

**PROPOSED HOUSING SCHEME ON PLOT LR NO.
KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO
COUNTY**

**PRELIMINARIES, GENERAL CONDITIONS,
SPECIFICATIONS AND BILLS OF QUANTITIES
FOR
SUPPLY, DELIVERY, INSTALLATION, TESTING AND
COMMISSIONING
FOR
PLUMBING AND DRAINAGE INSTALLATIONS**

Client:

Kenyatta National
Hospital Staff Retirement
Benefits Scheme (2011)
P.O. Box 20723 - 00202,
Nairobi.

Architects:

Habitech Consultants,
P. O. Box 66495-00800,
Nairobi, Kenya.

Quantity Surveyors:

Amazon Consultants Limited,
P. O. Box 1756-00100,
Nairobi, Kenya.

Electrical/Mechanical Engineers:

EMpaq Limited,
P. O. Box 68140-00200,
Nairobi, Kenya.

Civil/Structural Engineers:

Epoch Consulting Engineers,
P.O. Box 75193-00200,
Nairobi, Kenya.

OCTOBER, 2023

SUB-CONTRACT FOR PLUMBING AND DRAINAGE INSTALLATIONS

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**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
SUB-CONTRACT FOR PLUMBING, AND DRAINAGE INSTALLATIONS**

SPECIAL NOTES FOR ALL TENDERERS:

Important: The sub-contractor is also advised to secure all the necessary insurance policies as he will be solely held responsible for any damages to any existing system, injuries to persons resulting from his activities and/or interference with normal operations of the building that may result from his negligence, actions or otherwise.

1. These notes shall form part of these specifications and conditions.
2. The tenderer is required to check the number of pages in this document and should any be found to be missing or the figures indistinct, he must inform the Engineers at once and have the same rectified. Should the tenderer be in doubt about the precise meaning of any item, word or figures, or for any reason whatsoever observe any apparent omission of words or figures, he must inform the Engineer in order that the correct meaning may be decided upon before the date for the submission of the tenders.
3. No liability whatsoever will be admitted nor claim allowed in respect of errors in the completed tender due to mistakes in this document which should have been rectified in the manner described above.
4. The tenderer shall not alter or otherwise qualify the text of this specification. Any alteration or qualification made without authority will be ignored and the text of the specification as printed will be adhered to.
5. The tenderer shall be deemed to have made allowances in his unit prices generally to cover items of preliminaries or additions to Prime Cost Sums or other items, if those have not been priced against the respective items.
6. The tenderer's price shall include all government taxes including duties, V.A.T. etc. No claims whatsoever will be allowed in respect of duties, VAT etc if the tenderer fails to include them in his unit prices. It is also to be noted that VAT will be included in the unit rates and NOT worked out as a percentage of the total.
7. In no case will any expenses incurred by the tenderer in preparation of this tender be reimbursed.
8. The copyright of this specification is vested in the Engineers and no part thereof may be reproduced without their express permission, given in writing.
9. The specifications must be priced in Kenya Currency i.e. Shillings and Cents.
10. All the tenderers must make a declaration that they have not and will not make any payment to any person which can be perceived as an inducement to enable them to win this tender.
11. The works shall be carried out in accordance with provisions of the 17th Edition of IEE wiring Regulations, the most current Kenya Standards governing such works, and relevant provisions of the current KPLC by-laws.

Signed (As in Tender) Date/Stamp.....

FORM OF TENDER

To:

**KENYATTA NATIONAL HOSPITAL STAFF RETIREMENT BENEFITS SCHEME (2011)
P.O. BOX 20723 - 00202,
NAIROBI, KENYA.**

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY

SUB-CONTRACT FOR PLUMBING AND DRAINAGE INSTALLATIONS

1. In accordance with the Instructions to Tenderers, Conditions of Contract described or inferred to from the Kenya Association of Building and Civil Engineer Contractors (KABCEC), Form of Sub-Contract Agreement, Specifications, Drawings and Bills of Quantities for the execution of the above-named Works, we, the undersigned offer to construct, install and complete such Works and remedy any defects therein for the sum of:

Kshs..... *[Amount in figures]*

Kenya Shillings.....*[Amount in words]*

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Employer’s Representative’s notice to commence, and to phase the works in accordance with the building programme and to complete the whole of the works within the time of the main contract.
3. We agree to abide by this tender for 120 days from the date of official tender opening, and shall remain binding upon us and may be accepted at any time before that date.
4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Sub-Contract between us and the Main Contractor.
5. We understand that you are not bound to accept the lowest or any tender you may receive.
6. We submit the Name of as Surety who has signed the form attached and is willing to be bound to the Main Contractors in an amount equal to 10% of the sub-contract amount for the due performance of the sub-contract up to the date of completion of the works and who will when and if called upon sign a Bond to the offset without limitations on the same day as the Sub-contract Agreement is signed but in the event the surety name is not approved we agree to furnish within 7 days another surety to your approval.
7. We agree in the event of your acceptance of this Tender, to execute the formal Sub-Contract Agreement within Fourteen (14) days from notification of acceptance.

Dated this day of20.....

Signature Name

In the capacity ofduly authorized to sign tenders for and on behalf of:

..... *[Name of Tenderer /of..... [Address of Tenderer]*

PIN No.VAT CERTIFICATE No.

Witness: Name

Address

Signature

NB: Tenderers are required to attach the surety undertaking, dully signed by the surety, to this Form of Tender.

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

Beneficiary: _____

Request for Tenders No:

_____ **Date**

TENDER GUARANTEE No.: _____

Guarantor: _____

1. We have been informed that _____ (here inafter called "the Applicant") has submitted or will submit to the Beneficiary its Tender (here inafter called" the Tender") for the execution of _____ under Request for Tenders No. _____ ("the ITT").
2. Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.
3. At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:
 - (a) **has withdrawn its Tender during the period of Tender validity set forth in the Applicant's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Applicant; or**
 - b) having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension there to provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance.**
4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii) thirty days after the end of the Tender Validity Period.
5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above onor before that date.

[signature(s)]

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

FORMAT OF TENDER SECURITY [Option 2–Insurance Guarantee]

TENDER GUARANTEE No.: _____

1. Whereas [*Name of the tenderer*] (hereinafter called “the tenderer”) has submitted its tender dated [*Date of submission of tender*] for the [*Name and/or description of the tender*] (hereinafter called “the Tender”) for the execution of _____ under Request for Tenders No. _____ (“the ITT”).
2. KNOW ALL PEOPLE by these presents that WE of [**Name of Insurance Company**] having our registered office at (hereinafter called “the Guarantor”), are bound unto [*Name of Procuring Entity*] (hereinafter called “the Procuring Entity”) in the sum of (Currency and guarantee amount) for which payment well and truly to be made to the said Procuring Entity, the Guarantor binds itself, its successors and assigns, jointly and severally, firmly by these presents.
Sealed with the Common Seal of the said Guarantor this ____ day of _____ 20 ____.
3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Applicant:
 - a) has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender (“the Tender Validity Period”), or any extension thereto provided by the Principal; or
 - b) having been notified of the acceptance of its Tender by the Procuring Entity during the Tender Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to tenderers (“ITT”) of the Procuring Entity's Tendering document.

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

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

[Date]

[Signature of the Guarantor]

[Witness]

[Seal]

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

PART A:
INSTRUCTIONS TO TENDERERS

PART A: INSTRUCTIONS TO TENDERERS**CONTENTS**

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INSTRUCTION TO TENDERERS

Note: The tenderer must comply with the following conditions and instructions and failure to do so is liable to result in rejection of the tender.

GENERAL

1. Definitions

- (a) “**Tenderer**” means any person or persons partnership firm or company submitting a sum or sums in the Bills of Quantities in accordance with the Instructions to Tenderers, Conditions of Contract, Specifications, Drawings and Bills of Quantities for the work contemplated, acting directly or through a legally appointed representative.
- (b) “**Approved tenderer,**” means the tenderer who is approved by the Employer.
- (c) Any noun or adjective derived from the word “**tender**” shall be read and construed to mean the corresponding form of the noun or adjective “**bid**”. Any conjugation of the verb “tender” shall be read and construed to mean the corresponding form of the verb “bid.”

2. Eligibility and Qualification Requirements

- 2.1 This invitation to tender is open to all tenderers who have been pre-qualified.
- 2.2 To be eligible for award of Sub-Contract, the tenderer shall provide evidence satisfactory to the Employer of their eligibility under Sub clause 2.1 above and of their capability and adequacy of resources to effectively carry out the subject Sub-Contract. To this end, the tenderer shall be required to update the following information already submitted during pre-qualification:-
 - (a) Details of experience and past performance of the tenderer on the works of a similar nature within the past five years and details of current work on hand and other contractual commitments.
 - (b) The qualifications and experience of key personnel proposed for administration and execution of the contract, both on and off site.
 - (c) Major items of construction plant and equipment proposed for use in carrying out the Sub-Contract. Only reliable plant in good working order and suitable for the work required of it shall be shown on this schedule. The tenderer will also indicate on this schedule when each item will be available on the Works. Included also should be a schedule of plant, equipment and material to be imported for the purpose of the Sub-Contract, giving details of make, type, origin and CIF value as appropriate.
 - (d) Details of subcontractors to whom it is proposed to sublet any portion of the Sub-Contract and for whom authority will be requested for such subletting.
 - (e) A draft Program of Works in the form of a bar chart and Schedule of Payment which shall form part of the Sub-Contract if the tender is accepted. Any change in the Program or Schedule shall be subjected to the approval of the Engineer. The

program of works must be presented in detail, to include all milestones from commencement to commissioning, and handing over.

- (f) Details of any current litigation or arbitration proceedings in which the Tenderer is involved as one of the parties.

2.3 Joint Ventures

Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements:-

- (a) The tender, and in case of a successful tender, the Form of Agreement, shall be signed so as to be legally binding on all partners.
- (b) One of the partners shall be nominated as being in charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners.
- (c) The partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the Sub-Contract including payment shall be done exclusively with the partner in charge.
- (d) All partners of the joint venture shall be liable jointly and severally for the execution of the Sub-Contract in accordance with the Sub-Contract terms, and a relevant statement to this effect shall be included in the authorization mentioned under (b) above as well as in the Form of Tender and the Form of Agreement (in case of a successful tender).
- (e) A copy of the agreement entered into by the joint venture partners shall be submitted with the tender.

3. Cost of Tendering

The tenderer shall bear all costs associated with the preparation and submission of his tender and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

4. Site Visit

- 4.1 The tenderer is advised to visit and examine the Site and its surroundings and obtain for himself on his own responsibility, all information that may be necessary for preparing the tender and entering into a Sub-Contract. The costs of visiting the Site shall be the tenderer's own responsibility.
- 4.2 The tenderer and any of his personnel or agents will be granted permission by the Employer to enter upon premises and lands for the purpose of such inspection, but only upon the express condition that the tenderer, his personnel or agents, will release and indemnify the Employer from and against all liability in respect of, and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused, which but for the exercise of such permission, would not have arisen.
- 4.3 The Employer shall organize a site visit at a date to be notified. A representative of the Employer will be available to meet the intending tenderers at the Site.

Tenderers must provide their own transport. The representative will not be available at any other time for site inspection visits.

Each tenderer shall complete the Certificate of Tenderer's Visit to the Site, whether he in fact visits the Site at the time of the organized site visit or by himself at some other time.

TENDER DOCUMENTS

5. Tender Documents

5.1 The Tender documents comprise the documents listed here below and should be read together with any Addenda issued in accordance with Clause 7 of these instructions to tenderers.

- a. Special Notes for all Tenderers
- b. Form of Tender
- c. Form of Undertaking
- d. Definitions
- e. Instructions to Tenderers
- f. Conditions of Contract
- g. Agreement and Conditions of Sub-Contract for Building Works
- h. Preliminaries and General Conditions
- j. General Specifications for Electrical Installations
- k. Particular Specifications for Electrical Installations
- l. Technical Specifications for Structural Lightning Protection
- m. Technical Specifications for Fire Detection and Alarm Systems
- n. Bills of Quantities and Schedule of Unit Rates
- o. Technical Schedule of Items Supplied
- p. Standard Forms
- q. Schedule of Drawings

5.2 The tenderer is expected to examine carefully all instructions, conditions, forms, terms, specifications and drawings in the tender documents. Failure to comply with the requirements for tender submission will be at the Tenderer's own risk. Pursuant to clause 23 of Instructions to Tenderers, tenders which are not substantially responsive to the requirements of the tender documents will be rejected.

5.3 All recipients of the documents for the proposed Sub-Contract for the purpose of submitting a tender (whether they submit a tender or not) shall treat the details of the documents as "private and confidential".

6. Clarification of Tender Documents

6.1 A prospective tenderer requiring any clarification of the tender documents may notify the Employer in writing or by telex, cable or facsimile at the Employer's mailing address indicated in the Invitation to Tender. The Employer will respond in writing to any request for clarification, which he receives earlier than 7 days prior to the deadline for the submission of tenders. Written copies of the Employer's response (including the query but without identifying the source of the inquiry) will be sent to all prospective tenderers who have purchased the tender documents.

7. Amendment of Tender Documents

7.1 At any time prior to the deadline for submission of tenders the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective tenderer, modify the tender documents by issuing Addenda.

7.2 Any Addendum will be notified in writing or by cable, telex or facsimile to all prospective tenderers who have purchased the tender documents and will be binding upon them.

- 7.3 If during the period of tendering, any circular letters (tender notices) shall be issued to tenderers by, or on behalf of, the Employer setting forth the interpretation to be placed on a part of the tender documents or to make any change in them, such circular letters will form part of the tender documents and it will be assumed that the tenderer has taken account of them in preparing his tender. The tenderer must promptly acknowledge any circular letters he may receive.
- 7.4 In order to allow prospective tenderers reasonable time in which to take the Addendum into account in preparing their tenders, the Employer may, at his discretion, extend the deadline for the submission of tenders.

PREPARATION OF TENDERS

8. Language of Tender

- 8.1 The tender and all correspondence and documents relating to the tender exchanged between the tenderer and the Employer shall be written in the English language. Supporting documents and printed literature furnished by the tenderer with the tender may be in another language provided they are accompanied by an appropriate translation of pertinent passages in the above stated language. For the purpose of interpretation of the tender, the English language shall prevail.

9. Documents Comprising the Tender

- 9.1 The tender to be prepared by the tenderer shall comprise: the Form of Tender and Appendix thereto, a Tender Surety, the Priced Bills of Quantities and Schedules, the information on eligibility and qualification, and any other materials required to be completed and submitted in accordance with the Instructions to Tenderers embodied in these tender documents. The Forms, Bills of Quantities and Schedules provided in the tender documents shall be used without exception (subject to extensions of the schedules in the same format and to the provisions of clause 13.2 regarding the alternative forms of Tender Surety).

10. Tender Prices

- 10.1 All the insertions made by the tenderer shall be made in INK and the tenderer shall clearly form the figures. The relevant space in the Form of Tender and Bills of Quantities shall be completed accordingly without interlineations or erasures except those necessary to correct errors made by the tenderer in which case the erasures and interlineations shall be initialed by the person or persons signing the tender.
- 10.2 The tenderer for every item in the Bills of Quantities shall insert a price or rate whether the quantities are stated or not. Items against which no rate or price is entered by the tenderer will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bills of Quantities.

The prices and unit rates in the Bills of Quantities are to be the full [all-inclusive] value of the work described under the items, including all costs and expenses which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. All duties and taxes and other levies payable by the Sub-Contractor under the Sub-Contract or for any other cause as of the date 7 days prior to the deadline for the submission of tenders, shall be included in the rates and prices and the total tender prices submitted by the Tenderer. Such duties to include import duty, Value Added Tax (VAT), local authority (levies) and any other taxes (levies that may be imposed by the government and/or local authorities.

Each price or unit rate inserted in the Bills of Quantities should be a realistic estimate for completing the activity or activities described under that particular item and the tenderer is advised against inserting a price or rate against any item contrary to this instruction.

Every rate entered in the Bills of Quantities, whether or not such rate be associated with a quantity, shall form part of the Sub-Contract. The Employer shall have the right to call for any item of work contained in the Bills of Quantities, and such items of work to be paid for at the rate entered by the tenderer and it is the intention of the Employer to take full advantage of unbalanced low rates.

- 10.3 Unless otherwise specified the tenderer must enter the amounts representing 10% of the sub-total of the summary of the Bills of Quantities for Contingencies and Variation of Prices [V.O.P.] payments in the summary sheet and add them to the sub-total to arrive at the tender amount.
- 10.4 The tenderer shall furnish with his tender written confirmation from his suppliers or manufacturers of unit rates for the supply of items listed in the Conditions of Contract where appropriate.
- 10.5 The rates and prices quoted by the tenderer are subject to adjustment during the performance of the Sub-Contract only in accordance with the provisions of the Conditions of Contract. The tenderer shall complete the schedule of basic rates and shall submit with his tender such other supporting information as required under the Conditions of Contract.

11. Currencies of Tender and Payment

- 11.1 Tenders shall be priced in Kenya Shillings and the tender sum shall be in Kenya Shillings.
- 11.2 Tenderers are required to indicate in the Statement of Foreign Currency Requirements, which forms part of the tender, the foreign currency required by them. Such currency should generally be the currency of the country of the Tenderer's main office. However, if a substantial portion of the Tenderer's expenditure under the Sub-Contract is expected to be in countries other than his country of origin, then he may state a corresponding portion of the Sub-Contract price in the currency of those other countries. However, the foreign currency element is to be limited to two (2) different currencies and a maximum of 30% (thirty percent) of the Sub-Contract Price.
- 11.3 The rate of exchange used for pricing the tender shall be selling rate or rates of the Central Bank ruling on the date seven (7) days before the final date for the submission of tenders.
- 11.4 Tenderers must enclose with their tenders, a brief justification of the foreign currency requirements stated in their tenders.

12. Tender Validity

- 12.1 The tender shall remain valid and open for acceptance for a period of one hundred and twenty (120) days from the specified date of tender opening or from the extended date of tender opening (in accordance with clause 7.4 here above) whichever is the later.
- 12.2 In exceptional circumstances prior to expiry of the original tender validity period, the Employer may request the tenderer for a specified extension of the period of validity. The request and the responses thereto shall be made in writing or by cable, telex or facsimile. A tenderer may refuse the request without forfeiting his Tender Surety. A tenderer agreeing to the request will not be required nor permitted to modify his tender, but will be required to extend the validity of his Tender Surety correspondingly.

13. Tender Surety

- 13.1 The tenderer shall furnish as part of his tender, a Tender Surety in the amount stated in the Appendix to Instructions to Tenderers.
- 13.2 The unconditional Tender Surety shall be in Kenya Shillings and be in form of a certified cheque, a bank draft, an irrevocable letter of credit or a guarantee from a reputable Bank approved by the Employer located in the Republic of Kenya.

The format of the Surety shall be in accordance with the sample form of Tender Surety included in these tender documents; other formats may be permitted subject to the prior approval of the Employer. The Tender Surety shall be valid for twenty-eight (28) days beyond the tender validity period.

