COUNTY GOVERNMENT OF ELGEYO MARAKWET

CONSTRUCTION OF CHEPTARIT WATER PROJECT

(REHABILITATION OF PIPE LINES)

EMSOO WARD IN KEIYO NORTH SUB-COUNTY

TENDER DOCUMENT

CONTRACT No: EMC/WATER/QT/010/2015-2016

CLOSING DATE:10/02/2016

EMPLOYER:	**ENGINEER**
COUNTY GOVERNMENT OF ELGEYO MARAKWET	**DIRECTOR WATER AND SANITATION**
DEPARTMENT OF LANDS, WATER,	**DEPARTMENT OF LANDS, WATER,**
ENVIRONMENT AND NATURAL RESOURCES	**ENVIRONMENT AND NATURAL RESOURCES**
P O BOX 220-30700,	**P.O BOX 220-30700,**
ITEN	**ITEN**

JANUARY 2016

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SECTION A:

INSTRUCTIONS TO TENDERERS

SECTION A.

INSTRUCTIONS TO TENDERERS

1 GENERAL

1.1 The Employer as defined in the Appendix to Conditions of Contract invites tenders for full Contract as described in the tender documents. The successful Tenderer will be expected to complete the Works by the Intended Completion Date Specified in the said Appendix.

1.2 Tenderers shall include the following information and documents with their tenders, unless otherwise stated:

a) Copies of certificates of registration, and principal place of business;
b) Total monetary value of construction work performed for each of the last five years;
c) Experience in works of a similar nature and size for each of the last five years, and clients who may be contacted for further information on these contracts;
d) Major items of constructions equipment owned;
e) Qualifications and experience of key site management and technical personnel proposed for Contract;
f) Reports on the financial standing of the Tenderer, such as profit and loss statements and auditors reports for the last five years;
g) Authority to seek references from the tenders bankers.

1.3 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.

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

2 Tender Documents

2.1 The complete set of tender documents comprises the documents listed here below and any addenda issued in accordance with the clause 2.4 here below:-

a) These instructions to Tenderers
b) Form of Tender
c) Conditions of Contract and Appendix to Conditions of Contract
d) Specifications
e) Drawings
f) Bills of Quantities Priced for labour

g) Other materials required to be filled and submitted in accordance with these Instructions and Conditions.

2.2 The Tenderer shall examine all instructions, forms and specifications in the tender documents. Failure to furnish all information required by the tender documents may result in rejection of his tender.

2.3 A prospective Tenderer requiring any clarification of the tendering documents may notify the Employer in writing or by cable, telex or facsimile at the address indicated in the letter of invitation to tender. The Employer will respond to any request for clarification received earlier than seven (7) days prior to the deadline for submission of tenders. Copies of the Employer's response will be forwarded to all persons issued with tendering documents, including a description of the inquiry, but without identifying its source.

2.4 Before the deadline for submission of tenders, the Employer may modify the tendering documents by issuing addenda. Any addendum thus issued shall be part of the tendering documents and shall be communicated in writing or by cable, telex or facsimile to all Tenderers. Prospective Tenders shall acknowledge receipt of each addendum in writing to the Employer.

2.5 To give prospective Tenders reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend, as necessary, the deadline for submission of tenders in accordance with clause 4.5 here below.

3. **Preparation of Tenders**

3.1 All documents relating to the tender and any correspondence shall be in English Language.

3.2 The tender submitted by the Tenderer shall comprise the following:-

a) The Tender;
b) Tender Security;
c) Bill of Quantities – Priced for Full labour only
d) Any other materials required to be completed and submitted by Tendereres.

3.3 The Tenderer shall fill in labour rates for all items of the works described in the Bill of Quantities. Items for which no rate is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the other rates in the Bill of Quantities. All duties, taxes and other levies payable by the Contractor under the Contract, as of **30 days** prior to the deadline for submission of tenders, shall be included in the tender price submitted by the Tenderer.

3.4 The rates and prices quoted by the Tendered shall not be subjected to any adjustment during the performance of the Contract.

3.5 The Unit rates and prices shall be in **Kenya shillings.**

3.6 Tenders shall remain valid for a period of **90 days** from the date of submission. However in exceptional circumstances, the Employer may request that the tenderers extend the period of validity for a specified additional period. The request and the Tenderers's responses shall be made in writing.

3.7 The Tenderer shall prepare **one original** of the documents as described in these Instructions to Tenderers.

3.8 The original 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. The Person or Persons signing the tender shall initial all pages of the tender where alterations or additions have been made.

4 Submission of Tenders

4.1 The Tender duly filled and sealed in an envelope shall;-

a) Be addressed to the Employer at the address provided in the invitation to tender;
b) Bear the name and identification number of the Contractor as defined in the invitation to tender; and
c) Provide a warning not to open before the specified time and date for tender opening.

4.2 Tenders shall be delivered to the Employer at the address specified above not later than the time and date specified in the invitation to tender.

4.3 The tenderer shall not submit any alternative offers unless they are specifically required in the tender documents.

Only one tender may be submitted by each tenderer. Any tenderer who fails to comply with this requirement will be disqualified.

4.4 Any tender received after the deadline for submission of tenders will be returned to the tenderer un-opened.

4.5 The Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with sub-clause 2.5 in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline.

5. **Tender Opening and Evaluation.**

5.1 The tenders will be opened in the presence of tenderers' representatives who choose to attend at the time and in the place specified in the invitation to tender.

5.2 The Tenderer's names, the total amount of each tender and such other details as may be considered appropriate, will be announced at the opening by the Employer. Minutes of the tender opening, including the information disclosed to those present will also be prepared by the Employer.

5.3 Information relating to the examination, clarification, evaluation and comparison of tenders and recommendations for the ward of the Contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's officials, processing of tenders or award decisions may result in the rejection of his tender.

5.4 Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows:

a) Where there is a discrepancy between the amount in figures and the amount in words, the amount in words will prevail; and

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's representative, there is an obvious typographical error, in which case the adjustment will be made to the entry containing that error.

c) 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 Bill of Quantities/ Quotation, the amount as stated in the form of Tender shall prevail.

d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the Corrected Builder's Work (i.e. corrected tender sum less P.C and provisional Sums).

e) The Error Correction Factor shall be applied to all Builders' Work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

f) 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 forfeited.

5.5 To assist in the examination, evaluation, and comparison of tenders, the Employer at his discretion, may request (in writing) any Tenderer for clarification of the tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex or facsimile but no change in the tender price or substance of the tender shall be sought, offered or permitted.

