.1(b)	The following taxes, duties and fees exemptions apply to the Contract: None
	14.1(e)	Item (e) of Sub-Clause 14.1 - Part B of the PC regarding the exemption of import duties and taxes is applicable: No
Total Advance Payment	14.2	20% of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable.
Repayment Amortization Rate of Advance Payment	14.2(b)	The repayment amortization rate (%) shall not be less than 15% of the Amount of Advance Payment.
Percentage of Retention	14.3	10%
Limit of Retention Money	14.3	5% of the Accepted Contract Amount.
Plant and Materials	14.5(b)(i)	Plant and Materials for payment when shipped en route to the Site (Free on Board): None
	14.5(c)(i)	<p>Plant and Materials for payment when delivered to the Site:</p> <ul style="list-style-type: none"> • Ferrous (Steel or Ductile Iron) Pipes and Fittings • Valves and Bulk Flow Meters
Minimum Amount of Interim Payment Certificates	14.6	1% of the Accepted Contract Amount
Payment	14.7	Payment to the Contractor of the amounts due in each currency shall be made into the following bank accounts:

Conditions	Sub-Clause	Data
		Bank account details as given at the time of contract signing
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	The interest rate for payments in local currency is 1% above the Central Bank of Kenya 90 day treasury bill Rate The interest rate for payments in foreign currency is [SOFR + 1%]
Limitation of Liability	17.6	The total liability of the Contractor to the Employer shall not exceed the Accepted Contract Amount multiplied by 1.5 .
Periods for submission of insurance: a) Evidence of insurance b) Relevant policies	18.1	14 days 28 days
Minimum amount of third party insurance per occurrence	18.3	Kshs. 20,000,000.00
Date by which the DB shall be appointed	20.2	Adhoc when required
The DB shall be comprised of:	20.2	Three Members
List of potential DB sole members	20.2	<i>None</i>
Appointment (if not agreed) to be made by:	20.3	<i>Chartered Institute of Arbitrators (Kenya Chapter)</i>
Arbitration rules	20.6	<i>International Arbitration with proceedings administered by Chartered Institute of Arbitrators (Kenya Chapter) and conducted in accordance with UNCITRAL Arbitration Rules</i>
Place of arbitration	20.6	<i>Kampala, Uganda</i>

Table: Summary of Sections

Section Name/Description (Sub-Clause 1.1.5.6)	Time for Completion (Sub-Clause 1.1.3.3)	Damages for Delay (Sub-Clause 8.7)
i) Construction of the Kabete-Oleserani Pipeline	24 Months	0.1% of the Contract Price per day
ii) Construction of Karen Storage Reservoir	24 Months	
iii) Construction of Water Distribution Pipelines, and Consumer Water Connections	24 Months	
iv) Construction of Reticulation Sewers and Consumer Sewer Connections	24 Months	

Note: *The Contractor may complete and hand over each of the above Sections of the Works separately.*

Part B – Specific Provisions

Conditions	Sub-Clause	Specific provisions
Defects Notification Period	1.1.3.7	Add, at the end of the Sub-Clause “or taken over under Sub-Clause 10.2 [Taking Over of Parts of the Works]”
Site	1.1.6.7	<i>This Sub-Clause is deleted in its entirety and replaced by:</i> "Site" means the places where the Permanent Works are to be executed and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.
Variation	1.1.6.9	<i>This Sub-Clause is deleted in its entirety and replaced by:</i> "Variation" means any change to Specification or the Drawings or the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].
ESHS Specifications	1.1.6.11	<i>Additional Sub-Clause:</i> "ESHS Specifications" means the document entitled environmental, social, health and safety specifications, as included in the Specification, and any additions and modifications to it in accordance with the Contract. Such document specifies the environmental, social, health and safety obligations of the Contractor.
Project Area	1.1.6.12	<i>Additional Sub-Clause:</i> "Project Area" has the meaning defined in the ESHS Specifications.
Worksite - ESMP	1.1.6.13	<i>Additional Sub-Clause:</i> "Worksite – ESMP" stands for Worksite Environmental and Social Management Plan, and has the meaning defined in the ESHS Specifications.
EPP	1.1.6.14	<i>Additional Sub-Clause:</i> "EPP" stands for Environmental Protection Plan, and has the meaning defined in the ESHS Specifications.
Communications	1.3	<i>Add the following at the end of item (a), after "Contract Data" and before ";</i> "In case of electronic transmission, these communications shall be in the form of an un-editable record attached to an electronic mail, such as a PDF document for instance, and any other communication transmitted in a different manner, such as the email body text, shall not be construed as communication under the Contract." <i>Before the last paragraph, add the following sentence:</i> "Delivery of communications, by any authorized method of transmission, shall be made against receipt."