- 13.3 Any tender not accompanied by an acceptable Tender Surety will be rejected by the Employer as non-responsive.
- 13.4 The Tender Sureties of unsuccessful tenderers will be returned as promptly as possible but not later than twenty eight (28) days after concluding the Sub-Contract execution and after a Performance Security has been furnished by the successful tenderer. The Tender Surety of the successful tenderer will be returned upon the tenderer executing the Sub-Contract and furnishing the required Performance Security.
- 13.5 The Tender Surety may be forfeited:
 - (a) if a tenderer withdraws his tender during the period of tender validity: or
 - (b) in the case of a successful tenderer, if he fails
 - (i) to sign the Agreement, or
 - (ii) to furnish the necessary Performance Security
 - (c) if a tenderer does not accept the correction of his tender price pursuant to clause 24.

14. No Alternative Offers

- 14.1 The tenderer shall submit an offer, which complies fully with the requirements of the tender documents.

Only one tender may be submitted by each tenderer either by himself or as partner in a joint venture.
- 14.2 The tenderer shall not attach any conditions of his own to his tender. The tender price must be based on the tender documents. The tenderer is not required to present alternative construction options and he shall use without exception, the Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price.

Any tenderer who fails to comply with this clause will be disqualified.

15 Pre-Tender Meeting

- 15.1 The tenderer's designated representative is invited to attend a pre-tender meeting, which if convened, will take place at the venue and time stated in the Invitation to Tender. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 15.2 The tenderer is requested as far as possible to submit any questions in writing or by cable, to reach the Employer not later than seven days before the meeting. It may not be practicable at the meeting to answer questions received late, but questions and responses will be transmitted in accordance with the following:
 - (a) Minutes of the meeting, including the text of the questions raised and the responses given together with any responses prepared after the meeting, will be transmitted without delay to all purchasers of the tender documents. Any modification of the tender documents listed in --Clause 9 which may become necessary as a result of the pre-tender meeting shall be made by the Employer exclusively through the issue of a tender notice pursuant to Clause 7 and not through the minutes of the pre-tender

- meeting.
- (b) Non attendance at the pre-tender meeting will not be cause for disqualification of a bidder.

16 Format and Signing of Tenders

- 16.1 The tenderer shall prepare his tender as outlined in clause 9 above and mark appropriately one set "ORIGINAL" and the other "COPY".
- 16.2 The copy of the tender and Bills of Quantities shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer. Proof of authorization shall be furnished in the form of the written power of attorney, which shall accompany the tender. All pages of the tender where amendments have been made shall be initialed by the person or persons signing the tender.
- 16.3 The complete tender shall be without alterations, interlineations or erasures, except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person or persons signing the tender.

SUBMISSION OF TENDERS

17 Sealing and Marking of Tenders

- 17.1 The tenderer shall seal the original and copy of the tender in separated envelopes, duly marking the envelopes as "ORIGINAL" and "COPY". The envelopes shall then be sealed in an outer envelope.
- 17.2 The inner and outer envelopes shall be addressed to the Employer at the address stated in the Appendix to Instructions to Tenderers and bear the name and identification of the Sub-Contract stated in the said Appendix with a warning not to open before the date and time for opening of tenders stated in the said Appendix.
- 17.3 The inner envelopes shall each indicate the name and address of the tenderer to enable the tender to be returned unopened in case it is declared "late", while the outer envelope shall bear no mark indicating the identity of the tenderer.
- 17.4 If the outer envelope is not sealed and marked as instructed above, the Employer will assume no responsibility for the misplacement or premature opening of the tender. A tender opened prematurely for this cause will be rejected by the Employer and returned to the tenderer.

18. Deadline for Submission of Tenders

- 18.1 Tenders must be received by the Employer at the address specified in clause 17.2 and on the date and time specified in the Letter of Invitation, subject to the provisions of clause 7.4, 18.2 and 18.3.

Tenders delivered by hand must be placed in the "tender box" provided in the office of the Employer.

Proof of posting will not be accepted as proof of delivery and any tender delivered after the above stipulated time, from whatever cause arising will not be considered.

- 18.2 The Employer may, at his discretion, extend the deadline for the submission of tenders through the issue of an Addendum in accordance with clause 7, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline shall thereafter be subject to the new deadline as extended.
- 18.3 Any tender received by the Employer after the prescribed deadline for submission of tender will be returned unopened to the tenderer.

Modification and Withdrawal of Tenders

- 18.4 The tenderer may modify or withdraw his tender after tender submission, provided that written notice of the modification or withdrawal is received by the Employer prior to prescribed deadline for submission of tenders.
- 18.5 The Tenderer's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions for the submission of tenders, with the inner and outer envelopes additionally marked "MODIFICATION" or "WITHDRAWAL" as appropriate.
- 18.6 No tender may be modified subsequent to the deadline for submission of tenders.
- 18.7 No tender may be withdrawn in the interval between the deadline for submission of tenders and the period of tender validity specified on the tender form. Withdrawal of a tender during this interval will result in the forfeiture of the Tender Surety.
- 18.8 Subsequent to the expiration of the period of tender validity prescribed by the Employer, and the tenderer having not been notified by the Employer of the award of the Sub-Contract or the tenderer does not intend to conform with the request of the Employer to extend the prior of tender validity, the tenderer may withdraw his tender without risk of forfeiture of the Tender Surety.

TENDER OPENING AND EVALUATION

19 Tender Opening

- 19.1 The Employer will open the tenders in the presence of the tenderers' representatives who choose to attend at the time and location indicated in the Letter of Invitation to Tender. The tenderers' representatives who are present shall sign a register evidencing their attendance.
- 19.2 Tenders for which an acceptable notice of withdrawal has been submitted, pursuant to clause 19, will not be opened. The Employer will examine the tenders to determine whether they are complete, whether the requisite Tender Sureties have been furnished, whether the documents have been properly signed and whether the tenders are generally in order.
- 19.3 At the tender opening, the Employer will announce the Tenderer's names, total tender price, tender price modifications and tender withdrawals, if any, the presence of the requisite Tender Surety and such other details as the Employer, at his discretion, may consider appropriate. No tender shall be rejected at the tender opening except for late tenders.
- 19.4 The Employer shall prepare minutes of the tender opening including the information disclosed to those present.
- 19.5 Tenders not opened and read out at tender opening shall not be considered further for evaluation, irrespective of the circumstances.

20 Process to be Confidential

- 20.1 After the public opening of tenders, information relating to the examination, clarification, evaluation and comparisons of tenders and recommendations concerning the award of Sub-Contract shall not be disclosed to tenderers or other persons not officially concerned with such process until the award of Sub-Contract is announced.
- 21.2 Any effort by a tenderer to influence the Employer in the process of examination, evaluation and comparison of tenders and decisions concerning award of Sub-Contract may result in the rejection of the Tenderer's tender.

21 Clarification Tenders

- 21.1 To assist in the examination, evaluation and comparison of tenders, the Employer may ask tenderers individually for clarification of their tenders, including breakdown of unit prices.

The request for clarification and the response shall be in writing or by cable, facsimile or telex, but no change in the price or substance of the tender shall be sought, offered or permitted except as required to confirm the correction of arithmetical errors discovered by the employer during the evaluation of the tenders in accordance with clause 24.

- 21.2 No Tenderer shall contact the Employer on any matter relating to his tender from the time of the tender opening to the time the Sub-Contract is awarded. If the tenderer wishes to bring additional information to the notice of the Employer, he shall do so in writing.

22 Determination of Responsiveness

- 22.1 Prior to the detailed evaluation of tenders, the Employer will determine whether each tender is substantially responsive to the requirements of the tender documents.
- 22.2 For the purpose of this clause, a substantially responsive tender is one, which conforms to all the terms, conditions and specifications of the tender documents without material deviation or reservation and has a valid bank guarantee. A material deviation or reservation is one which affects in any substantial way the scope, quality, completion timing or administration of the Works to be undertaken by the tenderer under the Sub-Contract, or which limits in any substantial way, inconsistent with the tender documents, the Employer's rights or the tenderers obligations under the Sub-Contract and the rectification of which would affect unfairly the competitive position of other tenderers who have presented substantially responsive tenders.
- 22.3 Each price or unit rate inserted in the Bills of Quantities shall be a realistic estimate of the cost of completing the works described under the particular item including allowance for overheads, profits and the like. Should a tender be seriously unbalanced in relation to the Employer's estimate of the works to be performed under any item or groups of items, the tender shall be deemed not responsive.
- 22.4 A tender determined to be not substantially responsive will be rejected by the Employer and may not subsequently be made responsive by the tenderer by correction of the non-conforming deviation or reservation.

23 Correction of Errors

Tenders determined to be substantially responsive shall be checked by the Employer for any arithmetic errors in the computations and summations. Errors will be corrected by the Employer as follows:

- (a) Where there is a discrepancy between the amount in figures and the amount in words, the amount in words will govern.
- (b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer, there is an obvious typographical error, in which case adjustment will be made to the entry containing that error.
- (c) The amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and, with concurrence of the tenderer, shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security may be forfeited in accordance with clause 13.

24 Conversion to Single Currency

- 24.1 For compensation of tenders, the tender price shall first be broken down into the respective amounts payable in various currencies by using the selling rate or rates of the Central Bank of Kenya, ruling on the date seven (7) days before the final date for the submission of tenders.
- 24.2 The Employer will convert the amounts in various currencies in which the tender is payable (excluding provisional sums but including Day-works where priced competitively) to Kenya

Shillings at the selling rates stated in clause 25.1.

25 Evaluation and Comparison of Tenders

- 25.1 The Employer will evaluate only tenders determined to be substantially responsive to the requirements of the tender documents in accordance with clause 23.
- 25.2 In evaluating tenders, the Employer will determine for each tender the evaluated tender price by adjusting the tender price as follows:
- (a) Making any correction for errors pursuant to clause 24.
 - (b) Excluding Provisional Sums and provision, if any, for Contingencies in the Bills of Quantities, but including Day works where priced competitively.
- 25.3 The Employer reserves the right to accept any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in the accrual of unsolicited benefits to the Employer, shall not be taken into account in tender evaluation.
- 25.4 Price adjustment provisions in the Conditions of Contract applied over the period of execution of the Sub-Contract shall not be taken into account in tender evaluation.
- 25.5 If the lowest evaluated tender is seriously unbalanced or front loaded in relation to the Employer's estimate of the items of work to be performed under the Sub-Contract, the Employer may require the tenderer to produce detailed price analyses for any or all items of the Bills of Quantities, to demonstrate the relationship between those prices, proposed construction methods and schedules. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in clause 29 be increased at the expense of the successful tenderer to a level sufficient to protect the Employer against financial loss in the event of subsequent default of the successful tenderer under the Sub-Contract.
- 25.6 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Sub-Contract Price excluding Provisional Sums to a non-indigenous sub-contractor.

AWARD OF SUB-CONTRACT

26 Award

- 26.1 Subject to clause 27.2, the Employer will award the Sub-Contract to the tenderer whose tender is determined to be substantially responsive to the tender documents and who has offered the lowest evaluated tender price subject to possessing the capability and resources to effectively carry out the Sub-Contract Works.
- 26.2 The Employer reserves the right to accept or reject any tender, and to annul the tendering process and reject all tenders, at any time prior to award of Sub-Contract, without thereby incurring any liability to the affected tenderers or any obligation to inform the affected tenderers of the grounds for the Employer's action.

27 Notification of Award

- 27.1 Prior to the expiration of the period of tender validity prescribed by the Employer, the Employer will notify the successful tenderer by cable, telefax or telex and confirmed in writing by registered letter that his tender has been accepted. This letter (hereinafter and in all Sub-Contract documents called "Letter of Acceptance") shall name the sum (hereinafter and in all Sub-Contract documents called "the Sub-Contract Price") which the Employer will pay to the Sub-Contractor in consideration of the execution and completion of the Works as prescribed by the Sub-Contract.

- 27.2 Notification of award will constitute the formation of the Sub-Contract.
- 27.3 Upon the furnishing of a Performance Security by the successful tenderer, the unsuccessful tenderers will promptly be notified that their tenders have been unsuccessful.
- 27.4 Within Fourteen [14] days of receipt of the form of Sub-Contract Agreement from the Employer, the successful tenderer shall sign the form and return it to the Employer together with the required Performance Security.

28 Performance Guarantee

- 28.1 Within Fourteen [14] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with a Performance Security in an amount stated in the Appendix to Instructions to Tenderers.
- 28.2 The Performance Security to be provided by the successful tenderer shall be an unconditional Bank Guarantee issued at the Tenderer's option by an established and a reputable Bank approved by the Employer and located in the Republic of Kenya and shall be divided into two elements namely, a performance security payable in foreign currencies and a performance security payable in Kenya Shillings. The value of the two securities shall be in the same proportions of foreign and local currencies as requested in the form of foreign currency requirements.
- 28.3 Failure of the successful tenderer to lodge the required Performance Security shall constitute a breach of Sub-Contract and sufficient grounds for the annulment of the award and forfeiture of the Tender Security and any other remedy under the Sub-Contract. The Employer may award the Sub-Contract to the next ranked tenderer.

29 Advance Payment

An advance payment, if approved by the Employer, shall be made under the Sub-Contract, if requested by the Sub-Contractor. The Advance Payment Guarantee shall be denominated in the proportion and currencies named in the form of foreign currency requirements. For each currency, a separate guarantee shall be issued. The guarantee shall be issued by a bank located in the Republic of Kenya, or a foreign bank through a correspondent bank located in the Republic of Kenya, in either case subject to the approval of the Employer.

APPENDIX TO INSTRUCTIONS TO TENDERERS

1. CLAUSE 2.1

Change to read “This invitation Tender is open to all tenderers in the Category Specified”.

2. OMIT

Clauses 2.3, 4.3, 5.1, 11.2, 11.4, 25, 14.1, 13.1, 13.3, 13.4, 13.5, 15.1, 15.2

3. ADD TO CLAUSE 13.1 and 13.2

Tenderer shall provide a Tender Security. The type of Tender security shall be either a Bank Bid Bond or an Insurance Bond in the amount of Kenya shillings Two Hundred Thousand (Kshs.200,000.00) from a reputable bank valid for 30 days beyond the Tender Validity period

4. CLAUSES 16.1 and 16.2

Only one set of tender document shall be submitted.

5. CLAUSES 6.1 AND 10.2

Change to 7 days (1 week)

6. CLAUSE 9.1

Appendix to Form of Tender to be omitted.

7. CLAUSE 19.2

Only the single tender document should be marked “WITHDRAWAL” OR “MODIFICATION”

8. CLAUSES 20.2, 20.3, AND 24(C)

Tender surety will be required.

9. CLAUSE 30

Advance payment of maximum 10% of the Plumbing, Drainage and firefighting sub contract may be allowed upon application to the Project Manager as cashflow support for the project. The advance Payment Guarantee shall be in Kenya Shillings Only.

10. CLAUSE 16.1, 16.2, 17.1, and 17.2

One set of Original tender documents and a copy, filled in INK, shall be submitted.

11. ADD TO CLAUSE 28.1

Amount of performance security will be TEN per cent (10%) of sub-contract sum and bound to the appointed Main-contractor. *The Performance Security be strictly from a Bank.*

12. ADD TO CLAUSE 28.2

Performance security shall not be divided in two elements and shall be payable in Kenya Shillings Only.

TENDER EVALUATION

After tender opening, the tenders will be evaluated in **three stages**

- a) Determination of Arithmetic errors
- b) Comparison of Rates; and
- c) Consistency of the Rates.

A. Determination of Arithmetic Errors

Arithmetic Errors will be corrected by the Procuring Entity as follows:

- i) In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail. Pursuant to Section 82 of the Public Procurement and Asset Disposal Act 2015, the tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity;
- ii) Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works (i.e. corrected tender sum less P.C; and Provisional Sums);
- iii) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

B. Comparison of rates

Items that are under-priced or overpriced may indicate potential for non-delivery and front loading respectively. The committee shall promptly write to the tenderer asking for detailed breakdown of costs for any of the quoted items, relationship between those prices, proposed construction/installation methods and schedules.

The evaluation committee shall evaluate the responses and make an appropriate recommendation to the procuring entity giving necessary evidence. Such recommendations may include but not limited to:

- (i) Recommend no adverse action to the tenderer after a convincing response;
- (ii) Employer requiring that the amount of the performance bond be raised at the expense of the successful tenderer to a level sufficient to protect the employer against potential financial losses;
- (iii) Recommend non-award based on the response provided and the available demonstrable evidence that the scope, quality, completion timing, administration of works to be undertaken by the tenderer, would adversely be affected or the rights of the employer or the tenderers obligations would be limited in a substantial way.

C. Consistency of the Rates

The evaluation committee will compare the consistency of rates for similar items and note all inconsistencies of the rates for similar items.

STAGE 4 - RECOMMENDATION FOR AWARD

The successful bidder shall be the tenderer with the lowest evaluated tender price.

SUB-CONTRACT PRELIMINARIES AND CONDITIONS.

ITEM NO.	DESCRIPTION
1.02	Imported Fittings and Equipment – The sub-contractor is deemed to have taken into account, the importation of fittings and equipment. Delay in doing so should not affect the contract period. The engineer must be informed and must first approve the importation of the same if they are to be for the project.
1.03	Firm Price Contract – Unless otherwise specifically stated in the preliminaries, this is a firm price contract and the sub-contractor must allow in his tender for any increase in the cost of labor and/or materials during the currency of the sub-contract. No claim for increased costs will be entertained accepting only increased costs arising from the conditions of contract No. 30 of conditions of contract. No claim will be allowed for currency fluctuations All prices shall be in Kenya Shillings and Cents.
1.04	Prime Cost and Provisional Sums. – These sums are allowed to cover the cost of special items. All these sums will be omitted from the sub-contract initially and added only through instruction by the Engineer. Any item detailed to be supplied out of a provisional summary be purchased directly by the employer and supplied to the contractor on a non-basis. Alternatively the sub-contractor may be asked to purchase such items direct from suppliers. If required and instructed by the Engineer, the sub-contractor shall appoint a specialist sub-contractor nominated by the engineer, to supply and install any equipment covered by provisional sums.
1.05	Guarantee – The whole of the work shall be guaranteed for a period of six months from the date of the Engineer’s certificate of completion and under such guarantee the contractor shall remedy at his expense all defects in workmanship which may develop in that period.
1.06	Storage of Materials on Site – Space for storage will be provided on the site by the main contractor but the sub-contractor will be responsible for the provision of any lockup sheds or stores required.
1.07	Principal Contractor’s Liability – Space for these shall be as stated in the latest edition of the contract agreement published by the Association of Building and Civil Engineering Contractors.