5.6 The Tenderer shall not influence the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.

6 Award of Contract

6.1 The award of the Contract will be made to the Tenderer who has offered the lowest evaluated tender price.

6.2 Notwithstanding the provisions of clause 6.1 above, the Employer reserves the right to accept or reject any tender and to cancel the tendering process and reject all tenders at any time prior to the award of Contract without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the action.

6.3 The Tenderer whose tender has been accepted will be notified of the award prior to expiration of the tender validity period in writing or by cable, telex or facsimile. This notification (hereinafter and in all Contract documents called the "Letter of Acceptance'') will state the sum (hereinafter and in all Contract documents called the ''Contract Price 'which the Employer will pay the Contractor in consideration of the execution, Completion, and Maintenance of the works by the contractor as prescribed by the Contract. The notification of a ward will constitute the formation of the contract, subject to theTenderer signing the Contract Agreement.

6.4 The Contract Agreement will incorporate all agreements between the Employer and Successful Tenderer. It will be signed by the Employer and sent to the successful Tenderer, within **30 days** following the notification to award. Within **14 days** of receipt, the successful Tenderer will sign the Agreement and return it to the Employer.

CONDITIONS OF CONTRACT

1. Definitions

1.1 In this Contract, except where context otherwise requires, the following terms shall be interpreted as indicated:

"Bills of Quantities" means the priced and completed Bill of Quantities forming part of the tender [where applicable]

"Schedule of Rates" means the priced Schedule of Rates forming part of the tender [where applicable].

"The Completion Date" means the date of completion of the Works as certified by the Employer's Representative.

"The Contract" means the agreement entered into by the Employer and the Contractor as recorded in the Agreement Form and signed by the parties.

"The Contractor" refers to the person or corporate body whose tender to carry out the Works has been accepted by the Employer.

"The Contractor's Tender" is the completed tendering document submitted by the Contractor to the Employer.

"The Contract Price" is the price stated in the Letter of Acceptance.

"Days" are calendar days; **"Months"** are calendar months

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

"The Defects Liability Certificate" is the certificate issued by Employer's Representative upon correction of defects by the Contractor.

The Defects Liability Period" is the period named in the Appendix to Conditions of Contract and calculated from the Completion Date.

"Drawings" include calculations and other information provided or approved by the Employer's Representative for the execution of the Contract.

"Employer" refers to the party who employs the Contractor to carry out the Works.

"Equipment" is the Contractor's machinery and vehicles brought temporarily to the Site for the Execution of the Works.

"Site" means the place or places where the permanent Works are to be carried out including workshops where the same is being prepared.

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

"Employer's Representative" is the person appointed by the Employer and notified to the Contractor for the purpose of supervision of the Works.

"Specification" means the Specification of the Works included in the Contract.

"Start Date" is the date when the Contractor shall commence execution of the Works

"A subcontractor" is a person or corporate body who has a Contract with the Contractor to carry out a part of the Work in the Contract, which includes Work on the Site.

"Temporary works" are works designed, constructed, installed and removed by the Contractor which are needed for construction or installation of the Works.

"A Variation" is an instruction given by the project/Employer's Representative which varies the Works.

"The Works" are what the Contract requires the Contractor to construct, install and turnover to the Employer.

2. Contract Documents

2.1 The following documents shall constitute the Contract documents and shall be interpreted in the following order of priority:

(1) Agreement,
(2) Letter of Acceptance,
(3) Contractor's Tender,
(4) Conditions of Contract,
(5) Specifications,
(6) Bills of Quantities or Schedule of Rates [whichever is applicable]

3. Employer's Representative's Decisions

3.1 Except where otherwise specifically stated, the Employer's Representative will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

4. Works, Language and Law of Contract

4.1 The Contractor shall construct and install the Works in accordance with the Contract documents. The Works may commence on the Start Date and shall be carried out in accordance with the Programme submitted by the Contractor, as updated with the approval of the Employer's Representative, and complete them by the Intend Completion Date.

4.2 The ruling language of the Contract shall be English language and the law governing the Contract shall be the law of the Republic of Kenya.

5. Safety, Temporary works and Discoveries

5.1 The Contractor shall be responsible for design of temporary works and shall obtain approval of third parties to the design of the temporary works where required.

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

5.3 Anything historical or other interest or significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Employer's Representative of such discoveries and carry out the Employer's Representative's instructions for dealing with them.

6. Work Programme and Sub-contracting

6.1 Within seven days after Site possession date, the Contractor shall submit to the Employer's Representative for approval a programme showing the general methods, arrangements, order and timing for all the activities in the Works.

6.2 ***The Contractor may sub-contract the Works (but only to a maximum of 25 percent of the Contract Price) with the approval of the Employer's Representative. However, he shall not assign the Contract without the approval of the Employer in writing. Sub-contracting shall not alter the Contractor's obligations***.

7.0 The Site

7.1 The Employer shall give possession of all parts of the Site to the Contractor.

7.2 The Contractor shall allow the Employer's Representative and any other person authorized by the Employer's Representative access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

8.0 Instructions

8.1 The Contractor shall carry out all instructions of the Employer's Representative which are in accordance with the Contract.

9.0 Extension of Completion Date

9.1 The Employer's Representative shall extend the Completion Date if an occurrence arises which makes it impossible for completion to be achieved by the Intended Completion Date. The Employer's Representative shall decide whether and by how much to extend the Completion Date.

9.2 For the purposes of this clause, the following occurrences shall be valid for consideration:

Delay by:-

(a) force majeure, or

(b) reason of any exceptionally adverse weather conditions, or

(c) reason of civil commotion, strike or lockout affecting any of the trades employed upon the Works or any of the trades engaged in the preparation, manufacture or transportation of any of the goods or materials required for the Works, or

(d) reason of the Employer's Representative's instructions issued under these Conditions, or

(e) reason of the contractor not having received in due time necessary instructions, drawings, details or levels from the Employer's Representative for which he

specifically applied in writing on a date which having regard to the date for Completion stated in the appendix to these Conditions or to any extension of time then fixed under this clause was neither unreasonably distant from nor unreasonably close to the date on which it was necessary for him to receive the same, or

(f) delay on the part of artisans, tradesmen or others engaged by the Employer in executing work not forming part of this Contract or;

(g) reason of delay by statutory or other services providers or similar bodies engaged directly by the Employer, or

(h) reason of opening up for inspection of any work covered up or of the testing or any of the Work, materials or goods in accordance with these conditions unless the inspection or test showed that the Work, materials or goods were not in accordance with the Contract, or;

(i) reason of delay appointing a replacement Employer's Representative, or;

(j) reason of delay caused by the late supply of goods or materials or in executing Work for which the Employer or his agents are contractually obliged to supply or to execute as the case may be, or;

(k) Delay in receiving possession of or access to the Site.