Conditions	Sub-Clause	Specific provisions
Priority of Documents	1.5	<p><i>Add the following at the end of the Sub-Clause:</i></p> <p>"The Contractor shall be obliged to comply with the clarification or instruction of the Engineer without any adjustment to the Contract Price and/or to the Time for Completion."</p>
Contract Agreement	1.6	<p><i>This Sub-Clause is deleted in its entirety and replaced by:</i></p> <p>"The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, or within 28 days after the Employer receives the Performance Security, whichever is later. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The Contract Agreement shall include any annexed memoranda comprising agreements between and signed by both Parties. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Contractor.</p> <p>This Contract constitutes the entire agreement between the Parties in connection with its subject matter and supersedes all prior representations, communications, negotiations and undertakings concerning the subject matter of this Contract.</p> <p>The Parties acknowledge and agree that by entering into this Contract they do not rely on any statement, representation, assurance or warranty of any person (whether a party to the Contract or not or whether made in writing or not) other than as expressly set out in the Contract."</p>
Assignment	1.7	<p><i>This Sub-Clause is deleted in its entirety and replaced by:</i></p> <p>"The Contractor shall not assign the whole or any part of the Contract or any benefit or interest in or under the Contract without the prior written consent of the Employer. The Employer shall be entitled to assign this Contract or any part of it to any person, for which purpose it shall not require the consent of the Contractor."</p>
Care and Supply of Document	1.8	<p><i>Delete the 2nd sentence of the 2nd paragraph in its entirety, and replace it by:</i></p> <p>"The Contractor shall supply to the Engineer each of the Contractor's Documents in one (1) soft (paper) copy and two (2) hard (digital) copies "</p>
Inspections and Audit by AFD	1.15	<p><i>This Sub-Clause is deleted in its entirety and replaced by:</i></p> <p>"The Contractor shall permit, and shall cause its agents (whether declared or not), subcontractors, subconsultants, service providers, or suppliers and any personnel thereof, to permit, AFD and/or persons appointed by AFD to inspect the Site and all accounts</p>

Conditions	Sub-Clause	Specific provisions
		<p>and records relating to the performance of the Contract and the submission of the Bid, and to have such accounts and records audited by auditors appointed by AFD if requested by AFD.</p> <p>The Contractor's attention is drawn to Sub-Clause 15.6 <i>[Corrupt or Fraudulent Practices]</i> which provides, inter alia, that acts intended to materially impede the exercise of AFD's inspection and audit rights provided for under Sub-Clause 1.15 constitute a prohibited practice subject to contract termination."</p>
Non Waiver	1.16	<p><i>Additional Sub-Clause:</i></p> <p>"Except as otherwise specifically provided for in the Contract, no failure or delay by either Party in exercising any right or remedy provided by the Laws or pursuant to the Contract will impair such right or remedy or operate or be construed as a waiver or variation of it or preclude its exercise at any subsequent time and no single or partial exercise of any such right or remedy will preclude any other or further exercise of it or the exercise of any other right or remedy."</p>
Survival of Obligations	1.17	<p><i>Additional Sub-Clause:</i></p> <p>"Obligations under the Contract, which by their nature would continue beyond the termination or expiration hereof, including, by way of illustration only and not limitation, those in Clause 1 <i>[General Provisions]</i>, Clause 11 <i>[Defects Liability]</i>, Clause 17 <i>[Indemnities]</i>, Clause 18 <i>[Insurance]</i>, and Clause 20 <i>[Claims and Disputes]</i> shall survive the termination or expiration of the Contract."</p>
Severability	1.18	<p><i>Additional Sub-Clause:</i></p> <p>"The Parties expressly declare that each section, clause or paragraph of this Contract will be considered separate in terms of its validity and enforceability. Therefore, if, for any reason, any provision of this Contract is declared null and void, or if a ruling states that any part of it runs contrary to governing law, said declaration will in no way affect the validity and enforceability of the other stipulations, which may be construed, understood and executed independently of the portion declared null and void. Thus, every part of this Contract not declared null and void in any way will be valid, enforceable and binding on the Parties.</p> <p>Likewise, if any provision of this Contract or its application to any individual or company or in a given circumstance is declared null and void, or if its enforceability is in any way limited, the other provisions herein, as well as also the application of the doubtful provision to other people or in other circumstances, will not be affected thereby, and they will be applied to the extent permitted by governing law.</p>