- 1.08 **Labor** – The works shall be executed under the direction and to entire satisfaction in all respects of the Engineer. The working hours shall be those worked by good employers in the industry.
- 1.09 **Supervision** – The sub-contractor shall constantly keep on the site a literate agent or representative competent and experienced in the kind of work involved, who shall give his whole time to superintendence of the contract. Such agent or representative shall receive on behalf of the sub-contractor directions and instructions deemed to be given to the sub-contractor in accordance with the conditions of the sub-contract agreement.
- 1.10 **Facilities for Inspections** – The Engineer shall at all times during normal working hours have access to the sub-contract works and to the yards and workshops of the sub-contractor or other places where work is being prepared for the sub-contract works.
- 1.11 **Discrepancies** – The sub-contractor is not expected to deviate from the specifications and drawings. Unless expressly permitted to do so by the Engineer in writing. Any discrepancies, which are not approved, will be replaced before the works are accepted as practically complete.
- 1.12 **Variations** – Variations, which have a financial implication to the sub-contract, will be priced as per the priced schedules. The sub-contractor must obtain a site instruction signed by the engineer and countersigned by the architect before additional works are commenced. Where site instructions have a financial implication, the sub-contractor must ensure that the Engineer has raised a variation order for the same.
- 1.13 **Ordering for Materials** – All materials used in the execution of the works shall be of the best quality and description. Any materials for the works condemned by the Engineer shall immediately be removed and replaced by accepted materials at site at the contractor's expense. Ordering of materials, which are therefore an alternative to the specified, should only be done with the written approval of the Engineer.
- 1.14 **Faulty Work or Materials** – The whole of the works shall be carried out to the satisfaction of the Engineer who shall have the right to reject any material or workmanship, which is in his opinion unsatisfactory and to instruct the sub-contractor to rectify such bad workmanship, the Engineer may direct that it be done otherwise and the cost thereby incurred shall be recoverable as liquidated damages money.
- 1.15 **Final Account** – The final account shall be prepared only at the end of the defects liability period. The final retention money will only be released when the Engineer is completely satisfied with all the works under the sub-contract unless he expressly approved separate completion. The contractor is expected to liaise with the Engineer throughout the contract term so that undue claims may not arise at Final Account Stage.
- 1.16 **Validity of Tender** – The tender validity period shall be 90 days from the date of tender opening. The Engineer may, however request the sub-contractor to extend validity for a short period if 90 days expire before acceptance.
- 1.17 **Existing Property** – Every care shall be exercised by the sub-contractor to avoid damage to all existing property. Any damage caused to the existing property during execution of this sub-contract will be entirely the responsibility of the sub-contractor and it will be made good to the satisfaction of the Engineer.
- 1.18 **Samples** – The sub-contractor shall furnish at his own cost any sample materials or workmanship that may be called for by the Engineer for his approval, and any materials or workmanship not in his opinion up to the approved samples.

- 1.19 **Site conditions** – It will be deemed that the sub-contractor visits the site before entering into the sub-contract agreement. It shall further be deemed that he satisfies himself with regard to access to the site, the risk of injury or damage to the properties on or adjacent to the site or to the occupants of such property on or adjacent to the site or to the occupants of such property, the supply of labour and materials.
- It shall be deemed that these extremities are covered in the pricing and knowledge in this respect.
- 1.20 **Materials, Tools, Plant** – As described under item Nos. 1.07, 1.14 and 1.15.
- 1.21 **Insurance** – The sub-contractor shall take out all insurance policies as required under the terms of the contract agreement clauses 5& 6.
- 1.22 **Casing Up and Protection** – The sub-contractor shall be responsible for casing up or otherwise protecting to the satisfaction of the architect/engineer all parts of the sub-contract works liable to damage and removing such protection and making good at completion.
- 1.23 **Defect Liability Period** – The defect liability shall be six months from the date of completion of the contract as certified by the architect/Engineer.
- 1.24 **Bond** – All tenderers will submit the name of an approved surety who will be willing to bound to the main contractor in an amount equal to 10% of the sub-contract amount as clause 31 of the sub-contract agreement.
- 1.25 **Damages for Delay** – Liquidated and ascertained damages as stated in the sub-contract agreement will be claimed against the sub-contractor for any unauthorized delay in completion.
- 1.26 **Clear Away on Completion** – The sub-contractor shall upon completion of the works, at his own expense remove and clear away all plant equipment, rubbish and unused materials, and shall leave the whole of the works in a clean and tidy state to the satisfaction of the architect/Engineer. On completion, the whole of the works shall be delivered up clean, complete and perfect in every respect to the satisfaction of the architect/Engineer.
- 1.27 **Security** – Security on site shall be the responsibility of the main contractor. The sub-contractor is however expected to lock up his stores and be responsible for all his tools, plant etc.
- 1.28 **Measured Work** – These will be as per the sub-contract agreement. All sub-contract works are deemed to final measurement when completed to the satisfaction of the Engineer.
- 1.29 **Setting Out** – The sub-contract shall set out the works in accordance with the dimensions and levels shown on the sub-contract drawings and shall be responsible for the correctness of all dimensions and level set out by him. He will be required to amend all errors arising from in accurate setting out at his own cost and expenses. In the event any errors arising from inaccurate setting out at his own cost and expenses. In the event any error or discrepancies must be reported by the contractor to the architect/Engineer for his immediate consideration.
- 1.30 **Fair Wages** – These shall be as clause 30 of the contract agreement.

1.31 **Government Ordinance and Regulations** – Provisions of the Factories Ordinance 1950, Regulations for the Electrical Equipment of Building, relevant British Standard and Codes of Practice and current Government Regulations must be complied with by the sub-contractor and allowance must be made by him in his tender. The sub-contractor shall obtain from the relevant authority fullest information regarding all such regulations at his own expense and no claim for want of knowledge in this connection will be entertained.

1.32 **Scope of Contract** – It will be deemed that the sub-contractor allowed in the sub-contract sum for everything necessary for the proper and satisfactory execution to completion of the works in accordance with the specification and contract schedules taken together and to the approval of the engineer. Any claims based upon qualifications included in any document introduced by the sub-contractor to accompany his tender will not be entertained.

The onus for discovering any differences that may exist between the contract schedules and the text of specification shall be taken to rest with the sub-contractor. Any such differences should be brought to the attention of the engineer for clarification before tenders are returned for opening. It shall be deemed that no such discrepancy exists or that the contractor has priced for them in the document should he not seek the clarification as stated.

Should any difference be found between the contract drawings and the specifications after submission of the tender, the engineer will at his absolute discretion and without prejudice to the employer decide the procedure to be followed and no claim based upon the engineer's decision will be entertained.

It will be deemed that the contractor prior to submitting his tender for the execution and completion of contract works obtained all particulars, information clarification and explanation from the engineer for complete and correct preparation of the tender. No claim based on lack of knowledge in these respects will be entertained.

1.33 **Hoisting** –All casing, cutting and making good builder's works will be done by the contractor/sub-contractor.

1.34 **Duration of the Contract** – This will be in keeping with the main contract period.

1.35 **Documents to be Checked** – It shall be deemed that all tender documents have been fully checked by the sub-contractor. The Engineer may disqualify any tender which in his/her opinion has incorrect and insufficient documents.

1.36 **Water, Electricity & Telephone** – These will be availed by the main contractor. The sub-contractors shall be liable for the cost of any services provided by the main contractor.

PART B:

GENERAL MECHANICAL SPECIFICATIONS

PART B: GENERAL MECHANICAL SPECIFICATION

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PART B: GENERAL MECHANICAL SPECIFICATION

B.01 General

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

1. **2.02 Quality of Materials**

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

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

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

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

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

B.03 Regulations and Standards

The Sub-contract Works shall comply with the current editions of the following:

- a) The Kenya Government Regulations.
- b) The United Kingdom Institution of Electrical Engineers (IEE) Regulations for the Electrical Equipment of Buildings.
- a) The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides.
- d) British Standard and Codes of Practice as published by the British Standards Institution (BSI)
- e) The Local Council By-laws.
- f) The Electricity Supply Authority By-laws.
- g) Local Authority By-laws.
- h) The Kenya Building Code Regulations.
- i) The Kenya Bureau of Standards

B.04 **Electrical Requirements**

Plant and equipment supplied under this Sub-contract shall be complete with all necessary motor starters, control boards, and other control apparatus. Where control panels incorporating several starters are supplied they shall be complete with a main isolator.

The supply power up to and including local isolators shall be provided and installed by the Electrical Sub-contractor. All other wiring and connections to equipment shall form part of this Sub-contract and be the responsibility of the Sub-contractor.

The Sub-contractor shall supply three copies of all schematic, cabling and wiring diagrams for the Engineer's approval.

The starting current of all electric motors and equipment shall not exceed the maximum permissible starting currents described in the Kenya Power and Lighting Company (KPLC) By-laws.

All electrical plant and equipment supplied by the Sub-contractor shall be rated for the supply voltage and frequency obtained in Kenya, that is 415 Volts, 50Hz, 3-Phase or 240Volts, 50Hz, 1-phase.

Any equipment that is not rated for the above voltages and frequencies shall be rejected by the Engineer.

B.05 **Transport and Storage**

All plant and equipment shall, during transportation be suitably packed, crated and protected to minimize the possibility of damage and to prevent corrosion or other deterioration.

On arrival at site all plant and equipment shall be examined and any damage to parts and protective priming coats made good before storage or installation.

Adequate measures shall be taken by the Sub-contractor to ensure that plant and equipment do not suffer any deterioration during storage.

Prior to installation all piping and equipment shall be thoroughly cleaned.

If, in the opinion of the Engineer any equipment has deteriorated or been damaged to such an extent that it is not suitable for installation, the Sub-contractor shall replace this equipment at his own cost.

B.06 **Site Supervision**

The Sub-contractor shall ensure that there is an English-speaking supervisor on the site at all times during normal working hours.

B.07 **Installation**

Installation of all special plant and equipment shall be carried out by the Sub-contractor under adequate supervision from skilled staff provided by the plant and equipment manufacturer or his appointed agent in accordance with the best standards of modern practice and to the relevant regulations and standards described under Clause 2.03 of this Section.

B.08 **Testing**

B.08.1 **General**

The Sub-contractor's attention is drawn to Part 'C' Clause 1.38 of the "Preliminaries and General Conditions".

B.08.2 **Material Tests**

All material for plant and equipment to be installed under this Sub-contract shall be tested, unless otherwise directed, in accordance with the relevant B.S Specification concerned.

For materials where no B.S. Specification exists, tests are to be made in accordance with the best modern commercial methods to the approval of the Engineer, having regard to the particular type of the materials concerned.

The Sub-contractor shall prepare specimens and performance tests and analyses to demonstrate conformance of the various materials with the applicable standards.

If stock material, which has not been specially manufactured for the plant and equipment specified is used, then the Sub-contractor shall submit satisfactory evidence to the Engineer that such materials conform to the requirements stated herein in which case tests of material may be partially or completely waived.

Certified mill test reports of plates, piping and other materials shall be deemed acceptable.

B.08.3 **Manufactured Plant and Equipment – Work Tests**

The rights of the Engineer relating to the inspection, examination and testing of plant and equipment during manufacture shall be applicable to the Insurance Companies or Inspection Authorities so nominated by the Engineer.

The Sub-contractor shall give two week's notice to the Engineer of the manufacturer's intention to carry out such tests and inspections.

The Engineer or his representative shall be entitled to witness such tests and inspections. The cost of such tests and inspections shall be borne by the Sub-contractor.

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

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

B.08.4 **Pressure Testing**

All pipework installations shall be pressure tested in accordance with the requirements of the various sections of this Specification. The installations may be tested in sections to suit the progress of the works but all tests must be carried out before the work is buried or concealed behind building finishes. All tests must be witnessed by the Engineer or his representative and the Sub-contractor shall give 48 hours notice to the Engineer of his intention to carry out such tests.

Any pipework that is buried or concealed before witnessed pressure tests have been carried out shall be exposed at the expense of the Sub-contractor and the specified tests shall then be applied.

The Sub-contractor shall prepare test certificates for signature by the Engineer and shall keep a progressive and up-to-date record of the section of the work that has been tested.

B.09 Colour Coding

Unless stated otherwise in the Particular Specification all pipework shall be colour coded in accordance with the latest edition of B.S 1710 and to the approval of the Engineer or Architect.

B.10 Welding

B.10.1 Preparation

Joints to be made by welding shall be accurately cut to size with edges sheared, flame cut or machined to suit the required type of joint. The prepared surface shall be free from all visible defects such as lamination, surface imperfection due to shearing or flame cutting operation, etc., and shall be free from rust scale, grease and other foreign matter.

B.10.2 Method

All welding shall be carried out by the electric arc processing using covered electrodes in accordance with B.S. 639.

Gas welding may be employed in certain circumstances provided that prior approval is obtained from the Engineer.

B.10.3 Welding Code and Construction

All welded joints shall be carried out in accordance with the following Specifications:

a) Pipe Welding

All pipe welds shall be carried out in accordance with the requirements of B.S.806.

b) General Welding

All welding of mild steel components other than pipework shall comply with the general requirements of B.S. 1856.

B.10.4 Welders Qualifications

Any welder employed on this Sub-contractor shall have passed the trade tests as laid down by the Government of Kenya.

The Engineer may require to see the appropriate certificate obtained by any welder and should it be proved that the welder does not have the necessary qualifications the Engineer may instruct the Sub- contractor to replace him by a qualified welder.

PART C:
PARTICULAR SPECIFICATIONS FOR
PLUMBING AND DRAINAGE

PART C: PARTICULAR PLUMBING AND DRAINAGE SPECIFICATIONS

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PART C: PARTICULAR PLUMBING AND DRAINAGE SPECIFICATIONS

1 GENERAL

This section specifies the general requirements for plant, equipment and materials forming part of the plumbing and drainage installations.

2 MATERIALS AND STANDARDS

2.1 Pipework and Fittings

Pipework materials are to be used as follows:

a) Galvanized Steel Pipework

Galvanized steel pipe work up to 65mm nominal bore shall be manufactured in accordance with B.S. 1387 Medium Grade, with tapered pipe threads in accordance with B.S. 21. All fittings shall be malleable iron and manufactured in accordance with B.S. 143.

Pipe joints shall be screwed and socketed and sufficient coupling unions shall be allowed so that fittings can be disconnected without cutting the pipe. Running nipples and long screws shall not be permitted unless exceptionally approved by the Engineer.

Galvanized steel pipe work, 80mm nominal bore up to 150mm nominal bore shall be manufactured to comply in all respects with the specification for 65mm pipe, except that screwed and bolted flanges shall replace unions and couplings for the jointing of pipes to valves and other items of plant. All flanges shall comply with the requirements of B.S. 10 to the relevant classifications contained hereinafter under Section 'C' of the Specification.

Galvanizing shall be carried out in accordance with the requirements of B.S. 1387 and B.S. 143 respectively.

Copper Tubing

All copper tubing shall be manufactured in accordance with B.S. 2871 from C.160 'Phosphorous De-oxidized Non-Arsenical Copper' in accordance with B.S. 1172.

Pipe joints shall be made with soldered capillary fittings and connections to equipment shall be with compression fittings manufactured in accordance with B.S. 864.

Short copper connection tubes between galvanized pipe work and sanitary fittings shall not be used because of the risk of galvanic action.

If, as may occur in certain circumstances, it is not possible to make the connection in any way than the use of copper tubing, then a brass straight connector shall be positioned between the galvanized pipe and the copper tube in order to prevent direct contact.

P.V.C. (Hard) Pressure Pipes and Fittings

All P.V.C. pipes and fittings shall be manufactured in accordance with B.S. 3505: 1968.

Jointing

The method of jointing to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal ring joint shall be introduced where it is necessary to accommodate thermal expansion.

Testing

Pipelines shall be tested in sections under an internal water pressure normally one and a half times the maximum allowable working pressure of the class of pipe used. Testing shall be carried out as soon as practical after laying and when the pipeline is adequately anchored. Precautions shall be taken to eliminate all air from the test section and to fill the pipe slowly to avoid risk of damage due to surge.

A.B.S. Waste System

Where indicated on the Drawings and Schedules, the Sub-contractor shall supply and fix A.B.S. waste pipes and fittings.

The pipes, traps and fittings shall be in accordance with the relevant British Standards, including B.S. 3943, and fixed generally in accordance with manufacturer's instructions and B.S. 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding, the manufacturer's instructions and B.S. 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding. The manufacturer's recommended method of joint preparation and fixing shall be followed.

Standard brackets, as supplied for use with this system, shall be used wherever possible. Where the building structure renders this impracticable the Sub-contractor shall provide purpose made supports, centers of which shall not exceed one meter.

Expansion joints shall be provided as indicated. Supporting brackets and pipe clips shall be fixed on each side of these joints.

e) **PVC Soil System**

The Sub-contractor shall supply and fix PVC soil pipes and fittings as indicated on the Drawings and Schedules.

Pipes and fittings shall be in accordance with relevant British Standards, including B.S. 4514 and fixed to the manufacturer's instructions and B.S. 5572.

The soil system shall incorporate synthetic rubber gaskets as provided by the manufacturer whose fixing instructions shall be strictly adhere to.

Connections to WC pans shall be effected by the use of a WC connector, gasket and cover, fixed to suit pan outlet.

Suitable supporting brackets and pipe clips shall be provided at maximum of one metre centres.

The Sub-contractor shall be responsible for the joint into the Gully Trap on Drain as indicated on the Drawings.

2.2 **Valves**

a) **Draw-off Taps and Stop Valves (Up to 50mm Nominal Bore)**

Draw-off taps and valves up to 50mm nominal bore, unless otherwise stated or specified for attachment or connection to sanitary fitment shall be manufactured in accordance with the requirements of B.S.1010.

b) **Gate Valves**

All gate valves 80mm nominal bore and above, other than those required for fitting to buried water mains shall be of cast iron construction, in accordance with the requirements of B.S. 3464. All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S.1218.

All gate valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S. 1952.

The pressure classification of all valves shall depend upon the pressure conditions pertaining to the site of works.

c) **Globe Valves**

All globe valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S.3061.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the site of works.

2.3 **Waste Fitment Traps**

a) **Standard and Deep Seal P & S Traps**

Where standard or deep seal traps are specified they shall be manufactured in suitable non-ferrous materials in accordance with the full requirements of B.S. 1184.

In certain circumstances, cast iron traps may be required for cast iron baths and in these instances bath traps shall be provided which are manufactured in accordance with the full requirements of B.S.1291.

b) **Anti-Syphon Traps**

Where anti-syphon traps are specified, these shall be similar or equal to the range of traps manufactured by Greenwood and Hughes Limited, Deacon Works Little shampton, Sussex, England.

The trade name for traps manufactured by this company is 'Grevak'.

2.4 **Pipe Supports**

a) **General**

This sub-clause deals with pipe supports securing pipes to the structure of buildings for above ground application.

The variety and type of support shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixings to metal, concrete, masonry or wood.

Consideration shall be given, when designing supports, to the maintenance of desired pipe falls and the restraining of pipe movements to a longitudinal axial direction only.

The Sub-contractor shall supply and install all steelwork forming part of the pipe support assemblies and shall be responsible for making good damage to builders work associated with the pipe support installation.