10. Management Meetings

10.1 Contract management meetings shall be held regularly and attended by the Employer's Representative and the Contractor. Its business shall be to review the plans for the remaining Work. The Employer's Representative shall record the business of management meetings and provide copies of the record to those attending the meeting and the Employer. The responsibility of the parties for actions to be taken shall be decided by the Employer's Representative either at the management meeting or after the management meeting and stated in writing to all who attend the meeting.

10.2 Communication between parties shall be effective only when in writing.

11.Defects

11.1 The Employer's Representative shall inspect the Contractor's work and notify the Contractor of any defects found. Such inspection shall not affect the Contractor's responsibilities. The Employer's Representative may instruct the Contractor to search for a defect and to uncover and test any Work that the Employer's Representative considers may have a defect. Should the defect be found, the cost of uncovering and making good shall be borne by the Contractor. However, if there is no defect found, the cost of uncovering and making good shall be treated as a variation and added to the Contract Price.

11.2 The Employer's Representative shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the Appendix to Conditions of Contract.

11.3 Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified by the Employer's Representative's notice. If the Contractor has not corrected a defect within the time specified in the Employer's Representative's notice, the Employer's Representative will assess the cost of having the defect corrected by other parties and such cost shall be treated as a variation and be deducted from the Contract Price.

12. Bills of Quantities/Schedule of Rates

12.1 The Bills of Quantities/Schedule of Rates shall contain items for the construction, installation, testing and commissioning of the Work to be done by the Contractor. The Contractor will be paid for the quantity of the Work done at the rates in the Bills of Quantities/Schedule of Rates for each item. Items against which no rate is entered by the Tenderer will not be paid for when executed and shall be deemed to be covered by the rates for other items in the Bills of Quantities/Schedule of Rates.

12.2 Where Bills of Quantities do not form part of the Contract, the Contract Price shall be a lump sum (which shall be deemed to have been based on the rates in the Schedule of Rates forming part of the tender) and shall be subject to re-measurement after each stage

13. Variations

13.1 The Contractor shall provide the Employer's Representative with a quotation for carrying out the variations when requested to do so. The Employer's Representative shall assess the quotation and shall obtain the necessary authority from the Employer before the variation is ordered.

13.2 If the Work in the variation corresponds with an item description in the Bill of Quantities/Schedule of Rates, the rate in the Bills of Quantities/Schedule of Rates shall be used to calculate the value of the variation. If the nature of the Work in the variation does not correspond with items in the Bill of Quantities/Schedule of Rates, the quotation by the Contractor shall be in the form of new rates for the relevant items of Work.

13.3 If the Contractor's quotation is unreasonable, the Employer's Representative may order the variation and make a change to the Contract Price, which shall be based on the Employer's Representative's own forecast of the effects of the variation on the Contractor's costs.

14. Payment Certificates and Final Account

14.1 Payments shall be adjusted for deductions for advance payments and retention. The County government of Elgeyo Marakwet shall pay the Contractor the amounts certified by the Project Management Unit at least 30 days of the date of each certificate. The certification shall be through Project Management unit project verification meeting held at the project site.

14.2 The County government of Elgeyo Marakwet shall retain from each payment due to the Contractor the proportion shown in the appendix to Condition of Contract until Completion of the whole of the Works.

15. Insurance

15.1 The Contractor shall be responsible for and shall take out appropriate cover against, among other risks, personal injury; loss of or damage of the Works, materials and plant; and loss of or damage of property.

16. Liquidated Damages

15.2 The Contractor shall pay liquidated damages to the Employer at the rate **0.001 per cent** of the contract price per day for each day that the actual completion Date is later than the Intended Completion Date except in the case of any of the occurrences listed under clause 9.2. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.

17. Completion and Taking Over

17.1 Upon deciding that the Work is complete the Contractor shall request the Employer's Representative to issue a Certificate of Completion of the Works.

The Employer shall take over the Site and the Works within seven days of the Employer's Representative issuing a Certificate of Completion.

18. Termination

The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. These fundamental breaches of Contract shall include, but shall not be limited to, the following;

a) The contractor fails to possess the site within 60 days after being issued with a notification of award.
b) The Contractor stops Work for 30 days continuously without reasonable cause or authority from the Employer's Representative;
c) The Contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
d) The Employer's Representative gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time.

If the Contract is terminated, the Contractor shall stop Work immediately, and leave the Site as soon as reasonably possible. The Employer's Representative shall immediately thereafter arrange for a meeting for the purpose of taking record of the Works executed and materials, goods, equipment and temporary buildings on Site.

19. Payment upon Termination

The Employer may employ and pay other persons to carry out and complete the Works and to rectify any defects and may enter upon the Works and use all materials on Site, Plant, Equipment and temporary works.

The Contractor shall, during the execution or after the completion of the Works under this clause, remove from the Site as and when required within such reasonable time as the Employer's Representative may in writing specify, any temporary buildings, plant, machinery, appliances, goods or materials belonging to him, and in default thereof, the Employer may (without being responsible for any loss or damage) remove and sell any such property of the Contractor, holding the proceeds less all costs incurred to the credit of the Contractor.

Until after completion of the Works under this clause, the Employer shall not be bound by any other provision of this Contract to make any payment to the Contractor, but upon such completion as aforesaid and the verification within a reasonable time of the accounts therefore the Employer's Representative shall certify the amount of expenses properly incurred by the Employer and, if such amount added to the money paid to the Contractor before such determination exceeds the total amount which would have been payable on due completion in accordance with this Contract, the difference shall be a debt payable to the Employer by the Contractor; and if the said amount added to the said money be less than the said total amount, the difference shall be a debt payable by the Employer to the Contractor.

20. Corrupt Gifts and Payments of Commission

The Contractor shall not;

(a) Offer or give or agree to give to any person in the service of the Employer any gifts or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract with the Employer or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract with the Employer.

(b) Any breach of this Condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the Laws of Kenya.