Conditions	Sub-Clause	Specific provisions
		Notwithstanding the above, the Parties undertake to negotiate in good faith the terms of a mutually satisfactory provision to replace any clause that may be declared null and void or whose enforceability is in any way restricted."
No Partnership or Agency	1.19	<i>Additional Sub-Clause:</i> "Nothing contained in this Contract shall be construed to either constitute a partnership or constitute either Party an agent or employee of the other Party."
Amendment	1.20	<i>Additional Sub-Clause:</i> "This Contract may not be altered, varied, changed, supplemented or amended except by a written instrument duly signed and executed by the Parties and expressly stated to be an amendment to this Contract. For the sake of clarity, any Variation under Clause 13 [Variations and Adjustments] which is leading to a substantial change to the Works, an increase of the Contract Price and/or to an extension of the Time for Completion shall be reflected in an amendment to this Contract."
Right of Access to the Site	2.1	<i>Insert the following in the 1st paragraph, after the 1st sentence and before the 2nd sentence:</i> "This Employer is however under no obligation to give the Contractor right of access to, and possession of, any other area located outside the boundaries of the Site, even if such other area is located within the Project Area. Access to, and possession of, such any other area is fully at the Contractor's risk." <i>Add at the end of the 1st paragraph, after "received", the following:</i> "and until such time, whichever is the later, the Contractor has provided written evidence in the form of a broker's or an insurer's certificate that all insurances to be taken-out by the Contractor pursuant to the Contract have been duly put in place and are in full force and effect."
Employer's Claims	2.5	<i>Delete the 2nd sentence of the 2nd paragraph in its entirety.</i>
Delegation by the Engineer	3.2	Delegation by the Engineer is subject to the provisions of the contract between the Employer and the Engineer.
Instructions of the Engineer	3.3	<i>Remove the entire text from "If the Engineer or a delegated assistant" to "(as the case may be)", and replace it by the following:</i> "Verbal instructions given on Site shall only be binding on the Contractor if recorded by the Engineer or his delegated assistant (as the case may be) in the on-site log book defined under Sub-Clause 4.25." <i>Add the following at the end of the Sub-Clause:</i>

Conditions	Sub-Clause	Specific provisions
		<p>"If such an instruction would in the opinion of the Contractor, acting reasonably:</p> <ul style="list-style-type: none"> (i) Result in possible adverse consequences for, including but not limited to, the quality of the Works and/or the Time for Completion; and/or (ii) Otherwise result in any increase in the Contract Price then: <p>the Contractor shall immediately notify the Employer and the Engineer of the same in writing, and in any event before the Contractor implements the instruction. Following the issue of such notice, the Contractor shall implement the instruction given by the Engineer unless instructed otherwise by the Engineer.</p> <p>Under any circumstances, failure by the Contractor to notify the Engineer in accordance with Sub-Clause 20.1 <i>[Contractor's Claims]</i> shall mean that any performance of the Works relating thereto shall be deemed to be solely at the Contractor's risk and cost. The Contractor shall not have the right thereafter to rely on such circumstances when a claim is made against him by the Employer for any failure by the Contractor to perform the Works in accordance with the requirements of the Contract or by him to the Employer for any relief (which includes, without limitation, any claim for any extension to the Time for Completion and/or for any additional payment) in accordance with the Contract."</p>
Replacement of the Engineer	3.4	<i>Not applicable.</i>
Contractor's General Obligations	4.1	<p><i>Insert the following at the end of the 2nd paragraph:</i></p> <p>"The Contractor commits to meet the AFD's eligibility criteria as listed under Appendix C to the General Conditions."</p> <p><i>Insert the following at the end of the Sub-Clause:</i></p> <p>"If an unsolicited technical alternative, proposed by the Contractor, and approved by the Employer, becomes incorporated under the Contract and includes a change in the design of part or all of the Works, then unless otherwise agreed by both Parties: (i) the Bidder who becomes the Contractor shall design this part, (ii) sub-paragraphs (a) to (d) of the Conditions of Contract Sub-Clause 4.1 shall apply, and (iii) Contract price for this part of the Works shall be a lump sum price."</p>
Contractor's Representative	4.3	<p><i>Delete the 3rd paragraph in its entirety and replace it by the following:</i></p> <p>"The Contractor shall not, without the prior consent of the Employer, revoke the appointment of the Contractor's Representative or appoint a replacement."</p>