The Sub-contractor shall submit all his proposals for pipe supports to the Engineer for approval before any erection works commence.

b) **Steel and Copper Pipes and Tubes**

Pipe runs shall be secured by clips connected to pipe angers, wall brackets, or trapeze type supports. 'U' bolts shall not be used as a substitute for pipe clips without the prior approval of the Engineer.

An approximate guide to the maximum permissible supports spacing in metres for steel and copper pipe and tube is given in the following table for horizontal runs.

Size Tube Nominal Bores	to B.S. 659	Copper Tube to B.S. 1387	Steel
15mm	1.25m	2.0m	
20mm	2.0m	2.5m	
25mm	2.0m	2.5m	
32mm	2.5m	3.0m	
40mm	2.5m	3.0m	
50mm	2.5m	3.0m	
65mm	3.0m	3.5m	
80mm	3.0m	3.5m	
100mm	3.0m	4.0m	
125mm	3.0m	4.5m	
150mm	3.5m	4.5m	

The support spacing for vertical runs shall not exceed one and a half times the distances given for horizontal runs.

c) Expansion Joints and Anchors

Where practicable, cold pipework systems shall be arranged with sufficient bends and changes of direction to absorb pipe expansion providing that the pipe stresses are contained within the working limits prescribed in the relevant B.S. specification.

Where piping anchors are supplied, they shall be fixed to the main structure only. Details of all anchor design proposals shall be submitted to the Engineer for approval before erection commences.

The Sub-contractor when arranging his piping shall ensure that no expansion movements are transmitted directly to connections and flanges on pumps or other items of plant.

The Sub-contractor shall supply flexible joints to prevent vibrations and other movements being transmitted from pumps to piping systems or vice versa.

2.5 Sanitary Appliances

All sanitary appliances supplied and installed as part of the Sub-contract works shall comply with the general requirements of B.S. Code of Practice 305 and the particular requirements of the latest B.S. Specifications.

2.6 Pipe Sleeves

Main runs of pipework are to be fitted with sleeves where they pass through walls and floors. Generally the sleeves shall be of P.V.C. except where they pass through the structure, where they shall be mild steel. The sleeves shall have 6mm – 12mm clearance all around the pipe or for insulated pipework all around the installation. The sleeve will then be packed with slag wool or similar.

3 INSTALLATION

3.1 General

Installation of all pipework, valves, fittings and equipment shall be carried out under adequate supervision from skilled staff to the relevant codes and standards as specified herein. The Sub-contractor shall be responsible to the Main Contractor for ensuring that all builders work associated with his piping installation is carried out in a satisfactory manner to the approval of the Engineer.

3.2 Above Ground Installation

a) Water Services

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the joining faces are parallel and any falls which shall be required are achieved without springing the pipe.

Where falls are not shown on the Contract Drawings or stated elsewhere in the Specification, pipework shall be installed parallel to the lines of the buildings and as close to the walls, ceilings, columns, etc., as is practicable.

All water systems shall be provided with sufficient drain points and automatic air vents to enable them to function correctly.

Valves and other user equipment shall be installed with adequate access for operation and maintenance. Where valves and other operational equipment are unavoidably installed beyond normal reach or in such position as to be difficult to reach from a small step ladder, extension spindles with floor or wall pedestals shall be provided.

Screwed piping shall be installed with sufficient number of unions to facilitate easy removal of valves and fittings, and to enable alterations of pipework to be carried out without the need to cut the pipe.

Full allowances shall be made for the expansion and contraction of pipework, precautions being taken to ensure that any force produced by the pipe movements are not transmitted to valves, equipment or plant.

All screwed joints to piping and fittings shall be made with P.T.F.E. tape.

The test pressure shall be maintained by the pump for about one hour and if there is any leakage, it shall be measured by the quantity of water pumped into the main in that time. A general leakage of 4.5 litres per 25mm of diameter, per 1.6 kilometres per 24 hours per 30 metres head, may be considered reasonable but any visible individual leak shall be repaired.

b) Sanitary Services

Soil, waste and vent pipe system shall be installed in accordance with the best standard of modern practice as described in B.S. 5572 to the approval of the Engineer.

The Sub-contractor shall be responsible for ensuring that all ground waste fittings are discharged to a gully trap before passing to the sewer via a manhole.

The Sub-contractor shall provide all necessary rodding and inspection facilities within the draining system in positions where easy accessibility is available.

Where a branch requires rodding facilities in a position to which normal access is unobtainable, then that branch shall be extended so as to provide a suitable purpose made rodding eye in the nearest adjacent wall or floor to which easy access is available.

The vent stacks shall terminate above roof level and where stack passes through roof, a weather skirt shall be provided. The Sub-contractor shall be responsible for sealing the roof after installation of the stacks.

The open end of each stack shall be fitted with a plastic coated or galvanized steel wire guard.

Access for rodding and testing shall be provided at the foot of each stack.

c) Sanitary Appliances

All sanitary appliances associated with the Sub-contract works shall be installed in accordance with the best standard of modern practice as described in C.P. 305 to the approval of the Engineer.

4 TESTING AND INSPECTION

4.1 Site Tests – Pipework Systems

a) Above Ground Internal Water Services Installation

All water service pipe system installed above ground shall be tested hydraulically for a period of one hour to not less than one and half times to design working pressure.

If preferred, the Sub-contractor may test the pipelines in sections. Any such section found to be satisfactory need not be the subject of a further test when system has been completed, unless specifically requested by the Engineer.

During the test, each branch and joint shall be examined carefully for leaks and any defects revealed shall be made good by the Sub-contractor and the section re-tested.

The Sub-contractor shall take all necessary precautions to prevent damage occurring to special valves and fittings during the tests. Any item damaged shall be repaired or replaced at the Sub-contractor's expenses.

b) Above Ground Soil Waste and Ventilation System

All soil, waste and ventilating pipe system forming part of the above ground installation, shall be given appropriate test procedures as described in B.S. 5572, 1972.

Smoke tests on above ground soil, waste and ventilating pipe system shall not be permitted.

Pressure tests shall be carried out before any work which is to be concealed is finally enclosed.

In all respects, tests shall comply with the requirements of B.S. 5572.

4.2 Site Test – Performance

Following satisfactory pressure test on the pipework system operational tests shall be carried out in accordance with the relevant B. S. Code of practice on the systems as a whole to establish that special valves, gauges, control, fittings, equipment and plant are functioning correctly to the satisfaction of the Engineer.

All hot water pipework shall be installed with pre-formed fibre glass lagging to a thickness of 25mm where the pipe runs above a false ceiling or in areas where the ambient temperature is higher than normal with the result that pipe "sweating", due to condensation will cause nuisance.

All lagged pipes which run in a visible position after erection shall be given a canvas cover and prepared for painting as follows:

- i) Apply a coating of suitable filler until the canvas weave disappears and allow to dry.
- ii) Apply two coats of an approved paint and finish in suitable gloss enamel to colors approved by the Engineer.

All lagging for cold and hot water pipes erected in crawlways, ducts and above false ceiling which after erection are not visible from the corridors of rooms, shall be covered with a reinforced aluminium foil finish banded in colours to be approved by the Engineer.

In all respects, unless otherwise stated, the hot and cold water installation shall be carried out in accordance with the best standard of modern practice and described in C.P.342 and C.P.310 respectively to the approval of the Engineer.

The test pressure shall be applied by means of a manually operated test pump or, in the case of long main or mains of large diameter, by a power driven test pump which shall not be left unattended. In either case precautions shall be taken to ensure that the required pressure is not exceeded.

Pressure gauges should be recalibrated before the tests.

The Sub-contractor shall be deemed to have included in his price for all test pumps, and other equipment required under this specification.

The test pressure shall be one and a half times the maximum working pressure except where a pipe is manufactured from a material for which the relevant B.S. specification designates a maximum test pressure.

5 **STERILISATION OF COLD WATER SYSTEM**

All water distribution system shall be thoroughly sterilized and flushed out after the completion of all tests and before being fully commissioned for handover.

The sterilization procedures shall be carried out by the Sub-contractor in accordance with the requirements of B.S. Code of Practice 301, Clause 409 and to the approval of the Engineer.

PART D:

**TECHNICAL SPECIFICATION
FOR
PORTABLE FIRE EXTINGUISHER AND HOSE
REEL SYSTEM INSTALLATIONS**

PART D: PARTICULAR SPECIFICATION FOR PORTABLE FIRE EXTINGUISHERS AND HOSE REEL INSTALLATIONS

<u>CLAUSE NO.</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
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2	Scope of Works	D/2
3	Water/CO ₂ Extinguishers	D/2
4	Portable Carbon Dioxide Extinguishers	D/2
5	Dry Chemical Portable Fire Extinguisher	D/3
6	Air Foam Fire Extinguisher	D/3
7	Fire Blanket	D/4
8	Boosted Hose Reel System	D/4

PART D: PARTICULAR SPECIFICATIONS FOR PORTABLE FIRE EXTINGUISHER AND HOSE REEL INSTALLATIONS

1 GENERAL

The particular specification details the requirements for the supply and installation and commissioning of the Portable Fire Extinguishers and Boosted Hose Reel system. The Sub-contractor shall include for all appurtenances and appliances not necessarily called for in this specification or shown on the contract drawings but which are necessary for the completion and satisfactory functioning of the works.

If in the opinion of the Sub-contractor there is a difference between the requirements of the Specifications and the Contract Drawings, he shall clarify these differences with the Engineer before tendering.

2 SCOPE OF WORKS

The Sub-contractor shall supply, deliver, erect, test and commission all the portable fire extinguishers and Hose Reel which are called for in these Specifications and as shown on the Contract Drawings.

3 WATER/CO₂ EXTINGUISHERS

These shall be 9-litre water filled CO₂ cartridge operated portable fire extinguishers and shall comply with B.S. EN 3/BS 1449 and to the requirements of B.S.1004. Unless manufactured with stainless steel, bodies shall have all internal surfaces completely coated with either a lead tin, lead alloy or zinc applied by hot dipping. There shall be no visibly uncoated areas.

The extinguishers shall be clearly marked with the following:

Method of operation.

The words 'WATER TYPE' (GAS PRESSURE) in prominent letters.

Name and address of the manufacturer or responsible vendor.

The nominal charge of the liquid in imperial gallons and litres.

The liquid level to which the extinguisher is to be charged.

The year of manufacture.

A declaration to the effect that the extinguisher has been tested to a pressure of 24.1 bar (350 p.s.i.).

The number of British Standard 'B.S' 1004 or B.S. 1449.

4 PORTABLE CARBON DIOXIDE FIRE EXTINGUISHERS

These shall be portable carbon dioxide fire extinguishers and shall comply with B.S. EN 3/BS 1449 and B.S. 1004.

The body of extinguisher shall be a seamless steel cylinder manufactured to one of the following British Standards; B.S. 401 or B.S. 1288.

The filling ratio shall comply with B.S. 5355 with valves fittings for compressed gas cylinders to B.S.341. Where a hose is fitted it shall be flexible and have a minimum working pressure of 206.85 bar (3000 p.s.i.). The hose is not to be under internal pressure until the extinguisher is operated.

The nozzle shall be manufactured of brass gunmetal, aluminium or stainless steel and may be fitted with a suitable valve for temporarily stopping the discharge if such means are not incorporated in the operating head.

The discharge horn shall be designed and constructed so as to direct the discharge and limit the entrainment of air. It shall be constructed of electrically non-conductive material.

The following markings shall be applied to the extinguishers:-

The words "Carbon Dioxide Fire Extinguisher" and to include the appropriate nominal gas content.

Method of operation.

The words “Re-charge immediately after use”.

Instructions for periodic checking.

The number of the British Standard B.S. 3326: 1960 or B.S. 5423.

The manufacturers name or identification markings

5 **DRY CHEMICAL POWDER PORTABLE FIRE EXTINGUISHER**

The portable dry powder fire extinguishers shall comply with BS EN 3/BS 1449 and BS 1004. The body shall be constructed to steel not less than the requirements of BS 1449 or aluminium to BS 1470 : 1972 and shall be suitably protected against corrosion.

The dry powder charge shall be not-toxic and retain its free flowing properties under normal storage conditions. Any pressurizing agent used as an expellant shall be in dry state; in particular compressed air.

The discharge tube and gas tube if either is fitted shall be made of steel, brass, copper or other not less suitable material. Where a hose is provided it shall not exceed 1,060mm and shall be acid and alkali resistant. Provision shall be made for securing the nozzle when not in use.

The extinguisher shall be clearly marked with the following information

The word “Dry Powder Fire Extinguisher”

Method of operation in prominent letters.

The working pressure and the weight of the powder charge in Kilogramme.

Manufacturers name or identification mark

The words “RECHARGE AFTER USE” if rechargeable type.

Instructions to regularly check the weight of the pressure container (gas Cartridge) or inspect the pressure indicator on stored pressure types when fitted, and remedy any loss indicated by either.

The year of manufacture.

The Pressure to which the extinguisher was tested.

The number of this British Standard BS 3465 or BS 5423: 1977.

When appropriate complete instructions for charging the extinguisher shall be clearly marked on the extinguisher or otherwise be supplied with the refill.

6 **AIR FOAM FIRE EXTINGUISHER**

These shall be of 9 litres capacity complete with refills cartridges and wall fixing brackets and complying with B.S. EN 3/BS 1449 and BS 1004 with the following specifications:-

Cylinder: To B.S. 1449

Necking: To be 76mm outside diameter steel EN 3A 2³/₄ X 8TPI female thread.

Head cap: To be plastic moulding acetyl resin.

CO2 Cylinder: To be 75gm P.V.C coated.

Internal Finish: To be polythene lining on phosphate coating.

External finish: To be phosphated - One coat primer paint and one coat stove enamel
B.S. 381 C.

7 FIRE BLANKET

The fire blanket shall be made from cloth woven with pre-asbestos yarn or any other fire proof material and to measure 1800 x 1210 mm and shall be fitted with special tapes folded so as to offer instantaneous single action to release blanket from storing jacket to BS 1721.

8 BOOSTED HOSE REEL SYSTEM

8.1 General

The Particular Specification details the requirements for the supply, installation and commissioning of the hose reel installation. The hose reel installation shall comply in all respects to the requirements set out in C.O.P 5306 Part 1: 1976, B.S 5041 and B.S 5274. The System shall comprise of a pumped system.

8.2 Hose Reel Pumps

The fire hose reel pumps shall consist of a duplicate set of multi-line centrifugal pumps from approved manufacturers. The pumps shall be capable of delivering 2.3 lit/sec at a running pressure of 2.1 bar.

The pump casing shall be of cast iron construction with the impeller shaft of stainless steel with mechanical seal.

8.3 Control Panel

The control panel shall be constructed of mild steel 1.0mm thick sheet, be moisture, insect and rodent proof and shall be provided complete with circuit breakers and a wiring diagram enclosed in plastic laminate.

The pump shall be controlled by a flow switch therefore, the control panel shall include the following facilities:

‘On’ push button for setting the control panel to live.

Green indicator light for indicating control panel live.

Duty / Stand-by pump auto change over.

Duty pump run green indicator light.

Stand-by pump run green indicator light.

Duty pump fail red indicator light.

Stand-by pump fail red indicator light.

Low water condition pump cut-out with red indicator light.

The pumps are to be protected by a low level cut-out switch to prevent dry pump run when low level water conditions occur in the water storage tank.

8.4 Hose Reel

The hose reel to the installation shall consist of a recessed, swing-type hose reel as Angus Fire Armour Model III or from other approved manufacturers.

The hose reel shall comply with B.S EN 671-1:1995 and EN 694 and is to be installed to the requirements of C.P. 5306 Part 1: 1976.

The hose reel shall be supplied and installed complete with a first-aid non-kinking hose 30 metres long with a nylon spray / jet / shut-off nozzle fitted. A screw down chrome - plated globe valve to B.S 1010 to the inlet to the reel is to be supplied.

The orifice to the nozzle is to be not less than 4.8mm to maintain a minimum flow of 0.4 lit / sec to jet.

The hose reels shall be installed at 1.5 metres centre above the finished floor level in locations shown in the contract drawings.

8.5 Pipe Work

The pipe work for the hose reel installation shall be galvanised wrought steel tubing heavy grade Class C to B.S 1387: 1967 with pipe threads to B.S 21.

8.6 Pipe Fittings

The pipe fittings shall be wrought steel pipe fittings, welded or seamless fittings conforming to B.S. 1740 or malleable iron fittings to B.S 143.

All changes in direction will be with standard bends or long radius fittings. No elbows will be provided.

8.7 Non-return Valves

The non-return valves up to and including 80mm diameter shall be to B.S. 5153 : 1974.

The valves shall be of cast iron construction with gunmetal seat and bronze hinge pin.

8.8 Gate Valves

The gate valves up to and including 80mm diameter shall be non-rising stem and wedge disc to B.S 5154: 1974 with screwed threads to B.S. 21 tapes thread

8.9 Sleeves

Where pipe work passes through walls, floors or ceilings, a sleeve shall be provided one diameter larger than the diameter of the pipe, the space between them to be packed with mineral wool, to the Engineer's approval.

8.10 Earthing

The hose reel installation shall be electrically earthed by a direct earth connection. The installation of the earthing shall be carried out by the Electrical Sub- contractor.

8.11 Finish Painting

Upon completion of testing and commissioning the hose reel installation, the pipe work shall be primed and finish painted with 2 No. coats of paints to the Engineer's requirements.

8.12 Testing and Commissioning

The hose reel installation shall be flushed out before testing to ensure that no builder's debris has entered the system. The installation is to be then tested to one and half times the working pressure of the installation to the approval of the Engineer. Simulated fault conditions of the pumping equipment are to be carried out before acceptance of the System by the Engineer.

8.13 Instruction Period

The Sub-contractor shall allow in his contract sum for instructing of the use of the equipment to the Client's maintenance staff. The period of instruction may be within the contract period but may also be required after the contract period has expired.

The period of time required shall be stipulated by the Client but will not exceed two days in which time the Client's staff shall be instructed on the operation and maintenance of the equipment.

PART E:

BILLS OF QUANTITIES

PART E: BILLS OF QUANTITIES

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PART E: BILLS OF QUANTITIES

1. General Note to Tenderers

- 1.1 The total of the prices in the summary of prices shall include for the whole of the Contract works in accordance with the specifications as defined before and shall be carried forward to Form of Tender.
- 1.2 Any prices omitted from any item, section or part of the price schedule shall be deemed to have included in another item, section or part. In accordance with Government policy, the 3% Withholding Tax and 6% VAT shall be deducted from all payments made to the Tenderer, and the same shall be forwarded to the Kenya Revenue Authority (KRA).
- 1.3 The prices shall include for all obligations under the Contract including and not limited to:
 - a) Installation
 - b) Testing
 - c) Painting
 - d) Commissioning
 - e) Maintenance during the defects liability period
- 1.4 The unit rates shall include import duty and VAT where applicable, and shall be expressed in Kenya Shillings.
- 1.5 Any tenderer whose firm uses the title “Engineer” or “Engineering” must provide evidence of registration of at least one of the directors by the Engineers Registration Board of Kenya to avoid disqualification.
- 1.6 Any tenderer who fails to price the General items will be deemed to have allowed 5% of his tender price to cover these items, i.e. 5% of the total tender price will be deducted as preliminaries, if the tenderer does not enter specific prices against items of preliminary.
- 1.7 The Sub-contractor is instructed to read all the pages, and all the items of the Bills of Quantities very carefully. Should there be an apparent omission of words or figures, or should the sub-contractor be in doubt about the precise meaning of any word or figures, or for any reason whatsoever feel more clarification is necessary, either in the drawings or Bills of Quantities, to facilitate reasonable pricing of the tender document, he should inform the engineer at once so that the correct interpretation or clarification may be given before tendering. No liability will be accepted on mistakes and/or omissions which should have been corrected in the format above.
- 1.8 The specification should be priced in Kenya Currency i.e Shillings and cents.