21. Settlement of Disputes

Any dispute arising out of the Contract which cannot be amicably settled between the parties shall be referred by either party to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed by the chairman of the Chartered Institute of Arbitrators, Kenya branch, on the request of the applying party.

APPENDIX TO CONDITIONS OF CONTRACT

Name of Employer: **The County Government of Elgeyo Marakwet**

Address: **P.O Box 220 -30700, Iten**

Name of Employer's Representative: **Chief Officer-Lands, Water**, **Environment, and Natural Resources, P.O Box 220-30700, Iten.**

Name of Engineer: **Director Water and Sanitation**- **Department of Land, Water, Environment, and Natural Resources, P.O Box 220-30700, Iten.**

Name of Engineer's Representative: **Sub County Water officer, Keiyo North Sub County, P.O Box 250, Iten.**

The name (and identification number) of the Contract is; **Cheptarit Water Project (Rehabilitation of pipe line)** Tender No. ……

The Works consist of the works described in the Tender Documents.

The Start Date shall be as stated in the Engineer's or his representative's Notice to commence work.

The Intended Completion period for the whole of the Works shall be …….. Days (*Contractor to indicate period of construction)*

The following documents also form part of the Contract: **As stated in clause 2.1 of the Instructions to Tenderers**

The Site possession Date shall be date site is handed over by the Employer or his Representative.

The Site is located within **Kapchemutwa Location**, **Emsoo ward, Keiyo North sub county about 37 km from Chepsigot centre off the Chepsigot-Tot Road**.

The Defects Liability Period is **182.5 Days** from the date of practical completion.

Retention Money will be **10%** of the interim certificate with a limit of 10% of the Contract Price or such other sum as shall become payable **OR** as may be decided by the Engineer.

SECTION B:

STANDARD FORMS

FORM OF TENDER

…….. ..... (*Date)*

The Chief Officer,
Department of Lands, Water, Environment and Natural Resources,
County Government of Elgeyo Marakwet,
P.O Box 220-30700,
ITEN.

Cheptarit Water project (rehabilitation of pipe lines)

Contract No**. ……..**

Dear Sir,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named works, we, the undersigned having studied the documents offer to construct, install and complete such works and remedy any defects therein for the sum of Kshs…….. Kenya shillings……
   ……..
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 complete the whole of the Works Comprised in the Contract within the time stated in the Appendix to Conditions of Contract.
3. We agree to abide by this tender until……(*insert date*),and it shall remain binding upon us and may be accepted at any time before that date
4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive.
   Dated this……. Day of …….. 20……

   Signature…….. In the capacity of ……

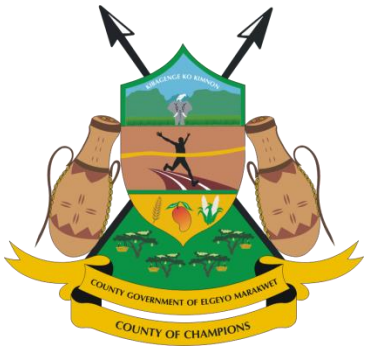
   Duly authorized to sign tenders for and on behalf of

   …….. (*Name & Company seal/Stamp of Tenderer)*
   of…….. (*Address of Tenderer)*

Witness; Name……..

Address……

*Signature……****Date ……***



COUNTY GOVERNMENT OF ELGEYO MARAKWET

LETTER OF ACCEPTANCE

…….. (*Date)*

To; …… (Name of the Contractor*)*

……

Dear Sir/Madam,

This is to notify you that your Tender dated……for **the rehabilitation of pipe line at Cheptarit water project.**

Tender No. ..... for the Contract price of Kshs……(Kenya Shillings…….Only) in accordance with the Instructions to Tenderers is hereby accepted.

You will commence works on receipt of the Employer's Representative order to do so. The Employer's representative (Also referred to as the '' Engineer'') under the contract will be The Chief officer-Lands, Water, Environment and Natural Resources.

A formal Contract Agreement will be drawn for your Signature in due Course. In the meantime you should signify acceptance of this offer in writing within Seven Days from the date of this letter together with a properly executed Performance Guarantee, from a reputable Bank, duly signed and sealed.

Please take the necessary action accordingly.

.....

The Chief Officer-Lands, Water, Environment and Natural Resources

County Government of Elgeyo Marakwet.

CONTRACT AGREEMENT

THIS AGREEMENT, made on the ……. Day of ……..2014 between **the County Government of Elgeyo Marakwet** of P.O BOX 220-30700, Iten (Hereinafter called ''the employer'') of the one part
AND……. (Full Name of Contractor) a company registered in Kenya under certificate No……., of P.O Box ……. (Hereinafter called ''The Contractor''), of the other part.
WHEREAS THE Employer is desirous that the Contractor executes the Construction of rehabilitation of **Cheptarit Water project (rehabilitation of pipe line)**

Tender No/ Contract No……

(Hereinafter called ''the Works'') located
at…….
And the Employer has accepted the tender submitted by the Contractor for the execution and completion of such Works and the remedying of any defects therein for the Contract Price of Ksh……..Kenya
Shillings……

(Hereinafter called the ''Contract Price'').

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e

   (i) Letters of Acceptance
   (ii) Form of Bid and Appendix to Form of Bid
   (iii) Conditions of Contract
   (iv) Specifications
   (v) Drawings
   (vi) Priced Bills of Quantities and the Prices inserted therein upon which Quotation is based.
3. In consideration of payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the contractor in consideration of the execution and completion of the Works and remedying of defects therein, the Contract price as such other

sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

For and on behalf of the Employer :(**The County Government of Elgeyo Marakwet**)

Name: …….. Signed: ……..

Chief Officer-Lands, Water, Environment and Natural Resources

County Government of Elgeyo Marakwet.

In the Presence of:

Name:…….. Signed: ……

Title: ……

For and on behalf of the contractor :(Name of Contractor)

Name: …… Signed: **.....**

(Company Seal/Stamp)Title: ……..

In the Presence of:

Name: …….. Signed: ……..

Occupation: ……

Address: ……..

……..

QUALIFICATION INFORMATION

Individual Tenderers or Individual Members of Joint Ventures

1.1 Constitution or legal status of tenderer (attach copy or Incorporation Certificate);

Place of registration: ……

Power of attorney of signatory of tender……

1.2 Total annual volume of construction work performed in the last **three** years

YEAR	**Volume(Currency)**	**Value**

1.3 Work performed as Main Contractor on works of a similar nature and volume over the last **three** years. Also list details of work under way or committed, including expected completion date.