Conditions	Sub-Clause	Specific provisions
Subcontractors	4.4	<p><i>Insert the following at the beginning of the Sub-Clause:</i></p> <p>"The Contractor shall only employ Subcontractors meeting the AFD's eligibility criteria as listed under Appendix C to the General Conditions.</p> <p>In case of failure by the Contractor to comply with this requirement, and irrespective of whether the Engineer has given prior consent under this Sub-Clause, the Contractor shall forthwith cease any business dealing with any ineligible Subcontractor and replace such Subcontractor by an eligible one, all at the Contractor's risk and cost. Otherwise, the Employer, at his own election, shall be entitled to terminate the Contract in accordance with Sub-Clause 15.2 <i>[Termination by Employer]</i>."</p> <p><i>In item (b), replace "Engineer" by "Employer".</i></p> <p><i>If the option for direct payment of Subcontractors has been selected in Sub-Clause 4.4 of the PC, then:</i></p> <p>A Subcontractor named in the Contract or designated after Contract signing with the Engineer's consent may be paid directly by the Employer for work done, and/or supplies or services provided by the said Subcontractor for which the Contractor has not been already paid, if (a) the Employer and the relevant authorities whose approval of the Contract is required so agree, or (b) the Employer's country laws and regulations so require.</p> <p>In such case, the Contractor shall furnish a statement to the Engineer, prior to any commencement of the subcontracted work including the following:</p> <ul style="list-style-type: none"> a) The nature and scope of work or activities intended to be subcontracted; b) The name, registration information and address of the proposed Subcontractor; and c) The payment terms and conditions intended in the subcontract agreement, and the intended amount of the subcontract, including the date of establishment of the price, and if applicable, the modalities for price variation, advance payment, progress payment mechanism, price reductions, bonuses and penalties. <p>Within one (1) month of their receipt the Engineer shall either accept all supporting documents relating to direct payment or reject them in full or in part with justification to the Contractor, failing which the Engineer shall be deemed to have accepted all supporting documents which the Engineer did not explicitly reject.</p>
Safety Procedures	4.8	<p><i>Add the following at the end of the Sub-Clause:</i></p> <p>"These provisions are complemented by those listed under the ESHS Specifications which the Contractor must ensure full compliance with."</p>

Conditions	Sub-Clause	Specific provisions
Protection of the Environment	4.18	<p><i>Add the following after the last paragraph:</i></p> <p>"These provisions are complemented by those listed under the ESHS Specifications which the Contractor must ensure full compliance with."</p>
Progress Reports	4.21	<p><i>At the end of item (h), add the following:</i></p> <p>"Details and dates relating to the personnel deployed through the design and execution to the completion of the Works shall be included in those comparisons."</p> <p><i>Add the following new item at the end of the Sub-Clause:</i></p> <p>"(i) matters requested under the ESHS Specifications."</p>
On-Site Log Book	4.25	<p><i>Additional Sub-Clause:</i></p> <p>"The Contractor shall maintain on Site a log book, in a form approved by the Engineer and which shall integrate the fields required in the Specification. It will be used to record the Contractor's activities on a daily basis, and any instruction from the Engineer given on Site. The Employer's Personnel shall have the right of access to this document at all times, and one copy of each daily record shall be promptly provided by the Contractor to the Engineer."</p>
Facilities for Staff and Labour	6.6	<p><i>The last paragraph is deleted in its entirety and replaced by the following:</i></p> <p>"The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the Site, except with the prior and express Employer's consent. The Employer and/or the Engineer may inspect the living quarters from time to time in order to verify their compliance with the Laws and the Contract. The Contractor shall accordingly grant the Employer and/or the Engineer full access to the living quarters as and when they require."</p>
Health and Safety	6.7	<p><i>Add the following at the end of the Sub-Clause:</i></p> <p>"These provisions are complemented by those listed under the ESHS Specifications which the Contractor must ensure full compliance with."</p>
Inspection	7.3	<p><i>In the first sentence of the last paragraph, add:</i></p> <p>", in accordance with the Specification," <i>after</i> "notice to the Engineer," <i>and before</i> "whenever"</p> <p><i>In the last sentence of the last paragraph:</i></p> <ul style="list-style-type: none"> – <i>Add</i> "within the prescribed period" <i>after</i> "notice", <i>and</i> – <i>Add</i> "risk and" <i>before</i> "cost".
Testing	7.4	<p><i>Add the following at the end of the 2nd paragraph:</i></p> <p>"The Contractor shall carry out such further tests as may be required under the applicable Laws and as may be</p>