1 Statement of Compliance

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

Signed:for and on behalf of the Tenderer

Date:

Official Rubber Stamp:

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
GENERAL ITEMS**

BILL NO. 15: GENERAL ITEMS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	<p>These items consist of preliminaries and general Conditions as described in Part A of this document.</p> <p>The contractor shall ensure pricing of items below is not limited to items described below but includes all clauses of Part A of this document.</p>				
A	Allow for liaising and obtaining all the necessary licenses/permission and/or certificates from local authorities to complete works	1	ITEM		
B	Acquire and submit a Performance Bond for 5% of the sub-contract sum, as a Performance Guarantee.	1	ITEM		
C	Acquire and submit relevant insurances i.e Contractors All Risk (CAR) Insurance and Work Injury Benefits Act (WIBA) Insurance for the sub-contract work.	1	ITEM		
D	Allow for presentation of all the required samples as per specifications, Bills of Quantities and Drawings.	1	ITEM		
E	Allow for preparation and printing of approved Working Drawings for use on site, throughout the project implementation period, in A1 paper size	1	ITEM		
F	<p>Prepare and submit As-Installed Drawings for routes, types, sizes and arrangement of all pipework and installed equipment, as follows:-</p> <p>5 No. final hard copies of As-Installed drawings in A1 size and soft copy in Autocad® 2013 and pdf format in CD-RW ~ Services Engineers, Architect, Main Contractor (1 copy each) and Client (2 copies)</p>	1	ITEM		
G	Prepare and submit Operating Instructions and Maintenance Manuals for all items installed i.e pumps, fans, control panels etc.	1	ITEM		
	Total C/F to Summary Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - CLIENT SUPPLY				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier.				464,900.00
	Total C/F to Collection Page				464,900.00

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and	6	NO.		
	Toilet Roll Holder				
B	Wall mounted stainless steel toilet roll holder with cover and concealed fixings. As Dali MH701 or equal and approved.	6	NO.		
	Coat Hook				
C	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	6	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼ " waste fitting, 1 ¼ " chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	6	NO.		
E	Countertop wash hand basin of nominal size 550 x 440mm, white in colour, comprising of 1 center tap hole, 1 ¼ " waste fitting, 1 ¼ " chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	2	NO.		
	Mirror				
F	Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	8	NO.		
	Instant Showers				
G	Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.	4	No		
	Towel Rail				
H	Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	4	NO.		
	Soap Dish				
I	Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	4	NO.		
	Hand dryer				
J	Sensor operated hand drier as Mediclinics M99ACS, steel 1.5mm thick one piece cover , satin finish. Size 248 x 278 x 210mm. Effective air flow 215m ³ /hr Electrical power supply 1.64kW, single phase 240V 50 Hz. Or equal and approved.	4	NO.		
	Soap dispenser				
K	Wall mounted soap dispenser as "Mediclinics DJ0111C" with a capacity of 1.1L and in AISI 304 Stainless Steel material, having a press action soap release mechanism complete with fixing screws. Allow for initial soap supply. or equal and approved.	4	NO.		
	Paper towel dispenser				
L	Paper Dispeser as "Mediclinics DT2106CS" in AISI 304 Stainless Steel material, with a capacity of 400-600 C/Z towels. or equal and approved	4	\		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters. PolyproPylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes b) 32mm ditto c) 40mm ditto</p>	286 42 42	LM LM LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows b) 32mm ditto c) 40mm ditto</p>	98 29 24	NO. NO. NO.		
C	<p>Tees a) 25mm Tees/Equal Tee b) 32mm ditto c) 40mm ditto</p>	91 27 16	NO. NO. NO.		
D	<p>Reducers a) 25x20mm ditto b) 32x25mm ditto c) 40x25mm ditto d) 40x32mm ditto</p>	64 42 14 16	NO. NO. NO. NO.		
E	<p>Unions a) 25mm diameter union b) 32mm ditto c) 40mm ditto</p>	41 12 12	NO. NO. NO.		
F	<p>Sockets a) 25mm Socket b) 32mm ditto c) 40mm ditto</p>	77 22 24	NO. NO. NO.		
G	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor b) 32mm ditto c) 40mm ditto</p>	40 18 12	NO. NO. NO.		
H	<p>Isolation Valves (Pegler) a) 25mm gate valve b) 32mm ditto c) 40mm ditto d) 50mm ditto</p>	20 7 3 4	NO. NO. NO. NO.		
I	<p>Ball Valves (Pegler) a) 40mm ball valve</p>	1	NO.		
	Total C/F to next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Total B/F from previous Page				
J	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	24	NO.		
K	<p>Roof Level Water Tank Supply, deliver and install Cylindrical plastic moulded tank of capacity 2,000 litres. The tank to be assembled complete with cover and having screwed connections for inlet, outlet, overflow, adaptors, 40mm diameter medium pressure ball valve, drain pipes and any other necessary item for its proper functioning. The tank shall be mounted on a platform and shall be as KENTANK Model ccv 200 or approved equivalent.</p>	1	No.		
L	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	FOUL WATER DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	74	LM		
	b) 100mm dia UPVC Golden Brown pipe (heavy duty)	98	LM		
	c) 50mm ditto	62	LM		
	d) 40mm Ditto	40	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	28	NO.		
C	Tees				
	a) 100mm diameter sweep tee	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	45	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	12	NO.		
	b) 100 x 40mm ditto.	12	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	9	NO.		
	b) 40mm diameter inspection plugs	18	NO.		
H	Four-way 100x50mm floor trap complete with stainless steel grating.	17	NO.		
I	100mm diameter gulley trap complete with chamber and cover.	8	NO.		
J	Standard 600x450mm Inspection Chamber complete with HD cover.	9	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS

ITEM	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
IV	FIREFIGHTING INSTALLATIONS				
	<u>HOSEREEL SYSTEM</u>				
	Supply, install, test and commission the following equipment and fitting as described:- Tenderers must allow in pipework prices for all couplings, union, nipples, sockets, connectors, joints etc. in running lengths of pipes and also where necessary for fixing clips, holderbats plugged and screwed.				
A	Hosereel System Pipework				
	i) 25mm diameter pipe GMS Class B to BS 1387	12	LM		
	ii) 50mm ditto	48	LM		
B	Elbows				
	i) 25mm elbows malleable iron galvanized.	6	NO.		
	ii) 50mm ditto.	6	NO.		
	Tees				
C	50mm diameter malleable iron tee	7	NO.		
D	Reducers				
	i) 25 x 20mm malleable galvanized iron reducing bush	4	NO.		
	ii) 50 x 25 mm ditto	8	NO.		
E	Valves				
	i) 25mm bronze gate valve to BS 5154	2	NO.		
	ii) 50mm ditto.	6	NO.		
	iii) 25mm air relief valve screwed as CRANE.	2	NO.		
F	Hosereels				
	Swinging type hosereel complete with 30m long hose of 20mm diameter, 25mm internal diameter rubber fire hose with nylon spray/jet and shut off nozzle, and mounting brackets conforming to BS 5274	2	NO.		
G	Fire Hose Cabinet				
	1650x800x300mm Surface mounted, vertical double door for hose reel and portable fire extinguishers	2	NO.		
H	Hosereel Pipework Painting				
	Wire brush, clean and paint complete installation with one coat of red oxide primer, under coat and gloss coat including banding and colour coding to British standards	1	ITEM		
I	FIRE FIGHTING BOOSTER PUMP				
	Shall be as "GRUNDFOS " automatic booster pump model: CH12-30 or approved equivalent. Capacity: 2.5 litres/sec. Head: 22m Power supply: 1.5kw, 1phase 240v, 50Hz. Duty and standby. Complete with: matching pressure vessel, pressure switch, pressure cell, valves, and any other accessories necessary for efficient operation . Pump and accessories to be mounted on a rigid steel framework.	1	Set		
	PUMP CONTROLS				
	Supply, deliver and install a control panel with removable front access cover, motor control gear, internal buttons with automatic change over "running" and "trip" neon lights control system, overload, protection, power surge protection, button for change from automatic to manual operation plus any other necessary controls	1	No		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS

ITEM	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
I	FIRE EXTINGUISHERS & ACCESSORIES				
i)	5 Kg carbon dioxide gas fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	4	NO.		
ii)	6 Kg dry powder fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	4	NO.		
ii)	9 Ltr water fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	4	NO.		
iv)	Fire Safety Signage, Fire Point signs and Fire Action Plan signs, to Engineer's approval.	2	NO.		
v)	9" (225mm) manual operated alarm bell (Gong)	2	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: COLLECTION PAGE - CLUBHOUSE

ITEM	DESCRIPTION	AMOUNT Kshs.
	INTERNAL INSTALLATIONS	
I	SANITARY FITTINGS - CLIENT SUPPLY	464,900.00
II	SANITARY FITTINGS - LABOUR	
III	PLUMBING INSTALLATIONS	
IV	FOUL WATER DRAINAGE INSTALLATIONS	
VI	FIRE FIGHTING INSTALLATIONS - HOSE REEL	
VII	FIRE FIGHTING INSTALLATIONS - PORTABLE FIRE EXTINGUISHERS	
C	TOTAL FOR CLUBHOUSE TO MAIN SUMMARY PAGE	

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SWIMMING POOL INSTALLATIONS**

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Swimming Pool Installation				
	Supply, deliver, install, test and commission the following new swimming pool appliances complete with all the accessories including all connections, supports and all plugging and screwing to floor/walls.				
	PIPE WORK AND FITTINGS.				
	Supply and fix uPVC soil system to BS4660 and BS4515 and muPVC waste systems to BS 5255 with screwed and socketed joints. Solvent welded joints shall be as per the system manufacturer's written instruction. Tenderer must allow in their pipework prices for all the couplings, connectors, joints etc. as required by the running lengths of the pipework and also where necessary for fixing clips, holders bats plugged and screwed.				
	Underground PVC Pressure Pipes				
A	50mm diameter PVC Class 'D' pressure pipe	120	LM		
B	40mm diameter PVC Class 'D' pressure pipe	120	LM		
	<u>Extra Over Piping For PVC Pipework</u>				
	Bends				
C	50mm diameter bend	12	No.		
D	40mm diameter bend	24	No.		
	Tees				
E	50mm diameter equal tee	4	No.		
F	40mm diameter equal tee	16	No.		
	Valves				
G	50mm diameter high pressure screw down full way bronze gate valve complete with wheel head.	4	No.		
H	40mm diameter high pressure screw down full way bronze gate valve complete with wheel head.	4	No.		
I	50mm diameter non-return valve	2	No.		
J	40mm diameter non-return valve	2	No.		
K	100 x 50mm floor drain	1	No.		
	Strainer				
L	75mm diameter acid and corrosion resistant line strainer	2	No.		
	Manifold				
M	75mm diameter manifold with 3No. 50mm diameter inlets. It shall be 1000mm long.	1	No.		
Total Carried forward to next Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SWIMMING POOL INSTALLATIONS

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
Total Carried forward from prevoius Page					
<u>SWIMMING POOL PLANTS</u>					
	Swimming Pool Filter				
A	Fibre glass pressure sand filter capable of handling approximately 14m ³ /hr of swimming pool water, complete as a working unit. Filled carefully with graded chemically inert silica sand media charged in layers, and complete with a 6- way multiport valve, pressure gauge, automatic air release valve. Pipe connectors, and sand media agitatum equipment for backwashing and all other necessary attachments, as Model 'DAYLIFF DX600' Manufactured by Davis & Shirtliff or approved equivalent.	1	No.		
	Swimming Pool Pump set				
B	Centrifugal pump set of 2no. pumps capable of delivering 14m ³ /hr against 15m head. The pumps shall be close – coupled to an electric motor and shall be self priming. Pump casing shall be manufactured from good quality cast iron. Impellers shafts and other material in contact with water shall be of corrosive resistant metal. Two pumps shall be assembled together as one set on common mounting and anti-vibrations. The pumps to be as Leader, Model PEDROLLO MAGNIFICA 2 or equal and approved.	1	set		
	Control and Control Panel				
C	Wall-mounted motor control panel for the pool pumps comprising of purpose made 16SWG galvanized mild steel housing distribution board complete with switch fuses, star delta starters for pump, automatic control with manual overrides and all other necessary accessories. The control panel to include BMS stop/run and fault indication volt-free contact and any other BMS connections.	1	No.		
	Pool Chemical Dosage Equipment				
D	Supply and fix chlorine dosage equipment as dayliff Clearwater Chrolinator model C330SC or equal and approved.	2	No.		
	Sump Pump				
E	Centrifugal pump capable of delivering 6 cubic metre/hr against 7.5m head. The pump shall be close – coupled to an electric motor and shall be self priming. Pump casing shall be manufactured from good quality cast iron. Impellers shafts and other material in contact with water shall be of corrosive resistant metal. The pump to be as Pedrollo - TOP 3 or equal and approved.	1	No.		
	<u>OTHER ACCESSORIES</u>				
	Inlets				
F	75mm wall fittings made from tough ABS plastic with adjustable ball inlet.	8	No.		
	Main Drain Suction Grating				
G	The main sump inlet grating shall be of size 300x300mm square with anti-vortex drain to be installed into precast suction chambers as in "DAYLIFF GRP GRATING" or approved equivalent.	1	No.		
Total Carried forward to next Page					

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SWIMMING POOL INSTALLATIONS**

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total Carried forward from previous Page				
A	Vacuum Point 75mm wall fitted vacuum points made from tough ABS plastic.	2	No.		
B	Deck Level Grilles 200mm wide deck level grilles made from hard wearing moulded plastic of approved colour. To be complete with spacers for corners. The grilles should cover 50m long perimeter of the pool and to be as Dayliff or equal and approved.	1	Item		
C	Stainless Steel Ladders Ladder with 40mm diameter stainless steel class 316 handrails and should be complete with step treads with rubber pads, ground anchors and escutcheon plates. As 3 steps Dayliff ladder or approved equal.	1	No.		
D	Stainless Steel Ladders Ladder with 40mm diameter stainless steel class 316 handrails and should be complete with step treads with rubber pads, ground anchors and escutcheon plates. As 4 steps Certikin ladder or approved equal.	1	No.		
E	Stainless Steel Hand Rails and Clamps 32mm diameter stainless steel class 316 handrails with blanked ends supplied complete with stainless steel clamps and stainless steel supports. The clamps to be fitted every 1.5m.	50	Lm		
F	Maintenance Equipment Supply pool maintenance equipment comprising of 8 wheel vacuum head, 12m floating vacuum hose, hose connector, 5m aluminium handle, leaf skimmer, leaf rake, 18" floor brush, 6" algae brush, 3 in 1 pool water test kit.	1	Set		
G	Initial Chlorine Dosing Initial chlorine dosing of the pool water up to the required level of residual free chlorine and PH value.	1	Item		
H	Electrical Works Allow for electrical work associated to the installation.	1	Item		
I	Testing and Commissioning Allow for testing and commissioning of pool installation.	1	Item		
Total for Swimming Pool Installations Carried to Summary Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: 2BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - CLIENT SUPPLY				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier.				147,300.00
Total C/F to Collection Page					147,300.00

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and approved.	2	NO.		
	Toilet Roll Holder				
B	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	2	NO.		
	Coat Hook				
C	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼ " waste fitting, 1 ¼ " chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	2	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼ " waste fitting, 1 ¼ " chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	3	NO.		
	Mirror				
E	Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	3	NO.		
	Towel Rail				
F	Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	3	NO.		
	Kitchen Sink				
G	Single Bowl Single Drain (SBSD) stainless steel sink as "Associated Steel Limited" complete with 40mm diameter chrome plated bottle traps and Sink mixer single lever, 15mm, as Tapis Enoch sink Mixer Ref. #WGH56477C chrome plated pillar mounted sink mixer and all its jointing accessories. Or equal and approved	1	NO		
	Instant Showers				
H	Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.	2	No		
	Towel Rail				
I	Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	2	NO.		
	Soap Dish				
J	Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	2	NO.		
	Dhobi Sink				
i)	Concrete dhobi sink made of terrazzo, size 600mm X 500mm X 400mm deep complete with traps and fixings.	1	NO		
ii)	½ inch single back inlet wall mounted Bibtap as "Twyford SF2302CP" with chrome finish. or equal and approved.	1	NO		
	Fire Blanket				
L	Emergency fire blanket of dimensions 1200mm x 1200mm as Naffco NFB 1.4 or equal and approved	1	NO		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters. Polypropylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes b) 32mm ditto</p>	302 42	LM LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows b) 32mm ditto</p>	54 18	NO. NO.		
C	<p>Tees a) 25mm Tees/Equal Tee b) 32mm ditto</p>	21 8	NO. NO.		
D	<p>Reducers a) 25x20mm ditto b) 32x25mm ditto</p>	14 6	NO. NO.		
E	<p>Unions a) 25mm diameter union b) 32mm ditto</p>	38 6	NO. NO.		
F	<p>Sockets a) 25mm Socket b) 32mm ditto</p>	76 11	NO. NO.		
G	<p>Male/Female Threaded Bends a) 25mm Threaded bend</p>	18	NO.		
H	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor b) 32mm ditto</p>	26 5	NO. NO.		
I	<p>Isolation Valves (Pegler) a) 25mm gate valve b) 32mm ditto</p>	13 2	NO. NO.		
J	<p>Water Meters a) 32mm Water check meter as KENT. or equal and approved.</p>	1	NO		
K	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	13	NO.		
L	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	FOUL WATER DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	25	LM		
	b) 50mm ditto	13	LM		
	c) 40mm Ditto	23	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	3	NO.		
	b) 50mm ditto	4	LM		
	c) 40mm ditto	13	NO.		
C	Tees				
	a) 100mm diameter sweep tee	6	NO.		
	b) 50mm ditto	4	LM		
	c) 40mm ditto	8	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	4	NO.		
	b) 100 x 40mm ditto.	4	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	3	NO.		
	b) 40mm diameter inspection plugs	7	NO.		
F	Four-way 100x50mm floor trap complete with stainless steel grating.	5	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
IV	WATER RETICULATION PIPEWORK Supply of HDPE, PN 20 materials - All Polyethylene material shall be 16.0 KG/SQ.CM (unless otherwise stated) suitable for butt fusion jointing and the rate shall include for supply and delivery to the work site of all pipes, jointing fittings & specials including all other associated accessories (to suite PN 16 flange), required for complete installation to relevant local standards. Or approved equivalent HDPE pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.				
A	HDPE Pipes i) 75mm HDPE Pipes	75	LM		
B	Elbow and Bends i) 75mm Bend/Elbows	12	NO.		
C	Tees i) 75mm Tees/Equal Tee	14	NO.		
D	Reducers i) 75x32mm Reducer ii) 75x40mm Reducer	14 10	NO. NO.		
E	Unions i) 75mm diameter Union	11	NO.		
F	Sockets i) 75mm Socket	21	NO.		
G	Male/Female Adaptors i) 75mm Male/Female Adaptor	14	NO.		
H	Sterilization Allow for sterilization including flushing out water and chlorine of the water supply line and water storage tank to the satisfaction of the Engineer	1	ITEM		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
V	EXTERNAL FOUL WATER DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Golden Brown pipe (heavy duty)	78	LM		
	b) 150mm dia UPVC Golden Brown pipe (heavy duty)	60	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	16	NO.		
C	100mm diameter gulley trap complete with chamber and cover.	12	NO.		
D	Standard 600x450mm Inspection Chamber complete with HD cover.	11	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: APARTMENTS INTERNAL INSTALLATIONS