Project name	Name of Client and Contact person		**Type of work**	**value of Work performed**	**Contract Year**

1.4 Major items of Contractor's Equipment proposed for carrying out the Works. List all information requested below.

Item of Equipment	**Description, Make and age (years)**	**Condition(new, good,** Poor) and number **available**	**Owned, leased (From whom?), or to be purchased (from whom?)**

1.5 Qualifications and experience of key personnel proposed for administration and execution of the contract. Attach biographical data.

Position	**Name**	**Years of Experience (GENERAL)**	**Years of Experience In proposed position**

1.6 Name, address and telephone, telex and facsimile numbers of banks that may provide reference if contacted by the employer.

……
……
……

1.7 Proposed program (work method and schedule) for the whole of the works.
(Include separate sheet for proposed programme of work etc)

TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of Tenderer;

……..

2. Full address of tenderer to which tender correspondence is to be sent (unless an agent has been appointed below);

……..

3. Telephone number(s) of tenderer;

……

4. Telex of tenderer;

……

5. Name of tenderer's representative to be contacted on matters of the tender during the tender period;

……
……..

6. Details of tenderer's nominated agent (if any to receive tender notices. This is essential if the tenderer does not have his registered address in Kenya (name, address, telephone, telex);

……

……

……

Signature of Tenderer and Company Stamp

CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in part 1 and part 2 (a), 2(b) or whichever applies to your type of business.

You are advised that it is a serious offence to give false information on this Form.

Part 1 – General

Business Name …….

Location of business premises; Town ……

Plot No …… Street/Road ……

Postal Address …… Tel No ……..

Nature of Business …….

Current Trade License No…… Expiring date…….

Maximum value of business which you can handle at any time; Ksh……..

Name of your bankers……..

Branch……

Part 2 (a) – Sole proprietors

Your name in full…….. Age…….

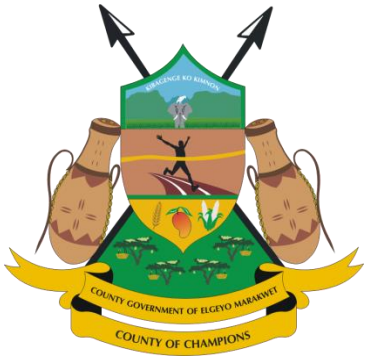
Nationality …….. Country of Origin ……..

Citizenship details ……..

Part 2 (b) – Partnership

Give details of partners as follows:

Name in full	Nationality	Citizenship details	Shares
1. ……	**……**	**……**	**……**
2……	**……**	**……**	**……**
3……	**……**	**……**	**……**



COUNTY GOVERNMENT OF ELGEYO MARAKWET

Ref. No …….. Date …….

Cheptarit Water Project (Rehabilitation of pipe lines)

Contract no ……

SITE HANDLING OVER

This is to Certify that the Contractor M/S ……(name of Contractor) has been handed over the above site by the Employer, **the County Government of Elgeyo Marakwet,** to carry out the works, as defined and stipulated in the Contract No…….to completion and maintenance, today, the ……Day of ……2015

On behalf of the Contractor

Name: ……..

(Contractors Authorized Representative)

Company Stamp……

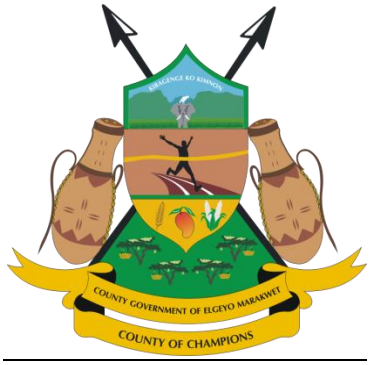
On behalf of the employer

Name: ……..

(**Chief Officer-**Lands, Water, Environment, and Natural Resources:(County Government of Elgeyo Marakwet)

Witnessed by:…….

(Sub county water officer)



COUNTY GOVERNMENT OF ELGEYO MARAKWET

CERTIFICATE OF TENDERER'S VISIT TO THE SITE

This is to certify that……

(Name of Tenderer or of his/her Representative)

of …….

(Name of the Firm Tendering)

Visited the site/s in connection with the Tendering for **Chebilat Water project (Rehabilitation of pipe lines)**

CONTRACT No. ……

1) Having previously studied the Contract documents, I carefully examined the sites.
2) I have made myself familiar with all the local conditions likely to influence the works and the cost thereof.
3) I further certify that I am satisfied with the description of the work and the explanations given by the said Engineer and that I understand perfectly the work to be done as specified and implied in the execution of the Contract.

Signed: ……

(*Tenderer or his/her Representative*)

Witnessed: ……..

(Sub county Water officer, Keiyo North*)*

Date: …….

SECTION C:

CONDITIONS OF CONTRACT

SECTION C.

2 SITE CLEARANCE

2.1 Clearance of Trees, Bushes, Scrub , etc

The contractor shall unless otherwise directed cut down all trees remove bushes, plantations, crops and other vegetable growth and grub up all roots, take down all hunts, buildings, wall fence and any other obstruction except services mentioned in Clause 1.15 and handle and transport salvaged and usable materials, to a site approved by the Engineer. All salvaged and usable materials are the property of the respective owners. The clearing and demolition here-in described shall be carried out to a width of the maximum excavation plus 1.50 m on either side.

With exception of the salvaged materials fore-mentioned, the Contractor shall destroy or otherwise remove the whole of the rubbish from the site to an approved tip or number of tips provided by him.

Trees shall be cut down to as near the ground level as possible and the rate entered in the Bill of Quantities shall include for cutting down, removing branches and foliage, cutting into suitable lengths, grubbing up stumps and roots, stacking up, burning or disposing off as directed.

Before commencing any site clearance, general clearance, clearance of pipelines etc., the contractor shall inform the Engineer's Representative of his intention. The Engineer's Representative will by visiting the section of works concerned, determine the extent of the clearance expressly required.

Payment for clearance will be authorized on the basis of what is expressly required and at the discretion of the Engineer's Representative.

2.2 Damaged to land, etc.

Except where necessary for the proper excavation of the Works, the Contractor shall not interfere with any fence, hedge, trees, land or crop forming the boundary of the site, or elsewhere. In the event of any interference, the Contractor shall make good any damage to such fence, hedges, trees, land or crop to the satisfaction of the Engineer and the owner thereof.