Conditions	Sub-Clause	Specific provisions
		<p>required by the relevant legally constituted public authorities in the Country in order for them to approve the completed Works. Any tests required by the applicable Laws or legally constituted authorities are deemed never to be varied or additional tests and are to be carried out by the Contractor at his risk and expense."</p> <p><i>In the 4th paragraph, replace "not less than 24 hours' notice" by "24 hours' notice, unless a longer period is indicated in the Specifications."</i></p>
Commencement of Works	8.1	<p><i>Insert the following after "Sub-Clause 16.2 [Termination by contractor]" and before ".":</i></p> <p>"unless the Contractor has caused, or contributed in any respect to, any non-fulfilment of one or all of these precedent conditions."</p> <p><i>Add the following at the end of the Sub-Clause:</i></p> <p>"As defined in the ESHS Specifications (if any), no physical work may commence on any Project Area until such time the Contractor has prepared and submitted to the Engineer the Worksite - ESMP, and the annexed EPP corresponding to a Project Area, and the Engineer has approved those."</p>
Extension of Time for Completion	8.4	<p><i>Replace the first paragraph by the following:</i></p> <p>"The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that any of the following causes affect his ability to meet the Time for Completion:"</p> <p><i>Add the following at the end of the Sub-Clause:</i></p> <p>"However the Contractor's entitlement to an extension of time shall be reduced if and to the extent that the Contractor's failure to use all reasonable endeavours to mitigate any such delay has contributed to the delay.</p> <p>Any extension of Time for Completion granted to the Contractor shall, except where the Contractor is entitled to an increase in the Contract Price in accordance with other provisions of the Contract, be deemed to be full compensation and satisfaction for any loss or damage sustained or to be sustained by the Contractor in respect of the matter or thing in connection with which such extension shall have been granted."</p>
Suspension of Work	8.8	<p><i>Add the following after the last sentence of the Sub-Clause:</i></p> <p>"As an example, and without limitation to other possible causes, any suspension of work caused by any failure from the Contractor to comply with the obligations stated:</p>

Conditions	Sub-Clause	Specific provisions
		<ul style="list-style-type: none"> under the ESHS Specifications (if any), in the event of a level 3 non-compliance; under Sub-Clause 4.8 as to safety procedures; under Sub-Clause 4.9 as to the quality assurance; under Sub-Clause 4.18 as to the protection of the environment; or under Sub-Clause 6.7 as to health and safety; <p>shall be considered as cause of suspension which is the responsibility of the Contractor."</p>
Delayed Tests	9.2	<p><i>In the 2nd paragraph, add the following in between "21 days" and "after":</i></p> <p><i>", or any other period instructed by the Engineer in accordance with and taking due regard of the Contract,"</i></p> <p><i>In the 3rd paragraph, add the following in between "21 days" and ",":</i></p> <p><i>", or any other period instructed by the Engineer under the former paragraph,"</i></p>
Failure to Pass Tests on Completion	9.4	<p><i>Add the following item d) after item c):</i></p> <p><i>"d) instruct the Contractor to carry out any remedial work, as provided for in Sub-Clause 7.6 [Remedial Work]"</i></p>
Taking Over of Parts of the Works	10.2	<p><i>Add the following at the end of the 3rd paragraph:</i></p> <p><i>"For the sake of clarity, the Defect Notification Period of a part of the Works which has been taken over under this Sub-Clause will expire when the Defect Notification Period of the Works as a whole, or of the Section to which the part is related, as the case may be, will expire. It will then typically be longer than the latter."</i></p>
Works to be Measured	12.1	<p><i>If the option "full Lump Sum" has been selected in Sub-Clause 14.1 of these Particular Conditions, then:</i></p> <p><i>Clause 12 is not applicable.</i></p> <p><i>If the option "a mix of Lump Sum Price Component and Admeasurement Component" has been selected in Sub-Clause 14.1 of these Particular Conditions, replace all text before item (a) in the Sub-Clause by the following:</i></p> <p><i>"The Admeasurement Component of the Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.</i></p>

Conditions	Sub-Clause	Specific provisions
		Whenever the Engineer requires any part of the Admeasurement Component of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:"
Right to Vary	13.1	<i>Add the following sentence at the end of the first paragraph:</i> "Variations shall be strictly limited to what is directly related to and necessary for the Permanent Works, and to what falls under the skills, experience and trades of the Contractor."
Provisional Sums	13.5	<i>Add the following at the end of this Sub Clause:</i> "As an exception to the above, the Provisional Sum for the cost of the DB, if any, shall be used to pay the Contractor of the Employer's one-half share of the invoices of the DB for its fees and expenses, in accordance with Clause 20 [Claims, Disputes and Arbitration]. No prior instruction of the Engineer shall be required with respect to the work of the DB. The Contractor shall produce the DB invoices and satisfactory evidence of having paid the entirety of such invoices as part of the substantiation of those Statements submitted under Sub-Clause 14.3 [Application for Interim Payment Certificates]. The Engineer's certification of such Statements shall be based upon such invoices and such evidence of their payment by the Contractor. No sum for Contractor's overhead charges and profit shall apply in addition to the DB invoices amounts."
Adjustments for Changes in Legislation	13.7	<i>Add the following paragraph at the end of the Sub-Clause:</i> "If the Contractor benefits or will benefit from reduced Cost as a result of such changes, the Engineer shall, subject to Sub-Clause 2.5 [Employer's Claims], proceed in accordance with Sub-Clause 3.5 [Determinations], to agree or determine the amount to be deducted from the Contract Price."
Contract Price	14.1(d)	If requested by the Engineer, the breakdown of all unit prices shall also be submitted by the Contractor within 28 days from the Commencement Date.
	14.1(e)	<i>Add the following new item (e) at the end of the Sub-Clause:</i> "(e) Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefore, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry an approved export bond or bank guarantee, valid until the Time for Completion plus six months, in an amount equal to the full import duties and taxes which would be