ITEM	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
	FIRE FIGHTING INSTALLATIONS				
I	FIRE EXTINGUISHERS & ACCESSORIES				
i)	5 Kg carbon dioxide gas fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	5	NO.		
ii)	6 Kg dry powder fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	5	NO.		
ii)	Fire Safety Signage, Fire Point signs and Fire Action Plan signs, to Engineer's approval.	5	NO.		
iv)	9" (225mm) manual operated alarm bell (Gong)	5	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

ITEM	DESCRIPTION	AMOUNT Kshs.
	2 BEDROOM APARTMENTS INTERNAL INSTALLATIONS	
I	SANITARY FITTINGS - CLIENT SUPPLY	147,300.00
II	SANITARY FITTINGS - LABOUR	
III	PLUMBING INSTALLATIONS	
IV	FOUL WATER DRAINAGE INSTALLATIONS	
A	SUB-TOTAL FOR 1NO. 3BEDROOM UNIT (I + II +III)	
B	TOTAL FOR 10NO. 3BEDROOM APARTMENTS UNITS (A x 10) - 1NO. BLOCK INTERNAL INSTALLATIONS	
	3 BEDROOM APARTMENTS COMMON INSTALLATIONS	
V	WATER RETICULATION PIPEWORK	
VI	EXTERNAL FOUL WATER DRAINAGE INSTALLATIONS	
VII	FIREFIGHTING INSTALLATIONS - PORTABLES	
C	TOTAL FOR 1NO. 2BEDROOM BLOCK - COMMON INSTALLATIONS (IV + V + VI + VII)	
D	TOTAL FOR 1NO. 2 BEDROOM BLOCK (B + C)	
C	TOTAL FOR 1NO. 2BEDROOM BLOCKS C/F TO MAIN SUMMARY PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - <u>CLIENT SUPPLY</u>				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier .				194,600.00
Total C/F to Collection Page					194,600.00

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 1: APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and approved.	3	NO.		
	Toilet Roll Holder				
B	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	3	NO.		
	Coat Hook				
C	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	3	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	4	NO.		
	Mirror				
E	Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	4	NO.		
	Towel Rail				
F	Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	4	NO.		
	Kitchen Sink				
G	Single Bowl Single Drain (SBSD) stainless steel sink as "Associated Steel Limited" complete with 40mm diameter chrome plated bottle traps and Sink mixer single lever, 15mm, as Tapis Enoch sink Mixer Ref. #WGH56477C chrome plated pillar mounted sink mixer and all its jointing accessories. Or equal and approved	1	NO		
	Instant Showers				
H	Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.	3	No		
	Towel Rail				
I	Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	3	NO.		
	Soap Dish				
J	Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	3	NO.		
	Dhobi Sink				
i)	Concrete dhobi sink made of terrazzo, size 600mm X 500mm X 400mm deep complete with traps and fixings.	1	NO		
ii)	½ inch single back inlet wall mounted Bibtap as "Twyford SF2302CP" with chrome finish. or equal and approved.	1	NO		
	Fire Blanket				
M	Emergency fire blanket of dimensions 1200mm x 1200mm as Naffco NFB 1.4 or equal and approved	1	NO		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters.</p> <p>PolyproPylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes b) 32mm ditto</p>	120 24	LM LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows b) 32mm ditto</p>	47 12	NO. NO.		
C	<p>Tees a) 25mm Tees/Equal Tee b) 32mm ditto</p>	28 8	NO. NO.		
D	<p>Reducers a) 25x20mm ditto b) 32x25mm ditto</p>	17 6	NO. NO.		
E	<p>Unions a) 25mm diameter union b) 32mm ditto</p>	42 7	NO. NO.		
F	<p>Sockets a) 25mm Socket b) 32mm ditto</p>	83 13	NO. NO.		
G	<p>Male/Female Threaded Bends a) 25mm Threaded bend</p>	24	NO.		
H	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor b) 32mm ditto</p>	24 5	NO. NO.		
I	<p>Isolation Valves (Pegler) a) 25mm gate valve b) 32mm ditto</p>	15 2	NO. NO.		
J	<p>Water Meters a) 32mm Water check meter as KENT. or equal and approved.</p>	1	NO		
K	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	15	NO.		
L	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
	Total C/F to Next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	FOUL WATER DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	36	LM		
	b) 50mm ditto	18	LM		
	c) 40mm Ditto	29	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	5	NO.		
	b) 50mm ditto	6	LM		
	c) 40mm ditto	17	NO.		
C	Tees				
	a) 100mm diameter sweep tee	8	NO.		
	b) 50mm ditto	6	LM		
	c) 40mm ditto	10	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	6	NO.		
	b) 100 x 40mm ditto.	6	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	4	NO.		
	b) 40mm diameter inspection plugs	9	NO.		
F	Four-way 100x50mm floor trap complete with stainless steel grating.	7	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	<p>WATER RETICULATION PIPEWORK Supply of HDPE, PN 20 materials - All Polyethylene material shall be 16.0 KG/SQ.CM (unless otherwise stated) suitable for butt fusion jointing and the rate shall include for supply and delivery to the work site of all pipes, jointing fittings & specials including all other associated accessories (to suite PN 16 flange), required for complete installation to relevant local standards. Or approved equivalent</p> <p>HDPE pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>HDPE Pipes i) 75mm HDPE Pipes</p>	75	LM		
B	<p>Elbow and Bends i) 75mm Bend/Elbows</p>	12	NO.		
C	<p>Tees i) 75mm Tees/Equal Tee</p>	14	NO.		
D	<p>Reducers i) 75x32mm Reducer ii) 75x40mm Reducer</p>	14 10	NO. NO.		
E	<p>Unions i) 75mm diameter Union</p>	11	NO.		
F	<p>Sockets i) 75mm Socket</p>	21	NO.		
G	<p>Male/Female Adaptors i) 75mm Male/Female Adaptor</p>	14	NO.		
H	<p>Sterilization Allow for sterilization including flushing out water and chlorine of the water supply line and water storage tank to the satisfaction of the Engineer</p>	1	ITEM		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	<p>EXTERNAL FOUL WATER DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.</p>				
A	<p>Pipes a) 100mm dia UPVC Golden Brown pipe (heavy duty) b) 150mm dia UPVC Golden Brown pipe (heavy duty)</p>	78 60	LM LM		
B	<p>Bends a) 100mm diameter UPVC sweep bend</p>	16	NO.		
C	100mm diameter gulley trap complete with chamber and cover.	12	NO.		
D	Standard 600x450mm Inspection Chamber complete with HD cover.	11	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
	FIREFIGHTING INSTALLATIONS				
I	FIRE EXTINGUISHERS & ACCESSORIES				
i)	5 Kg carbon dioxide gas fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	5	NO.		
ii)	6 Kg dry powder fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	5	NO.		
ii)	Fire Safety Signage, Fire Point signs and Fire Action Plan signs, to Engineer's approval.	5	NO.		
iv)	9" (225mm) manual operated alarm bell (Gong)	5	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS

ITEM	DESCRIPTION	AMOUNT Kshs.
	3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS	194,600.00
I	SANITARY FITTINGS - CLIENT SUPPLY	
II	SANITARY FITTINGS - LABOUR	
III	PLUMBING INSTALLATIONS	
IV	FOUL WATER DRAINAGE INSTALLATIONS	
A	SUB-TOTAL FOR 1NO. 3BEDROOM UNIT (I + II +III)	
B	TOTAL FOR 10NO. 3BEDROOM APARTMENTS UNITS (A x 10) - 1NO. BLOCK INTERNAL INSTALLATIONS	
	3 BEDROOM APARTMENTS COMMON INSTALLATIONS	
V	WATER RETICULATION PIPEWORK	
VI	EXTERNAL FOUL WATER DRAINAGE INSTALLATIONS	
VII	FIREFIGHTING INSTALLATIONS - PORTABLES	
C	TOTAL FOR 1NO. 3BEDROOM BLOCK - COMMON INSTALLATIONS (IV + V)	
D	TOTAL FOR 1NO. 3 BEDROOM BLOCK (B + C)	
E	TOTAL FOR 2NO. BLOCKS (D x 2)	
C	TOTAL FOR 2NO. 3BEDROOM BLOCKS C/F TO MAIN SUMMARY PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 4: TYPE 1A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - <u>CLIENT SUPPLY</u>				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier .				355,350.00
Total C/F to Collection Page					355,350.00

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 4: TYPE 1A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and approved.	6	NO.		
	Toilet Roll Holder				
B	Wall mounted stainless steel toilet roll holder with cover and concealed fixings. As Dali MH701 or equal and approved.	6	NO.		
	Coat Hook				
C	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	6	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini". As Ekos Beta or equal and approved.	5	NO.		
E	Countertop wash hand basin of nominal size 550 x 440mm, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini" As Ekos Beta or equal and approved.	3	NO.		
F	Mirror Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	8	NO.		
G	Towel Rail Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	8	NO.		
H	Kitchen Sink Double Bowl Single Drain (DBSD) stainless steel sink as "Associated Steel Limited" complete with 40mm diameter chrome plated bottle traps and Sink mixer single lever, 15mm, as Tapis Enoch sink Mixer Ref. #WGH56477C chrome plated pillar mounted sink mixer and all its jointing accessories. Or equal and approved	1	NO		
I	Instant Showers Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.	6	No		
J	Towel Rail Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	6	NO.		
K	Soap Dish Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	6	NO.		
L	Dhobi Sink				
i)	Concrete dhobi sink made of terrazzo, size 600mm X 500mm X 400mm deep complete with traps and fixings.	1	NO		
ii)	½ inch single back inlet wall mounted Bibtap as "Twyford SF2302CP" with chrome finish. or equal and approved.	1	NO		
M	Fire Blanket Emergency fire blanket of dimensions 1200mm x 1200mm as Naffco NFB 1.4 or equal and approved	1	NO		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 4: TYPE 1A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters. PolyproPylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes b) 32mm ditto c) 40mm ditto</p>	286 42 42	LM LM LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows b) 32mm ditto c) 40mm ditto</p>	98 29 24	NO. NO. NO.		
C	<p>Tees a) 25mm Tees/Equal Tee b) 32mm ditto c) 40mm ditto</p>	91 27 16	NO. NO. NO.		
D	<p>Reducers a) 25x20mm ditto b) 32x25mm ditto c) 40x25mm ditto d) 40x32mm ditto</p>	64 42 14 16	NO. NO. NO. NO.		
E	<p>Unions a) 25mm diameter union b) 32mm ditto c) 40mm ditto</p>	41 12 12	NO. NO. NO.		
F	<p>Sockets a) 25mm Socket b) 32mm ditto c) 40mm ditto</p>	77 22 24	NO. NO. NO.		
G	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor b) 32mm ditto c) 40mm ditto</p>	40 18 12	NO. NO. NO.		
H	<p>Isolation Valves (Pegler) a) 25mm gate valve b) 32mm ditto c) 40mm ditto</p>	22 9 5	NO. NO. NO.		
I	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	30	NO.		
J	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 4: TYPE 1A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	FOUL WATER DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	74	LM		
	b) 100mm dia UPVC Golden Brown pipe (heavy duty)	98	LM		
	c) 50mm ditto	62	LM		
	d) 40mm Ditto	40	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	28	NO.		
C	Tees				
	a) 100mm diameter sweep tee	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	45	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	12	NO.		
	b) 100 x 40mm ditto.	12	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	9	NO.		
	b) 40mm diameter inspection plugs	18	NO.		
F	Four-way 100x50mm floor trap complete with stainless steel grating.	17	NO.		
G	100mm diameter gulley trap complete with chamber and cover.	9	NO.		
H	Standard 600x450mm Inspection Chamber complete with HD cover.	12	NO.		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 2: COLLECTION PAGE - TYPE 1A

ITEM	DESCRIPTION	AMOUNT Kshs.
	INTERNAL INSTALLATIONS	
I	SANITARY FITTINGS - CLIENT SUPPLY	355,350.00
II	SANITARY FITTINGS - LABOUR	
III	PLUMBING INSTALLATIONS	
IV	FOUL WATER DRAINAGE INSTALLATIONS	
A	SUB-TOTAL FOR 1NO. 1A UNIT	
B	TOTAL FOR 18NO. 1A UNIT (A x 18)	
C	TOTAL FOR 18 NO. HOUSE TYPE 1A C/F TO MAIN SUMMARY PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 8: TYPE 2B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - <u>CLIENT SUPPLY</u>				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier.				295,600.00
Total C/F to Collection Page					295,600.00

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO.8: TYPE 2B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and approved.	5	NO.		
	Toilet Roll Holder				
B	Wall mounted stainless steel toilet roll holder with cover and concealed fixings. As Dali MH701 or equal and approved.	5	NO.		
	Coat Hook				
C	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	5	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	4	NO.		
E	Countertop wash hand basin of nominal size 550 x 440mm, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini " As Ekos Beta or equal and approved.	3	NO.		
F	Mirror Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	7	NO.		
G	Towel Rail Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	7	NO.		
H	Kitchen Sink Double Bowl Single Drain (DBSD) stainless steel sink as "Associated Steel Limited" complete with 40mm diameter chrome plated bottle traps and Sink mixer single lever, 15mm, as Tapis Enoch sink Mixer Ref. #WGH56477C chrome plated pillar mounted sink mixer and all its jointing accessories. Or equal and approved	1	NO		
I	Instant Showers Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.	5	No		
J	Towel Rail Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	5	NO.		
K	Soap Dish Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	5	NO.		
L	Dhobi Sink				
i)	Concrete dhobi sink made of terrazzo, size 600mm X 500mm X 400mm deep complete with traps and fixings.	1	NO		
ii)	½ inch single back inlet wall mounted Bibtap as "Twyford SF2302CP" with chrome finish. or equal and approved.	1	NO		
M	Fire Blanket Emergency fire blanket of dimensions 1200mm x 1200mm as Naffco NFB 1.4 or equal and approved	1	NO		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 8: TYPE 2B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters. PolyproPylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes b) 32mm ditto c) 40mm ditto</p>	297 44 47	LM LM LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows b) 32mm ditto c) 40mm ditto</p>	94 29 24	NO. NO. NO.		
C	<p>Tees a) 25mm Tees/Equal Tee b) 32mm ditto c) 40mm ditto</p>	90 27 16	NO. NO. NO.		
D	<p>Reducers a) 25x20mm ditto b) 32x25mm ditto c) 40x25mm ditto d) 40x32mm ditto</p>	62 44 16 18	NO. NO. NO. NO.		
E	<p>Unions a) 25mm diameter union b) 32mm ditto c) 40mm ditto</p>	34 12 12	NO. NO. NO.		
F	<p>Sockets a) 25mm Socket b) 32mm ditto c) 40mm ditto</p>	89 22 24	NO. NO. NO.		
G	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor b) 32mm ditto c) 40mm ditto</p>	40 18 12	NO. NO. NO.		
H	<p>Isolation Valves (Pegler) a) 25mm gate valve b) 32mm ditto c) 40mm ditto</p>	22 9 5	NO. NO. NO.		
I	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	30	NO.		
J	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 8: TYPE 2B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	70	LM		
	b) 100mm dia UPVC Golden Brown pipe (heavy duty)	98	LM		
	c) 50mm ditto	60	LM		
	d) 40mm Ditto	38	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	26	NO.		
C	Tees				
	a) 100mm diameter sweep tee	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	44	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	11	NO.		
	b) 100 x 40mm ditto.	12	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	8	NO.		
	b) 40mm diameter inspection plugs	16	NO.		
F	Four-way 100x50mm floor trap complete with stainless steel grating.	15	NO.		
G	100mm diameter gulley trap complete with chamber and cover.	9	NO.		
H	Standard 600x450mm Inspection Chamber complete with HD cover.	12	NO.		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

ITEM	DESCRIPTION	AMOUNT Kshs.
	INTERNAL INSTALLATIONS	
I	SANITARY FITTINGS - CLIENT SUPPLY	295,600.00
II	SANITARY FITTINGS - LABOUR	
III	PLUMBING INSTALLATIONS	
IV	DRAINAGE INSTALLATIONS	
A	SUB-TOTAL FOR 1NO. 2B UNIT	
B	TOTAL FOR 9NO. 2B UNIT (A x 9)	
C	TOTAL FOR 9NO. HOUSE TYPE 2B C/F TO MAIN SUMMARY PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 10: TYPE 3A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - <u>CLIENT SUPPLY</u>				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier .				270,350.00
Total C/F to Collection Page					270,350.00