Where the work is to be executed in private land, the Employer will be responsible for negotiating and obtaining rights of way and the serving of all notices as may be required upon the owners and /or occupiers of the land and it shall be the obligation of the Contractor to keep the Employer and the Engineer fully informed concerning the rate of progress and of his intension to enter and begin work with any way leave as provided for under the Conditions of Contract and required by this Specification.

2.3 Clearing the Site on Completion

On completion of the Work, the Contractor shall clear the Site of all plant, building, spoils, dumps rubbish, etc. and leave the site to the satisfaction of the Employer.

Borrow pits and temporary quarries shall be made good and covered with vegetable soil. Dumps for waste materials shall be covered with at least 0.5m of Soil of which at least a 0.1m layer in top shall be vegetable soil.

3 EARTHWORKS.

3.1 General

Excavation shall be made to such lengths, depths and inclinations as may be necessary for construction of the works or as shown on the drawings or as the Engineer may direct.

3.2 Definitions of Materials

For the purpose of these specifications, materials of earthworks are defined as follows:

a) **ROCK:** Solid mass of mineral material, exceeding 0.25 m cubic metres in volume, such hardness and texture that it cannot be broken down with hand-drifting pick.
b) **COMMON MATERIAL:** All earth materials which do not meet the common requirement of rock as defined in “ROCK” above.

3.3 Classification of Excavation

The Engineer or his representative and the Contractor or his representative shall be present during classification of materials.

Where the terms ‘’Rock excavation’’ and “Common excavation’’ or “Excavation’’ are used in these specifications the following definitions shall apply.

3.3.1 Rock Excavation

Rock excavation includes all solid rock in place which cannot be removed until loosed by blasting, barring, wedging, and all boulders or detached pieces of solid rock more than 0.25 cubic metres in volume. Solid rock under this class is defined as sound rock of such hardness and texture that it cannot be loosened or broken down by hand-drifting picks.

All materials containing more than 50 per cent by volume of boulders exceeding 0.25 cubic metres in volume shall be classified as rock excavation.

3.3.2 Common Excavation

Common excavation includes all materials other than rock excavation including, but not restricted to earth, gravel, and also such hard and soft or disintegrated rock together with all boulders or detached pieces of solid rock not exceeding 0.5 cubic meters in volume.

3.4 Stripping of Topsoil

3.4.1 Stripping

Stripping shall consist of removing transporting and disposing of topsoil, stumps, roots buried logs, debris humus and similar objectionable matter. Areas to be stripped are all areas required for permanent constructional works, borrow-pits and embankment fills. The limits of stripping shall extend 2 metres beyond the limits of excavation or toes of fills. The depth of stripping shall normally be o.2m, but deeper stripping might be needed to remove stumps.

3.4.2 Disposal

Materials from stripping suitable as topsoil shall be spread in approved areas. All other non-combustible materials shall be buried in approved disposal areas.

e, covered with minimum of 0.5m of excavation spoil. These disposal areas shall be left with neatly graded surfaces and stable slopes that assure drainage. Alternatively, the non-combustible materials shall be removed from the area by the contractor.

3.5 Excavation in Open Cut

3.5.1 General

All open cut excavation shall be performed in accordance with this section to the lines, grades and dimensions shown on the drawings or as directed by the Engineer. The Engineer reserves his right to at any time during the progress of the work to vary the slopes or dimensions of the excavation from those previously specified.

All necessary precautions shall be taken to preserve the material below and beyond the lines to all excavation in the soundest possible condition. Any damage to the work due to the Contractor's operations, including shattering of the material beyond the required excavation lines, shall be repaired at the expense of and by the Contractor. Any and all excess excavation for the convenience of the Contractor for any purpose or reason, except as may be ordered in writing by the Engineer and whether or not due to the fault of the contractor shall be at the expense of the Contractor. Where required to complete the work, all such expense of the Contractor. Where required to complete the work, all such excess excavation and over-excavation shall be filled with compacted concrete Grade concrete 10 furnished and placed at the expenses of and by the Contractor.

All excavations for structure foundations shall be performed in the dry.

If excavations are carried out in roads, footpaths, separators or within 5m of buildings, the Contractor is requested to execute the work in a way that will minimize damage and disturbances. In general vertically sided excavations will be required in such places and the necessary timbering or other support must be provided. The Undercutting of excavation sides will not be permitted.

The Engineer reserves his right to direct the contractor as to the length of trenches or parts of bulk excavations which shall be opened up at any one time. In case of excavations in roads, and in other cases which in the opinion of the Engineer are likely to cause interference to the public, the Contractor shall organize his operations in such a way as to reduce to a minimum the interval between opening up and Backfilling the excavations.

No permanent work shall commence until the Engineer has inspected and approved the excavation.

3.5.2 Mechanical Excavation

a) A mechanical excavator shall be employed only if the sub-soil is suitable and will allow timbering of trenches or other excavations to be kept sufficiently closed up to ensure that no slips fall or disturbance of the ground takes place or there are no pipes, cables, mains or other services or property which may be disturbed or damaged by its use.
b) When mechanical excavators are used, a sufficient depth of materials shall be left over the bottom of the excavation to ensure that the ground at finished excavation level is not damaged or disturbed in any way. The excavations shall then be completed by hand to the finished levels required.

3.5.3 Rock Excavation

The Contractor shall notify the Engineer on each occasion when he considers that he is entitled to payment of excavation in rock and shall not fill in any excavation concerned, until it has been inspected by the Engineer.

No payment for excavation in rock shall be made unless the Engineer has inspected the excavation and certified in writing the quantities involved.

The Contractor shall trim all rock faces in cutting according to the dimensions shown on the drawings and upon completion leave them safe from rock falls to the satisfaction of the Engineer.

On any work requiring the use of explosives, the Contractor shall employ men experienced in blasting and these men must be in possession of current blasting certificate. The purchase, transport, storage and use of explosives shall be carried out in accordance with the most recent Explosives Ordinance and rules issued by the Government, and Contractor shall allow in his rate for excavations and quarrying, for all expenses incurred in meeting these conditions. Blasting shall be carried out with as little interference as possible to traffic or persons and the rates shall include for all flagging, watching, barricade and clearance of debris and the contractor shall take all practical precautions for the protection of persons, properties and the Works.

Slopes shattered or loosened by blasting shall be taken down at the expenses of and by the Contractor. The Contractor's blasting and other operations in excavation shall be such that they will yield as much suitable material as possible for the construction.