Conditions	Sub-Clause	Specific provisions
		<p>payable on the assessed imported value of such Contractor's Equipment and spare parts, and callable in the event the Contractor's Equipment is not exported from the Country on completion of the Contract. A copy of the bond or bank guarantee endorsed by the customs authorities shall be provided by the Contractor to the Employer upon the importation of individual items of Contractor's Equipment and spare parts.</p> <p>Upon export of individual items of Contractor's Equipment or spare parts, or upon the completion of the Contract, the Contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the Contractor's Equipment and spare part to be exported, based on the depreciation scale and other criteria used by the customs authorities for such purposes under the provisions of the applicable Laws. Import duties and taxes shall be due and payable to the customs authorities by the Contractor on (a) the difference between the initial imported value and the residual value of the Contractor's Equipment and spare parts to exported; and (b) on the initial imported value that Contractor's Equipment and spare parts remaining in the Country after completion of the Contract. Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise the security shall be called in the full amount remaining."</p>
Issue of Interim Payment Certificates	14.6	<p><i>Add the following sentence at the end of the first paragraph:</i></p> <p>"The Engineer may withhold any amount up to one hundred percent (100%) of the certification at its discretion in the event that the monthly progress report to be submitted with the Contractor's Statement is missing any of the information listed in paragraphs (a) to (h) of Sub-Clause 4.21 <i>[Progress reports]</i>. Such withheld amounts shall be released in the Interim Payment Certificate in the month following the Contractor's submission of the missing information."</p>
Payment	14.7	<p><i>Add the following sentence at the end of the Sub-Clause:</i></p> <p>"The payment period defined in item (b) above can be suspended for reasons defined in the Contract, in particular in the event of an unresolved level 3 non-compliance specified in the ESHS Specifications if any. Such suspension shall not entitle the Contractor to any additional payment under Sub-Clause 14.8 <i>[Delayed Payment]</i> or otherwise"</p>
Application for Final Payment Certificate	14.11	<p><i>In the 3rd paragraph, add "by latest 56 days after the receipt of the draft final statement", after "the Engineer shall deliver".</i></p> <p><i>In the 3rd paragraph, add the following sentence before the last sentence:</i></p>

Conditions	Sub-Clause	Specific provisions
		"Failure by the Engineer to deliver such Interim Payment Certificate within that period shall constitute a dispute."
Direct Payments to Subcontractors	14.16	<p><i>// the option "for direct payment of Subcontractors" has been selected in Sub-Clause 4.4 of the Particular Conditions, then:</i></p> <p>"Payment for work by a Subcontractor which is entitled to be paid directly shall be made in accordance with the Contract, or an addendum or amendment thereof.</p> <p>When a Subcontractor is entitled to be paid directly by the Employer, the Contractor must furnish together with the Application for Interim Payment Certificates as per Sub-Clause 14.3 or the Application for Final Payment Certificate as per Sub-Clause 14.11 a statement indicating the amount to be deducted from the Payment Certificate and to be paid directly by the Employer to the said Subcontractor, as well as the various payment currencies and amounts.</p> <p>Payments to the Subcontractor shall be made on the basis of the statement submitted by the Contractor as mentioned here above and as accepted by the Contractor.</p> <p>The aggregate amount of direct payments to a Subcontractor calculated under the conditions prevailing on the month in which the Contract Price was established (the Base Date) may not exceed the amount of the subcontract as shown in the Contract.</p> <p>The Contractor only is entitled to submit the application for Interim or Final Payment Certificate; only claims submitted or transmitted by the Contractor shall be considered.</p> <p>Upon receipt of the Contractor statement requesting direct payment of the Subcontractor, the Employer shall directly notify the Subcontractor of the date of receipt and the amounts agreed by the Contractor for direct payment.</p> <p>Direct payments of the Subcontractor must be effected within the time specified in Sub-Clause 14.7 for payment of the Contractor. A notification of the direct payment shall be issued by the Employer to the Contractor and the Subcontractor.</p> <p>Within fifteen (15) days of receipt of the documents supporting a direct payment request from the Subcontractor, the Contractor shall give its agreement or notify its refusal with justification to the Subcontractor, failing which the Contractor shall be deemed to have agreed to whichever supporting documents it did not expressly accept or reject. In case the Contractor does not notify its refusal with justification of a request for direct payment from a Subcontractor or transmit it to the Employer within the time indicated above, the Subcontractor is entitled to send a copy of the request</p>