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 10: TYPE 3A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and approved.	5	NO.		
	Toilet Roll Holder				
B	Wall mounted stainless steel toilet roll holder with cover and concealed fixings. As Dali MH701 or equal and approved.	5	NO.		
	Coat Hook				
C	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	5	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼ " waste fitting, 1 ¼ " chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	4	NO.		
E	Countertop wash hand basin of nominal size 550 x 440mm, white in colour, comprising of 1 center tap hole, 1 ¼ " waste fitting, 1 ¼ " chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini " As Ekos Beta or equal and approved.	1	NO.		
F	Mirror Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	5	NO.		
G	Towel Rail Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	5	NO.		
H	Kitchen Sink Double Bowl Single Drain (DBSD) stainless steel sink as "Associated Steel Limited" complete with 40mm diameter chrome plated bottle traps and Sink mixer single lever, 15mm, as Tapis Enoch sink Mixer Ref. #WGH56477C chrome plated pillar mounted sink mixer and all its jointing accessories. Or equal and approved	1	NO		
I	Instant Showers Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.	5	No		
J	Towel Rail Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	5	NO.		
K	Soap Dish Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	5	NO.		
L	Dhobi Sink				
i)	Concrete dhobi sink made of terrazzo, size 600mm X 500mm X 400mm deep complete with traps and fixings.	1	NO		
ii)	½ inch single back inlet wall mounted Bibtap as "Twyford SF2302CP" with chrome finish. or equal and approved.	1	NO		
M	Fire Blanket Emergency fire blanket of dimensions 1200mm x 1200mm as Naffco NFB 1.4 or equal and approved	1	NO		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 10: TYPE 3A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters. PolyproPylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes b) 32mm ditto c) 40mm ditto</p>	270 40 37	LM LM LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows b) 32mm ditto c) 40mm ditto</p>	98 29 24	NO. NO. NO.		
C	<p>Tees a) 25mm Tees/Equal Tee b) 32mm ditto c) 40mm ditto</p>	91 27 16	NO. NO. NO.		
D	<p>Reducers a) 25x20mm ditto b) 32x25mm ditto c) 40x25mm ditto d) 40x32mm ditto</p>	64 42 14 16	NO. NO. NO. NO.		
E	<p>Unions a) 25mm diameter union b) 32mm ditto c) 40mm ditto</p>	34 10 11	NO. NO. NO.		
F	<p>Sockets a) 25mm Socket b) 32mm ditto c) 40mm ditto</p>	74 20 22	NO. NO. NO.		
G	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor b) 32mm ditto c) 40mm ditto</p>	40 18 12	NO. NO. NO.		
H	<p>Isolation Valves (Pegler) a) 25mm gate valve b) 32mm ditto c) 40mm ditto</p>	22 9 5	NO. NO. NO.		
I	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	30	NO.		
J	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 10: TYPE 3A INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	70	LM		
	b) 100mm dia UPVC Golden Brown pipe (heavy duty)	98	LM		
	c) 50mm ditto	60	LM		
	d) 40mm Ditto	38	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	26	NO.		
C	Tees				
	a) 100mm diameter sweep tee	16	NO.		
	b) 50mm ditto	14	LM		
	b) 40mm ditto	44	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	11	NO.		
	b) 100 x 40mm ditto.	12	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	8	NO.		
	b) 40mm diameter inspection plugs	16	NO.		
F	Four-way 100x50mm floor trap complete with stainless steel grating.	15	NO.		
G	100mm diameter gulley trap complete with chamber and cover.	9	NO.		
H	Standard 600x450mm Inspection Chamber complete with HD cover.	12	NO.		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 10: COLLECTION PAGE - TYPE 3A

ITEM	DESCRIPTION	AMOUNT Kshs.
	INTERNAL INSTALLATIONS	
I	SANITARY FITTINGS - CLIENT SUPPLY	270,350.00
II	SANITARY FITTINGS - LABOUR	
II	PLUMBING INSTALLATIONS	
III	DRAINAGE INSTALLATIONS	
A	SUB-TOTAL FOR 1NO. 3A UNIT	
B	TOTAL FOR 14NO. 3A UNIT (A x 14)	
C	TOTAL FOR 14NO. HOUSE TYPE 3A C/F TO MAIN SUMMARY PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 11: TYPE 3B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - <u>CLIENT SUPPLY</u>				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier.				270,350.00
Total C/F to Collection Page					270,350.00

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 11: TYPE 3B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and approved.	5	NO.		
	Toilet Roll Holder				
B	Wall mounted stainless steel toilet roll holder with cover and concealed fixings. As Dali MH701 or equal and approved.	5	NO.		
	Coat Hook				
C	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	5	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	4	NO.		
E	Countertop wash hand basin of nominal size 550 x 440mm, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini " As Ekos Beta or equal and approved.	1	NO.		
	Mirror				
F	Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	5	NO.		
	Towel Rail				
G	Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	5	NO.		
	Kitchen Sink				
H	Double Bowl Single Drain (DBSD) stainless steel sink as "Associated Steel Limited" complete with 40mm diameter chrome plated bottle traps and Sink mixer single lever, 15mm, as Tapis Enoch sink Mixer Ref. #WGH56477C chrome plated pillar mounted sink mixer and all its jointing accessories. Or equal and approved	1	NO		
	Instant Showers				
I	Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.	5	No		
	Towel Rail				
J	Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	5	NO.		
	Soap Dish				
K	Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved	5	NO.		
	Dhobi Sink				
i)	Concrete dhobi sink made of terrazzo, size 600mm X 500mm X 400mm deep complete with traps and fixings.	1	NO		
ii)	½ inch single back inlet wall mounted Bibtap as "Twyford SF2302CP" with chrome finish. or equal and approved.	1	NO		
	Fire Blanket				
M	Emergency fire blanket of dimensions 1200mm x 1200mm as Naffco NFB 1.4 or equal and approved	1	NO		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 11: TYPE 3B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters. PolyproPylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes b) 32mm ditto c) 40mm ditto</p>	270 40 37	LM LM LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows b) 32mm ditto c) 40mm ditto</p>	98 29 24	NO. NO. NO.		
C	<p>Tees a) 25mm Tees/Equal Tee b) 32mm ditto c) 40mm ditto</p>	91 27 16	NO. NO. NO.		
D	<p>Reducers a) 25x20mm ditto b) 32x25mm ditto c) 40x25mm ditto d) 40x32mm ditto</p>	64 42 14 16	NO. NO. NO. NO.		
E	<p>Unions a) 25mm diameter union b) 32mm ditto c) 40mm ditto</p>	34 10 11	NO. NO. NO.		
F	<p>Sockets a) 25mm Socket b) 32mm ditto c) 40mm ditto</p>	74 20 22	NO. NO. NO.		
G	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor b) 32mm ditto c) 40mm ditto</p>	40 18 12	NO. NO. NO.		
H	<p>Isolation Valves (Pegler) a) 25mm gate valve b) 32mm ditto c) 40mm ditto</p>	22 9 5	NO. NO. NO.		
I	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	30	NO.		
R	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 11: TYPE 3B INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	DRAINAGE INSTALLATIONS				
	Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	70	LM		
	b) 100mm dia UPVC Golden Brown pipe (heavy duty)	98	LM		
	c) 50mm ditto	60	LM		
	d) 40mm Ditto	38	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	16	NO.		
	b) 50mm ditto	14	LM		
	c) 40mm ditto	26	NO.		
C	Tees				
	a) 100mm diameter sweep tee	16	NO.		
	b) 50mm ditto	14	LM		
	b) 40mm ditto	44	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	11	NO.		
	b) 100 x 40mm ditto.	12	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	8	NO.		
	b) 40mm diameter inspection plugs	16	NO.		
H	Four-way 100x50mm floor trap complete with stainless steel grating.	15	NO.		
I	100mm diameter gulley trap complete with chamber and cover.	9	NO.		
J	Standard 600x450mm Inspection Chamber complete with HD cover.	12	NO.		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 11: COLLECTION PAGE - TYPE 3B

ITEM	DESCRIPTION	AMOUNT Kshs.
	INTERNAL INSTALLATIONS	
I	SANITARY FITTINGS - CLIENT SUPPLY	270,350.00
II	SANITARY FITTINGS - LABOUR	
II	PLUMBING INSTALLATIONS	
III	DRAINAGE INSTALLATIONS	
A	SUB-TOTAL FOR 1NO. 3B UNIT	
B	TOTAL FOR 18NO. 3B UNIT (A x 18)	
C	TOTAL FOR 18NO. HOUSE TYPE 3B C/F TO MAIN SUMMARY PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 12: GATE HOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - <u>CLIENT SUPPLY</u>				
A	Allow a prime cost sum in Kenya Shillings for the Supply and delivery of sanitary fittings including all the necessary fittings and jointing by a nominated supplier.				35,400.00
Total C/F to Collection Page					35,400.00

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS**

BILL NO. 11: GATE HOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	SANITARY FITTINGS - LABOUR Take delivery, install, test and commission the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.				
	Water Closet Suite				
A	Squatting Pan as TWYFORD "Nile Squatting Pan" Ref. WC3390WH, white in colour and in Vitreous China. WC pan to be complete with fixing accessories. or equal and approved.	1	NO.		
	Toilet Roll Holder				
B	Wall mounted stainless steel toilet roll holder with cover and concealed fixings. As Dali MH701 or equal and approved.	1	NO.		
	Coat Hook				
C	Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.	1	NO.		
	Wash Hand Basin				
D	Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼ " waste fitting, 1 ¼ " chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.	1	NO.		
	Mirror				
E	Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws	1	NO.		
	Towel Rail				
F	Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved	1	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 12: GATE HOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II	<p>PLUMBING INSTALLATIONS COLD & HOT WATER SUPPLY Supply, deliver, install test and commission the following: PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are external diameters. PolyproPylene Random (PP-R) pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.</p>				
A	<p>PP-R Pipes - PN 20 a) 25mm PPR pipes</p>	56	LM		
B	<p>Elbow and Bends a) 25mm Bend/Elbows</p>	24	NO.		
C	<p>Tees a) 25mm Tees/Equal Tee</p>	12	NO.		
D	<p>Reducers a) 25x20mm ditto</p>	8	NO.		
E	<p>Unions a) 25mm diameter union</p>	8	NO.		
F	<p>Sockets a) 25mm Socket</p>	14	NO.		
G	<p>Male/Female Adaptors a) 25mm Male/Female Adaptor</p>	2	NO.		
H	<p>Isolation Valves (Pegler) a) 25mm gate valve</p>	1	NO.		
I	<p>Flexible Tubes 15mm diameter 300mm long flexible tubings required complete with backnuts and angle valve as Grohe, Ref. No.22940000. or equal and approved</p>	2	NO.		
J	<p>STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.</p>	Item	Sum		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 12: GATE HOUSE INTERNAL INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	DRAINAGE INSTALLATIONS Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
A	Pipes				
	a) 100mm dia UPVC Grey pipe (heavy duty)	8	LM		
	b) 100mm dia UPVC Golden Brown pipe (heavy duty)	18	LM		
	c) 50mm ditto	12	LM		
	d) 40mm Ditto	12	LM		
B	Bends				
	a) 100mm diameter UPVC sweep bend	4	NO.		
	b) 50mm ditto	2	LM		
	c) 40mm ditto	3	NO.		
C	Tees				
	a) 40mm diameter sweep tee	2	NO.		
D	Boss Connectors				
	a) 100x50mm diameter boss connector	1	NO.		
	b) 100 x 40mm ditto.	1	NO.		
E	Inspection Plugs/Access caps				
	a) 100mm access cap	1	NO.		
	b) 40mm diameter inspection plugs	1	NO.		
F	Four-way 100x50mm floor trap complete with stainless steel grating.	2	NO.		
G	100mm diameter gulley trap complete with chamber and cover.	2	NO.		
H	Standard 600x450mm Inspection Chamber complete with HD cover.	4	NO.		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

BILL NO. 12: COLLECTION PAGE - GATEHOUSE

ITEM	DESCRIPTION	AMOUNT Kshs.
	INTERNAL INSTALLATIONS	
I	SANITARY FITTINGS - CLIENT SUPPLY	35,400.00
II	SANITARY FITTINGS - LABOUR	
III	PLUMBING INSTALLATIONS	
IV	DRAINAGE INSTALLATIONS	
A	SUB-TOTAL FOR 1NO. GATEHOUSE (I + II + III + IV)	
B	TOTAL FOR 3NO.GATEHOUSES (A x 3)	
C	TOTAL FOR 3NO. GATE HOUSE C/F TO MAIN SUMMARY PAGE	

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS**

BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS - MAISONNETTES

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	WATER BOOSTER PUMPS & PIPEWORK Supply, deliver, install test and commission the following:				
	Water Booster Pump				
A	Water Booster pumpset comprising 2 No. pumps (Duty and Stundby) with automatic changeover, each of capacity 20m ³ /hr at 35m total head as GRUNDFOS CR 20-3, 4.0kW, 5.5ph. Complete with pressure vessel, pressure switch and gauge, overload protection and all necessary controls all mounted on common base plate. NB: Alternatives shall be supplied with the written approval of the Engineer	1	SET		
	Control Panel				
B	Control panel for above pumps with contactors, over voltage and under voltage protection relays, MCBs, timer, start/stop push buttons, internal buttons with automatic changeover, 'running' and 'trip' neon lights control system and button for change from automatic to manual operation. There shall also be an adjustable time delay switch to ensure pumping cycles are controlled to not more than 6 per hour, float switch cable, low level cut-out switch in low level tank and regulator.	1	NO.		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II A	<p>PRESSED STEEL WATER TANKS HIGH LEVEL TANK Supply, install, test and commission Pressed Steel Water Tank, 160m³ capacity, of dimensions 8m x 5m x 4m high. The tank to be of 6mm thick, 1000mm square modules, which are hydraulically cold pressed in one piece and embossed with a distinctive protruding profiles at the centre to strengthen the panels. NB: The tank plates to be hot dip galvanised. All tank specifications to Engineer's approval.</p>	1	NO.		
B	<p>TANK TOWER Structural steel tower for 15m tower to support 160m³ and 72m³ steel tanks on two levels, made up thick SHS columns, horizontal ties and diagonal bracings, mild steel hand rails, chaquered plate on 600mm wide walk way around tank and cat ladder all to SE approval.</p> <p>The tanks (above) to be complete with all jointing accessories bitumen lining to Engineer's approval, and as follows:</p> <p>a) Flat steel plate covers and suitably supported to allow for external loads i.e maintenance crew. A standard access manhole with hinged lockable cover and vent to be provided, and perimeter guard rails.</p> <p>b) Internal bracings and brackets to be designed to ensure the strength, rigidity and absolute uniformity of the tank.</p> <p>c) All bolts used in the assembly should be of high tensile grade 8.8 for rigid holding and should be zinc coated to prevent against any rust forming.</p> <p>d) Inlets, outlets, washout, overflow, drain vent, high pressure ball valve, level indicators, gate valves, non-return valves, float switch regulator and internal and external ladder. All the fittings should be done to the approval of the Mechanical Engineer.</p>	1	NO.		
B	<p>Water Tank Bearers Allow for steel bearer universal beams, spaced at 1 meter, to be anchored onto upstand concrete beams to Engineer's approval</p>	1	ITEM		
Total C/F to Collection Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS - MAISONNETTES

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	WATER RETICULATION PIPEWORK Supply of HDPE, PN 20 materials - All Polyethylene material shall be 16.0 KG/SQ.CM (unless otherwise stated) suitable for butt fusion jointing and the rate shall include for supply and delivery to the work site of all pipes, jointing fittings & specials including all other associated accessories (to suite PN 16 flange), required for complete installation to relevant local standards. Or approved equivalent HDPE pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.				
A	HDPE Pipes i) 40mm HDPE Pipes ii) 50mm ditto iii) 63mm ditto iv) 100mm ditto	560 210 127 416	LM LM LM LM		
B	Elbow and Bends i) 40mm Bend/Elbows ii) 50mm ditto iii) 63mm ditto iv) 100mm ditto	85 27 24 86	NO. NO. NO. NO.		
C	Tees i) 40mm Tees/Equal Tee ii) 50mm ditto iii) 63mm ditto iv) 100mm ditto	4 51 28 156	NO. NO. NO. NO.		
D	Reducers i) 50x40mm Reducer ii) 63x40mm ditto iii) 63x50mm ditto iv) 100x40mm ditto iv) 100x50mm ditto iv) 100x63mm ditto	36 12 12 54 11 24	NO. NO. NO. NO. NO. NO.		
E	Unions i) 40mm diameter Union ii) 50mm ditto iii) 63mm ditto iv) 100mm ditto	33 22 30 125	NO. NO. NO. NO.		
	Total C/F to Next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS - MAISONNETTES

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Total B/F from Previous Page				
F	Sockets				
	i) 40mm Socket	64	NO.		
	ii) 50mm ditto	41	NO.		
	iii) 63mm ditto	56	NO.		
	iv) 100mm ditto	254	NO.		
G	Male/Female Adaptors				
	i) 40mm Male/Female Adaptor	128	NO.		
	ii) 100mm ditto	30	NO.		
H	Isolation Valves (Pegler)				
	i) 40mm Isolation Valves	64	NO.		
	ii) 100mm ditto	15	NO.		
K	Excavation - May be Executed Under Civil Works Excavate trench for HDPE & fire hydrant water reticulation pipework not exceeding 1500mm depth and 750mm width on average, part refill and ram, and surplus cart away.	1,313	LM		
L	Water Line Markers Standard pre-cast concrete water line marker, post marked "WL", set in concrete (1:3:6) base, including form work, excavations, back-filling and disposal. Plate to be painted blue with gloss oil paint and engraved letters in black. All to the satisfaction of the engineer.	32	NO.		
M	Water Meters				
	i) 40mm Water check meter as KENT. or equal and approved.	56	NO		
N	Sterilization Allow for sterilization including flushing out water and chlorine of the water supply line and water storage tank to the satisfaction of the Engineer	1	ITEM		
	Total C/F to Collection Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT Kshs.
	COLLECTION PAGE - BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS	
I	WATER BOOSTER PUMPS & PIPEWORK	
II	PRESSED STEEL WATER TANKS	
III	WATER RETICULATION PIPEWORK	
A	TOTAL FOR EXTERNAL WATER RETICULATION C/F TO COLLECTION PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS - APARTMENTS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	WATER RETICULATION PIPEWORK Supply of HDPE, PN 20 materials - All Polyethylene material shall be 16.0 KG/SQ.CM (unless otherwise stated) suitable for butt fusion jointing and the rate shall include for supply and delivery to the work site of all pipes, jointing fittings & specials including all other associated accessories (to suite PN 16 flange), required for complete installation to relevant local standards. Or approved equivalent HDPE pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.				
A	HDPE Pipes i) 75mm HDPE Pipes ii) 100mm ditto	120 550	LM LM		
B	Elbow and Bends i) 75mm Bend/Elbows ii) 100mm ditto	22 24	NO. NO.		
C	Tees i) 75mm Tees/Equal Tee ii) 100mm ditto	3 4	NO. NO.		
D	Reducers i) 100x75mm reducer	4	NO.		
E	Unions i) 75mm diameter Union ii) 100mm ditto	15 53	NO. NO.		
F	Sockets i) 75mm Socket ii) 100mm ditto	30 105	NO. NO.		
G	Male/Female Adaptors i) 75mm Male/Female Adaptor ii) 100mm ditto	6 20	NO. NO.		
H	Isolation Valves (Pegler) i) 75mm Isolation Valves ii) 100mm ditto	3 10	NO. NO.		
I	Pressure Reducing Valves (PRV) i) 100mm ditto	6	NO.		
	Total C/F to Next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

#REF!