3.5.4 Foundations for Structures

a) Common Materials:

The bottom and side slopes of common material upon or against which concrete is to be placed shall be finished accurately to the established lines and grades, and loose materials on surfaces so prepared shall be moistened with water and stamped or rolled with suitable tools and equipment to form a firm foundation for the concrete structure. If, at any point in common material, material is excavated beyond the established excavation lines, for any reason except by written orders from the Engineer, then the over-excavation resulting voids shall be filled with consolidated concrete Grade 10 at the Contractors expenses. If the excavation is carried out in advance a protective layer of 150 mm thickness shall be left above the foundation level immediately before the Contractor is ready to pour the blinding concrete.

b) Rock Materials:

The bottom and side slopes of rock material upon or against which concrete is to be placed shall be excavated to the required dimensions as shown on the drawings or established by the Engineer. No Material Will be permitted to extend within the neat lines of the structure. If, at any point in the rock material, material is excavated beyond limits required to receive the structure, the additional excavation shall be filled solidly with concrete Grade 10.

All soft or loose material shall be removed by the use of stiff brooms, picks, hammer or jets and any cavities backfilled with concrete Grade 10, grout or compacted rock fill as directed.

C) Level and dimensions of Foundations:

Levels and dimensions of foundation shown on the drawings may be changed by the Engineer to suit actual site conditions. The additional volume shall be measured net and paid according to the rate in the Bills of Quantities.

3.5.5 Trench Excavations for Pipe Laying

All surface materials including top soil which differs in any nature whatsoever from the sub-strata shall in every case be carefully set aside and stored separately from other excavated material. No extra claim will be allowed for setting aside surface mater or topsoil for later use.

Trench excavation shall be carried out with great care, true to line and gradient and as near as practicable to the size required for construction of the permanent work. Nowhere shall be external dimensions of the excavations be less than the dimensions of the permanent work shown on the Drawings or directed by the Engineer.

If the bottom of the excavation becomes weathered prior to pipe lying due to fault of the contractor, the weather soil shall be replaced with suitable compacted material to the original formation level at the contractor's expenses. The pipe trench shall be excavated to a depth of 150 mm below the invert level

of the pipe and refilled with sand, gravel or other selected material free from stones and well rammed in order to provide a smooth bed for the pipes.

Where concrete pipes are laid in concrete, the pipe trench shall be excavated to a depth of 150mm below the invert level or the pipe and the width shall be equal to breath of concrete bedding for the pipes plus 150 mm on either side.

Excavation for pipe trenches shall be of sufficient depth to give a minimum cover of 800 mm below over the top of the pipe. Where pipes/sewers cross under roads, minimum cover shall be 1 mm or such cover as may directed by the Work Authority.

Where the pipeline is required to be laid at depth, which does not satisfy the minimum cover conditions set out above, the ground surface shall be brought up to the required level by banking the backfill or as directed by the Engineer.

No pipes shall be laid and no excavation filled in or covered with concrete until the formation has been inspected and permission to proceed with the work obtained.

Where P.V.C or Polythene pipes are being laid, the bottom of the trench must be completely free from stones, and a smooth bed of fine material must be provided. Where the bed of the trench for P.V.C of polythene pipes is excavated in rock, it must be excavated to a depth of not less than 100mm below the bottom of the pipe, and refilled with selected fine granular material to make a smooth bed for the pipe.

The width of the trench to be excavated will depend on the size and type of pipe being laid. Sufficient width must be excavated to allow the pipe to be correctly bedded and aligned, and to allow for the joints to be correctly made. Generally, the grade of the pipe will conform to the grade of the ground, but the excavation must be deepened where necessary to avoid backfill in any section.

Generally, the pipeline will slope downwards. Minimum gradients are shown on the drawings.

Any Excavated material stored on site for Backfilling or other purpose shall be deposited alongside the excavation at a minimum distance of 0.5m on such a manner that it will cause no damage and as little inconvenience as possible.

3.5.6 Timbering of Excavations

The Contractor shall supply and fix aside the limits of the permanent works all the timber necessary for support of sides and bottoms of the excavation, for security of adjacent structures and properties and for every other purpose for which it may be required, all to the satisfaction of the Engineer. The Contractor shall maintain such supports until in the opinion of the Engineer, the works is sufficiently advanced to permit the withdrawal of the support. Such withdrawal shall be executed only under the personal supervision of a competent foreman.

The Engineer may order excavations to be timbered or to be closed timbered or may order timbering to be driven ahead of the excavation, or may order the adoption of any other method of supporting the

sides and bottoms of the excavation as may appear to be necessary, and the Contractor shall not relieve the Contractor of his responsibility.

Any instruction given by the Engineer will be directed to the provision of stronger support than that proposed by the contractor, and will be given only when, in the opinion of the Engineer, the support proposed by the Contractor is insufficient.

Where timber has been used in excavation any such timber left in position shall be at the expense of the contractor except where the Engineer has ordered the timber to be left in place with the prior approval of the Engineer. The timber approved or ordered to be left in place will be paid for at the rates entered in the Bills of Quantities.

For the purpose of this clause the words ''timber" and timbering be construed to include trench sheeting and steel or concrete sheet pilling or any other means adopted by the Contractor for supporting excavations.

3.5.7 Excavation to be kept Free from Water

Where excavations are required below the existing Water level, the contractor shall make arrangements to keep the excavation dry and shall produce drawings and written explanations of the method to be used to enable the engineer to determine the adequacy method, before commencing the excavation.

Where Contractor shall give due regard to the possibility of floods and provide all pumps, timbering, coffer dams, sheet piling and other equipment necessary for keeping the excavations free from water.

Every precaution shall be taken not to diminish the bearing capacity of the soil below foundation. Well points or pump pits are to be outside the foundation area to prevent flows in upward direction.

All sumps and drains are to be filled in or otherwise made good as directed by the Engineer on completion of the relevant part of the works.

The costs of all the above precautions shall be allowed for in the rates inserted in the Bills of Quantities.

3.5.8 Refilling Excavations

No Backfilling or refilling shall commence without the Engineer's approval

The refilling of excavation shall be commenced as soon as practicable after the permanent works have been tested where so required and inspected and approved by the Engineer. In Particular, the back filling of trenches shall be carried out expeditiously to reduce lengths of trenches open at any one time.

As soon as **uP.V.C**.or polythene pipes are laid and joined in their final positions, they should be protected from possible damage by carefully back filling of line with granular material brought up to about 150 mm over the top of the pipe, for the full width of the trench, and well compacted.