Conditions	Sub-Clause	Specific provisions
		<p>for direct payment directly to the Employer, together with a copy of the proof of receipt of the original by the Contractor.</p> <p>Thereafter the Employer shall (i) promptly request the Contractor to submit evidence within fifteen (15) days that the Contractor rejected the said request for direct payment with justification within the time specified above, and (ii) inform the Subcontractor accordingly. If the Contractor fails to provide the requested evidence within 15 days, the Employer may directly pay the Subcontractor, up to the amount due under payment certificates claimed by the Contractor."</p>
Termination by Employer	15.2	<p><i>Add the following, after item (f) in the first paragraph:</i></p> <p>"(g) Substantially fails to comply with the ESHS Specifications."</p>
Valuation at Date of Termination	15.3	<p><i>Add the following at the end of sub-Clause, after "Contract" and before ".":</i></p> <p>", except that the Engineer will be under no obligation to consult with the Contractor before making his determination, but may consult with the Contractor at his sole discretion."</p>
Corrupt or Fraudulent Practices	15.6	<p><i>Add the following at the end of the Sub-Clause:</i></p> <p>"In addition to the provisions of this Sub-Clause, the Contractor is also bound by the provisions found under Appendix B to the General Conditions, named "Corrupt and Fraudulent Practices Policy – Social and Environmental Responsibility."</p>
Duty to Minimize Delay / renamed as "Duty to Minimize Delay and Cost"	19.3	<p><i>In the first paragraph, add "and/or Cost, including but not limited to those to the Works," after "delay".</i></p>
Optional Termination, Payment and Release	19.6	<p><i>In the 2nd paragraph, replace "the Engineer shall determine" par the following:</i></p> <p>"the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine".</p>
Suspension or termination on the grounds of the Security of the Contractor's Personnel	19.8	<p><i>Additional Sub-Clause:</i></p> <p>"This Sub-Clause is applicable if, and only if, security specifications are included in the Contract.</p> <p>If it believes, acting reasonably, that the physical integrity of its Personnel is seriously and imminently threatened by a danger in the performance of the Contract, the Contractor may decide, without prior notice:</p> <ul style="list-style-type: none"> a) to demobilise its Personnel and Equipment from the area affected by the danger; and b) immediately suspend the performance of all or part of its obligations under the Contract that the

Conditions	Sub-Clause	Specific provisions
		<p>demobilisation referred to in sub-paragraph (a) above prevents it from performing.</p> <p>The Contractor shall notify its decision to the Employer, within a maximum period of seven (7) days therefrom, furnish proof thereof and inform the Employer of the foreseeable impact of its decision on the Contract Price and the Completion of the Works, as well as the reasonable measures proposed to mitigate these impacts.</p> <p>The Contractor shall take all reasonable steps to minimise any delay in the performance of the Contract and any Cost resulting from its decision.</p> <p>The Contractor shall continue to perform its contractual obligations that the danger does not reasonably prevent it from performing.</p> <p>If the Contractor suffers delays and/or incurs Costs as a result of its decision, the Contractor shall be entitled to obtain, in accordance with the provisions of Sub-Clause 20.1 <i>[Contractor's Claims]</i>:</p> <ul style="list-style-type: none"> (i) an extension of time for such delay, if completion is or will be delayed, in accordance with Sub-Clause 8.4 <i>[Extension of Time for Completion]</i>; and (ii) the payment of such Costs, including the costs of repairing and replacing Works and/or Goods damaged or destroyed by the danger, provided they are not covered by the insurance policy referred to in Sub-Clause 18.2 <i>[Insurance for Works and Contractor's Equipment]</i>. <p>After receiving this notification, the Engineer shall proceed in accordance with Sub-Clause 3.5 <i>[Determinations]</i> to reach an agreement or determine (1) if and (if applicable) to what extent the Contractor's decision was justified by the circumstances, and (2) the matters described in sub-paragraphs (i) and (ii) above in due proportion.</p> <p>If, due to a danger notified in accordance with the provisions of this Sub-clause, the completion of most of the Works is prevented for a continuous period of eighty four (84) days or for multiple periods exceeding one hundred and forty (140) days, each Party may notify the other Party of the termination of the Contract in accordance with Sub-Clause 19.6 <i>[Optional termination, payment and release]</i>."</p>
Contractor's Claims	20.1	<p><i>Add the following sentence at the end of the 4th paragraph:</i></p> <p>"As long as the event or circumstance giving rise to the claim continues having effect, the Contractor shall use all reasonable endeavours to minimise any incurred</p>