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Total B/F from Previous Page				
K	Excavation - May be executed under Civil Works Excavate trench for HDPE & fire hydrant water reticulation pipework not exceeding 1500mm depth and 750mm width on average, part refill and ram, and surplus cart away.	670	LM		
L	Water Line Markers Standard pre-cast concrete water line marker, post marked "WL", set in concrete (1:3:6) base, including form work, excavations, back-filling and disposal. Plate to be painted blue with gloss oil paint and engraved letters in black. All to the satisfaction of the engineer.	18	NO.		
M i)	Water Meters 50mm Water check meter as KENT. or equal and approved.	3	NO		
N	Sterilization Allow for sterilization including flushing out water and chlorine of the water supply line and water storage tank to the satisfaction of the Engineer	1	ITEM		
	Total C/F to Next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT Kshs.
	COLLECTION PAGE - BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS	
I	WATER RETICULATION PIPEWORK	
A	TOTAL FOR EXTERNAL WATER RETICULATION C/F TO COLLECTION PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
EXTERNAL WATER RETICULATION INSTALLATIONS

SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT Kshs.
	COLLECTION PAGE - BILL NO. 13: EXTERNAL WATER RETICULATION INSTALLATIONS	
I	Total for Maissionettes External Reticulation Works	
II	Total for Apartments Blocks External Reticulation Works	
A	TOTAL FOR EXTERNAL WATER RETICULATION C/F TO SUMMARY PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

BILL NO. 14: SITE IRRIGATION INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	WATER BOOSTER PUMPS & PIPEWORK Supply, deliver, install test and commission the following:				
	Water Booster Pump				
A	Water Booster pumpset comprising 2 No. pumps (Duty and Stundby) with automatic changeover, each of capacity 20m ³ /hr at 35m total head as GRUNDFOS CR 20-3, 4.0kW, 5.5ph. Complete with pressure vessel, pressure switch and gauge, overload protection and all necessary controls all mounted on common base plate. NB: Alternatives shall be supplied with the written approval of the Engineer	1	SET		
	Control Panel				
B	Control panel for above pumps with contactors, over voltage and under voltage protection relays, MCBs, timer, start/stop push buttons, internal buttons with automatic changeover, 'running' and 'trip' neon lights control system and button for change from automatic to manual operation. There shall also be an adjustable time delay switch to ensure pumping cycles are controlled to not more than 6 per hour, float switch cable, low level cut-out switch in low level tank and regulator.	1	NO.		
	Total C/F to Next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

BILL NO. 14: SITE IRRIGATION INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
II A	<p>PRESSED STEEL WATER TANKS TANK Supply, install, test and commission Pressed Steel Water Tank, 72m³ capacity, of dimesions 6m x 4m x 3m high. The tank to be of 6mm thick, 1000mm square modules, which are hydraulically cold pressed in one piece and embossed with a distinctive protruding profiles at the centre to strengthen the panels. NB: The tank plates to be hot dip galvanised. All tank specifications to Engineer's approval.</p> <p>The tanks (above) to be complete with all jointing accessories bitumen lining to Engineer's approval, and as follows:</p> <p>a) Flat steel plate covers and suitably supported to allow for extenal loads i.e maintenance crew. A standard access manhole with hinged lockable cover and vent to be provided, and perimeter guard rails.</p> <p>b) Internal bracings and brackets to be designed to ensure the strength, rigidity and absolute uniformity of the tank.</p> <p>c) All bolts used in the assembly should be of high tensile grade 8.8 for rigid holding and should be zinc coated to prevent against any rust forming.</p> <p>d) Inlets, outlets, washout, overflow, drain vent, high pressure ball valve, level indicators, gate valves, non-return valves, float switch regulator and internal and external ladder. All the fittings should be done to the approval of the Mechanical Engineer.</p>	1	NO.		
B	<p>Water Tank Bearers Allow for steel bearer universal beams, spaced at 1 meter, to be anchored onto upstand concrete beams to Engineer's approval</p>	1	ITEM		
Total C/F to Summary Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

BILL NO. 14: SITE IRRIGATION INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	WATER RETICULATION PIPEWORK Supply of HDPE, PN 20 materials - All Polyethylene material shall be 16.0 KG/SQ.CM (unless otherwise stated) suitable for butt fusion jointing and the rate shall include for supply and delivery to the work site of all pipes, jointing fittings & specials including all other associated accessories (to suite PN 16 flange), required for complete installation to relevant local standards. Or approved equivalent HDPE pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.				
A	HDPE Pipes i) 63mm HDPE Pipes	634	LM		
B	Elbow and Bends i) 63mm Bend/Elbows	56	NO.		
C	Tees i) 63mm Tees/Equal Tee	18	NO.		
D	Reducers i) 63x50mm Reducer	12	NO.		
E	Unions i) 63mm diameter Union	94	NO.		
F	Sockets i) 63mm Socket	175	NO.		
G	Male/Female Adaptors i) 63mm Male/Female Adaptor	28	NO.		
H	Isolation Valves (Pegler) i) 63mm Isolation Valves	10	NO.		
I	Pressure Reducing Valves (PRV) i) 63mm diameter pressure reducing valve	2	NO.		
K	Excavation - May be executed under Civil Works Excavate trench for HDPE & fire hydrant water reticulation pipework not exceeding 1500mm depth and 750mm width on average, part refill and ram, and surplus cart away.	634	LM		
Total C/F to Next Page					

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS**

BILL NO. 14: SITE IRRIGATION INSTALLATIONS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Total B/F from Previous Page				
	Water Line Markers				
L	Standard pre-cast concrete water line marker, post marked "WL", set in concrete (1:3:6) base, including form work, excavations, back-filling and disposal. Plate to be painted blue with gloss oil paint and engraved letters in black. All to the satisfaction of the engineer.	20	NO.		
	Sterilization				
N	Allow for sterilization including flushing out water and chlorine of the water supply line and water storage tank to the satisfaction of the Engineer	1	ITEM		
TOTAL FOR EXTERNAL WATER RETICULATION C/F TO MAIN SUMMARY PAGE					

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
 BILL OF QUANTITIES FOR MECHANICAL SERVICES
 SITE IRRIGATION INSTALLATIONS**

SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT Kshs.
	COLLECTION PAGE - BILL NO. 14: SITE IRRIGATION INSTALLATIONS	
I	WATER BOOSTER PUMPS & PIPEWORK	
II	PRESSED STEEL WATER TANKS	
III	WATER RETICULATION PIPEWORK	
A	TOTAL FOR COMMON IRRIGATION C/F TO COLLECTION PAGE	

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

BILL NO. 14: SITE IRRIGATION INSTALLATIONS - MAISONETTES

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	WATER RETICULATION PIPEWORK Supply of HDPE, PN 20 materials - All Polyethylene material shall be 16.0 KG/SQ.CM (unless otherwise stated) suitable for butt fusion jointing and the rate shall include for supply and delivery to the work site of all pipes, jointing fittings & specials including all other associated accessories (to suite PN 16 flange), required for complete installation to relevant local standards. Or approved equivalent HDPE pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.				
A	HDPE Pipes				
	i) 25mm HDPE Pipes	296	LM		
	ii) 50mm ditto	720	LM		
B	Elbow and Bends				
	i) 25mm Bend/Elbows	72	NO.		
	ii) 50mm ditto	24	NO.		
C	Tees				
	i) 25mm Tees/Equal Tee	8	NO.		
	ii) 50mm ditto	60	NO.		
D	Reducers				
	i) 50x25mm Reducer	60	NO.		
E	Unions				
	i) 25mm diameter Union	37	NO.		
	ii) 50mm ditto	90	NO.		
F	Sockets				
	i) 25mm Socket	74	NO.		
	ii) 50mm ditto	180	NO.		
G	Male/Female Adaptors				
	i) 25mm Male/Female Adaptor	120	NO.		
	ii) 50mm ditto	20	NO.		
H	Isolation Valves (Pegler)				
	i) 25mm Isolation Valves	60	NO.		
	iii) 50mm ditto	8	NO.		
I	Pressure Reducing Valves (PRV)				
	i) 50mm ditto	2	NO.		
Total C/F to Next Page					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

BILL NO. 14: SITE IRRIGATION INSTALLATIONS - MAISONETTES

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Total B/F from Previous Page				
	Stand pipes 15mm diameter hose bib tap suitable for connecting hose pipe complete with threaded adaptors. The tap to be complete with 5meter long 15mm diameter GMS pipe, bends support, etc. The chrome plated bib tap to be as Cobra ref.108 hose bib taps or equal and approved.	60	NO.		
K	Excavation - May be executed under Civil Works Excavate trench for HDPE & fire hydrant water reticulation pipework not exceeding 1500mm depth and 750mm width on average, part refill and ram, and surplus cart away.	1,016	LM		
L	Water Line Markers Standard pre-cast concrete water line marker, post marked "WL", set in concrete (1:3:6) base, including form work, excavations, back-filling and disposal. Plate to be painted blue with gloss oil paint and engraved letters in black. All to the satisfaction of the engineer.	16	NO.		
N	Sterilization Allow for sterilization including flushing out water and chlorine of the water supply line and water storage tank to the satisfaction of the Engineer	1	ITEM		
TOTAL FOR MAISONETTES IRRIGATION C/F TO COLLECTION PAGE					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

BILL NO. 14: SITE IRRIGATION INSTALLATIONS - APARTMENTS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
III	WATER RETICULATION PIPEWORK Supply of HDPE, PN 20 materials - All Polyethylene material shall be 16.0 KG/SQ.CM (unless otherwise stated) suitable for butt fusion jointing and the rate shall include for supply and delivery to the work site of all pipes, jointing fittings & specials including all other associated accessories (to suite PN 16 flange), required for complete installation to relevant local standards. Or approved equivalent HDPE pipe has been used as a guide to the type and quality expected. Equal and approved brands shall be accepted only with the Engineers approval.				
A	HDPE Pipes i) 25mm HDPE Pipes ii) 50mm ditto	60 520	LM LM		
B	Elbow and Bends i) 25mm Bend/Elbows ii) 50mm ditto	8 32	NO. NO.		
C	Tees i) 25mm Tees/Equal Tee ii) 50mm ditto	2 15	NO. NO.		
D	Reducers i) 50x25mm Reducer	4	NO.		
E	Unions i) 25mm diameter Union ii) 50mm ditto	8 65	NO. NO.		
F	Sockets i) 25mm Socket ii) 50mm ditto	16 130	NO. NO.		
G	Male/Female Adaptors i) 25mm Male/Female Adaptor ii) 50mm ditto	10 20	NO. NO.		
H	Isolation Valves (Pegler) i) 25mm Isolation Valves iii) 50mm ditto	5 8	NO. NO.		
I	Pressure Reducing Valves (PRV) i) 50mm ditto	2	NO.		
	Total C/F to Next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

BILL NO. 14: SITE IRRIGATION INSTALLATIONS - APARTMENTS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Total B/F from Previous Page				
	Stand pipes 15mm diameter hose bib tap suitable for connecting hose pipe complete with threaded adaptors. The tap to be complete with 5meter long 15mm diameter GMS pipe, bends support, etc. The chrome plated bib tap to be as Cobra ref.108 hose bib taps or equal and approved.	5	NO.		
K	Excavation - May be executed under Civil Works Excavate trench for HDPE & fire hydrant water reticulation pipework not exceeding 1500mm depth and 750mm width on average, part refill and ram, and surplus cart away.	580	LM		
L	Water Line Markers Standard pre-cast concrete water line marker, post marked "WL", set in concrete (1:3:6) base, including form work, excavations, back-filling and disposal. Plate to be painted blue with gloss oil paint and engraved letters in black. All to the satisfaction of the engineer.	20	NO.		
N	Sterilization Allow for sterilization including flushing out water and chlorine of the water supply line and water storage tank to the satisfaction of the Engineer	1	ITEM		
TOTAL FOR APARTMENT BLOCKS IRRIGATION C/F TO COLLECTION PAGE					

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
SITE IRRIGATION INSTALLATIONS

SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT Kshs.
	COLLECTION PAGE - BILL NO. 14: SITE IRRIGATION INSTALLATIONS	
I	Total for Common Irrigation Intallation Works	
II	Total for Maissionettes Irrigation Intallation Works	
III	Total for Apartments Irrigation Intallation Works	
A	TOTAL FOR SITE IRRIGATION C/F TO SUMMARY PAGE	

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA,
KAJIADO COUNTY RETIREMENT BENEFIT SCHEME
SUMMARY PAGE**

SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT Kshs
A	PRELIMINARIES AND GENERAL CONDITIONS	
B	BILL NO. 1: CLUBHOUSE INTERNAL INSTALLATIONS	
C	BILL NO. 2: SWIMMING POOL INSTALLATIONS	
D	BILL NO. 2: 2BEDROOM APARTMENTS INTERNAL INSTALLATIONS	
E	BILL NO. 3: 3 BEDROOM APARTMENTS INTERNAL INSTALLATIONS	
F	BILL NO. 4: TYPE 1A INTERNAL INSTALLATIONS	
G	BILL NO. 8: TYPE 2B INTERNAL INSTALLATIONS	
H	BILL NO. 10: TYPE 3A INTERNAL INSTALLATIONS	
I	BILL NO. 11: TYPE 3B INTERNAL INSTALLATIONS	
J	BILL NO. 12: GATE HOUSE INTERNAL INSTALLATIONS	
K	BILL NO. 11: EXTERNAL WATER RETICULATION INSTALLATIONS	
L	BILL NO. 14: SITE IRRIGATION INSTALLATIONS	
	Total Carried Forward to Summary Page	

**PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA,
KAJIADO COUNTY SITY RETIREMENT BENEFIT SCHEME
SUMMARY PAGE**

ITEM NO.	DESCRIPTION	(Kshs.)
	<u>MAIN SUMMARY PAGE</u>	
A	TOTAL C/F FROM PAGE E/75	
B	WASTE WATER TREATMENT PC SUM	28,250,000
C	REVERSE OSMOSIS PLANT	5,000,000
D	ALLOW FOR CONTINGENCY SUM	5,000,000
	TOTAL FOR PLUMBING AND DRAINAGE CARRIED TO FORM OF TENDER	

Amount in words.....

.....

Tenderer's Name and Stamp

Address

Period To Execute The Works

Telephone No

Mobile Phone No.

Tenderer's V.A.T No

Tenderer's P.I.N No

Tenderer's Signature Date.....

Witness Signature Date.....

Witness Signature Date.....

Name/ Stamp.....

.....

Witness.....Signature.....Date.....

PART F:

SCHEDULE OF CLIENT SUPPLY ITEMS

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

SCHEDULE OF CLIENT SUPPLY ITEMS

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
I	<p>SANITARY FITTINGS - SUPPLY</p> <p>The Client may choose to supply the following items, therefore it shall not form part of the contract sum</p> <p>Supply and deliver the following sanitary fittings including all the necessary fittings and jointing. Where brand names are mentioned it is only intended as a guide to the type and quality expected. Other equal and equivalent brands shall be accepted upon approval by the Engineer.</p> <p>Water Closet Suite</p> <p>A Close-coupled WC suite in approved white colour complete with horizontal outlet to BS 3402 with 6 litre valveless ceramic cistern and fittings including siphon, 15mm diameter bottom inlet ball valve, 20mm diameter side overflow, plastic flush bend, inlet connection, ecoflush system with push button and heavy plastic seat and cover with chrome plated hinges. To be as Frenscia / Ekos Beta or equal and approved.</p> <p>Toilet Roll Holder</p> <p>B Wall mounted stainless steel toilet roll holder with cover and concealed fixings. As Dali MH701 or equal and approved.</p> <p>Coat Hook</p> <p>C Wall mounted chrome plated single Coat Hook as Dali "#13197". or equal and approved.</p> <p>Wash Hand Basin</p> <p>D Wash hand basin of nominal size 550 x 440mm, with Semi-Pedestal, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini ". As Ekos Beta or equal and approved.</p> <p>E Countertop wash hand basin of nominal size 550 x 440mm, white in colour, comprising of 1 center tap hole, 1 ¼" waste fitting, 1 ¼" chrome plated bottle trap. Complete with basin mixer tap as Twyford "X50 Basin Mono Mixer - mini " As Ekos Beta or equal and approved.</p> <p>Mirror</p> <p>F Plain size bevelled 6mm thick glass plate mirror size 600 x 800mm. Complete with foam lining and dome headed chrome plated fixing Screws</p> <p>Towel Rail</p> <p>G Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved</p> <p>Kitchen Sink</p> <p>H Double Bowl Single Drain (DBSD) stainless steel sink as "Associated Steel Limited" complete with 40mm diameter chrome plated bottle traps and Sink mixer single lever, 15mm, as Tapis Enoch sink Mixer Ref. #WGH56477C chrome plated pillar mounted sink mixer and all its jointing accessories. Or equal and approved</p> <p>Instant Showers</p> <p>I Shower fittings consisting of chrome plated stop valve as Bricon/Aztec or approved equivalent and a 5.5Kw instantaneous shower heater as Lorenzetti or approved equivalent.</p> <p>Towel Rail</p> <p>J Towel Rail as Dali, 600mm towel bar "#BM11". or equal and approved</p> <p>Soap Dish</p> <p>K Soap Tray Holder white in colour and in Viterous China. Recessed into wall. As TWYFORD "VC9808WH" or equal and approved</p>	399	NO.		
		402	NO.		
		402	NO.		
		373	NO.		
		115	NO.		
		488	NO.		
		488	NO.		
		89	NO		
		397	No		
		397	NO.		
		397	NO.		
	Total C/F to Next Page				

PROPOSED HOUSING SCHEME ON PLOT LR NO. KAJIADO/KITENGELA/6242 IN KITENGELA, KAJIADO COUNTY
BILL OF QUANTITIES FOR MECHANICAL SERVICES
PLUMBING, DRAINAGE AND FIREFIGHTING INSTALLATIONS

SCHEDULE OF CLIENT SUPPLY ITEMS					
ITEM NO.	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Total C/F from Previous Page				
L	Dhobi Sink				
i)	Concrete dhobi sink made of terrazzo, size 600mm X 500mm X 400mm deep complete with traps and fixings.	89	NO		
ii)	½ inch single back inlet wall mounted Bibtap as "Twyford SF2302CP" with chrome finish. or equal and approved.	89	NO		
M	Fire Blanket				
	Emergency fire blanket of dimensions 1200mm x 1200mm as Naffco NFB 1.4 or equal and approved	89	NO		
	Water Closet Suite				
O	Squatting Pan as TWYFORD "Nile Squatting Pan" Ref. WC3390WH, white in colour and in Vitreous China. WC pan to be complete with fixing accessories. or equal and approved.	3	NO.		
P	Hand dryer				
	Sensor operated hand drier as Mediclinics M99ACS, steel 1.5mm thick one piece cover , satin finish. Size 248 x 278 x 210mm.Effective air flow 215m ³ /hr Electrical power supply 1.64kW, single phase 240V 50 Hz. Or equal and approved.	4	NO.		
Q	Soap dispenser				
	Wall mounted soap dispenser as "Mediclinics DJ0111C" with a capacity of 1.1L and in AISI 304 Stainless Steel material, having a press action soap release mechanism complete with fixing screws. Allow for initial soap supply. or equal and approved.	4	NO.		
R	Paper towel dispenser				
	Paper Dispenser as "Mediclinics DT2106CS" in AISI 304 Stainless Steel material, with a capacity of 400-600 C/Z towels. or equal and approved	4	NO.		
TOTAL AMOUNT FOR SANITARY FITTINGS SUPPLY (DO NOT CARRY THIS AMOUNT TO SUMMARY PAGE)					