Conditions	Sub-Clause	Specific provisions
		delay and/or Cost, including but not limited to those to the Works."
Failure to Comply with Dispute Adjudication Board's Decision	20.7	<p><i>Delete Sub-Clause 20.7 in its entirety and replace it by the following:</i></p> <p>"In the event that a Party fails to comply with any decision of the DAB, whether binding, or final and binding, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 <i>[Arbitration]</i> for summary or other expedited relief, as may be appropriate.</p> <p>Sub-Clause 20.4 <i>[Obtaining Dispute Adjudication Board's Decision]</i> and Sub-Clause 20.5 <i>[Amicable Settlement]</i> shall not apply to this reference."</p>

Section X – Contract Forms

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Notification of Award

Letter of Acceptance

[Letterhead paper of the Employer]

Date: _____ *[Insert Date]*

To: _____ *[Name and address of the Contractor]*

This is to notify you that your Bid dated _____ *[Insert date]* for execution of the **Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project, AWWA/AFD/NWSP/W-02/2023** for the Accepted Contract Amount *[amount in numbers and words]* *[name of currency]*, as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by our institution.

You are requested to furnish the Performance Security within 28 days in accordance with ITB 42, using for that purpose the Performance Security Form included in Section X, Contract Forms, of the Bidding Documents.

Authorized Signature: _____

Name and Title of Signatory: _____

Name of institution: _____

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the _____ day of _____, _____, between _____ of _____ (hereinafter "**the Employer**"), of the one part, and _____ of _____ (hereinafter "**the Contractor**"), of the other part:

WHEREAS the Employer desires that the Works known as **Construction Works for Kabete-Oleserani Pipeline, West and South Nairobi Water and Sewerage Project, AWWA/AFD/NWSP/W-02/2023** should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein, in the sum of *[insert Accepted Contract Amount in words and figures, expressed in the Contract currency(ies)]* (hereafter called the "**Accepted Contract Amount**").

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents. The priority of the documents shall be in accordance with the following documents:
 - a) The Letter of Acceptance;
 - b) The Letter of Bid and Appendix to Bid (including the signed Statement of Integrity);
 - c) The addenda Nos _____ (if any);
 - d) The Particular Conditions;
 - e) The General Conditions;
 - f) The Specifications;
 - g) The Drawings;
 - h) The completed Schedules; and
 - i) The Contractor's Bid and any other documents forming part of the contract.
3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer 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 _____ on the day, month and year specified above.

Signed by _____ (for the Employer)

Signed by _____ (for the Contractor)

Performance Security

Demand guarantee

Beneficiary: _____

Date: _____

PERFORMANCE GUARANTEE No.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "**the Bidder**") has entered into Contract No. _____ dated _____ with 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 Bidder, 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 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 first 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 Bidder 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.

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 this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____ *[Signature]*

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

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

² Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "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."

Advance Payment Security

Demand Guarantee

Beneficiary: _____

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "**the Bidder**") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "**the Contract**").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ [amount in numbers and words] is to be made against an advance payment guarantee.

At the request of the Bidder, 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 first 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 Bidder:

- a) Has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
- b) Has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Bidder has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Bidder on its account number _____ at _____ [name and address of the bank].

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Bidder as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less Provisional Sums, has been certified for payment, or on the _____ day of _____, 2____², whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

_____ [Signature]

¹ The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

² Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "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."

Retention Money Security

Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]
Beneficiary: _____ [Insert name and address of Employer]
Date: _____ [Insert date of issue]
RETENTION MONEY GUARANTEE No.: _____ [insert guarantee reference number]
Guarantor: _____ [Insert name and address of place of issue, unless indicated in the letterhead]

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 Bidder**") has entered into Contract No. _____ [insert reference number of the contract] dated _____ with the Beneficiary, for the execution of _____ [insert name of contract and brief description of Works] (hereinafter called "**the Contract**").

Furthermore, we understand that, according to the Conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("**the Retention Money**"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of the second half of the Retention Money (or, if the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security) is to be made against a Retention Money guarantee.

At the request of the Bidder, 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 first 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 Bidder 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 from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Bidder on its account number _____ at _____ [insert name and address of Bidder'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.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

[Signature]

¹ The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or if the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.

² Insert the same expiry date as set forth in the performance security, representing the date twenty-eight days after the completion date described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "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."