Joints must be left open for inspection until the pressure test is completed.

Backfilling shall be executed with selected materials in 150mm layers (300mm layers if a mechanical hammer is used) each layer being well rammed and watered to obtain maximum compaction. Care shall be taken to ensure that no stone or other work is placed within 300 mm of such work.

Water in excess shall not be used in settling of the back filling.

Back filling over steel pipes shall be generally as described above, except that the initial protective filling around the pipe is not necessary.

Regardless of the means of backfilling adopted, it is the Contractor's responsibility to ensure that he satisfactorily backfills all excavations and causes no damage to permanent work or adjacent structures , and he shall at his own expense take all steps necessary to comply with this obligation.

The Contractor shall at all times be responsible for damage caused to permanent work through his back filling operations or throughout his premature opening to traffic of a backfilled surface.

3.5.9Reinstatementof Surfaces

Generally all trenches and backfilled excavations shall be reinstated to equal surface as before excavation.

Trenches in any existing road shall be filled to the level of natural soil below the road with sub-soil in 75mm layers, each layer being carefully tamped with hammers. The remaining top layer shall be filled to the road surface with materials equal in type, quantity and compaction to materials used for the existing road.

The trench shall then be left to settle for 30 days. At the expiration of this period, the surface shall be made up to level and tamped or rolled to the approval of the Engineer, who will decide on the particular surfacing employed in accordance with the existing surface of the road.

Before expiration of the maintenance period, the Contractor shall make good any defaults in reinstatements.

3.5.10 Removal of Surplus Excavated

Excavated material, which is not added either for backfilling trenches or other excavations or use in embankments or otherwise, shall be removed and disposed of to tipping places obtained by the Contractor. All rubbish and waste material shall similarly be removed by the Contractor. All surplus excavated material shall be spread and levelled in the tipping places in accordance with such directions as the Engineer may give, and the Contractor's rate for disposal shall include for the costs of such operations.

The contractor shall take every practical precaution against causing any nuisance, damage, injury or inconvenience in handling stacking, carting or disposal of excavated materials or any other operations matter or thing in connection therewith.

No excavated material shall be placed in any position here it may be washed away or may be liable to fall or spread into any private property or across a road or footpath, should such occur, the Contractor shall forthwith remove the same at his own costs.

Should the Engineer direct the Contractor to tip surplus excavated materials in a particular place (other than the tipping places obtained by the Contactor) the Contractor shall abide by such instruction and shall make no charge in consequence thereof unless the place specified entails a longer haul than what would be incurred by tipping at the place or places obtained by the Contractor.

Where excavations lines are not shown on the drawings, the excavation will be measured to the most practicable lines, grades, and dimensions as directed by the Engineer.

Where excavations lines are not shown on the drawings, the excavation will be measured to the most practical lines, grades, and dimensions as directed by the Engineer.

In the case of bulk excavations, the Contractor shall unless otherwise directed by the Engineer prior to the commencement of any excavation prepare grid plans of the various sites showing the existing ground levels at intervals of not more than 10m. For any particular part of excavations the mean ground level shall be determined from the above aforesaid grid plan and the depth shall be calculated from the above mean ground level.

Pipe trenches are measured in linear metres as one item for each pipe size with a minimum width and depth as indicated on the drawings. Extra excavation for deeper trenches will be measured on cubic metres and paid for where ordered by the Engineer.

Rates for excavation shall include for all labour, equipment; preparation of bottoms for receiving concrete or granular soul beds; for forming joint holes where applicable, for preserving surfaces of excavation; for returning excavated material as rammed backfill and for carting away surplus to dump.

Rate for excavation shall also include for working in a manner that causes no interference with the stability of adjacent structures and properties, for the cost of all timber or other support left in place unless ordered or approved to be left in place by Engineer, for ground stabilization by means of de-watering, chemical processed or other approved method whether effected by floods, storms or otherwise; for the provision and sealing of temporary channels, drains and dumps; for temporarily storing excavated materials required for backfill or other purposes; for temporarily supporting, protecting, diverting, maintaining utility services; for maintaining flows in sewers and water found necessary for the proper execution and safety of the works.

Further, the rates in the Bills of Quantities for excavation in open cut shall include the entire cost of:

a) Transportation of material from the excavation to points of final use, to disposal areas, to temporary stockpiles and from temporarily stockpiles to points of final use.
b) Re-handling excavated materials which have been deposited temporarily in stockpiles.

c) Removal of oversize materials from otherwise suitable material disposal for the same.

No extra payment shall be made to the contractor for working in confined space or if the position of the works as set out or ordered will not allow the use of mechanical excavators.

50% of the rate for excavation, backfilling and disposal of surplus material will become due for payment when trenches have been backfilled to a dept of 150 mm over the pipe barrel. Excavation for structure foundations will be authorized for payment of 50% of the rate, when the excavation has been approved and the surface blinded.

3.6 Borrow Pits

No borrow pits will be allowed to be opened on the site unless permission in writing has been obtained from the Engineer.

Before the excavation of an approved borrow pit is commenced, the Contractor shall clear the surface and strip the topsoil in accordance with Clause 3.4.

Borrow excavation shall be regular in width and shape and shall be properly graded and drained and finished with neatly trimmed slope, and if so directed soiled and grassed.

The Contractor shall not be entitled to any additional allowance above the unit prices on accounts of any changes ordered by the amounts of materials to be secured from any borrow area, or on account of the designation by the Engineer of the various portions of the borrow areas from which materials are to be obtained, or on account of the depths of cut which are required to be made.

Measurement for payment of excavation in borrows areas will only include for the quantities of materials utilized for construction of embankments etc. Any costs of excess excavated material, except if directed by the Engineer shall be borne fully by the contractor.

3.7Hardcore Filling

Hardcore fill shall consist of clean hard broken stone or rubble with measurements not exceeding 150 mm in any one direction with sufficient murram added to fill the interstices. The hardcore shall be well packed, rammed and where possible rolled with a 5 ton a roller. Where rolling is impossible, compaction shall be by hand or by mechanical tampers. Before any concrete is laid on hardcore, the hardcore shall be levelled and blinded with fine stone chipping, rolled and watered as necessary. Hardcore filling is measured after compaction.

3.8 Earth Filling

3.8.1 General

Earth not suitable to be used in filling may at any time be rejected by the Engineer. If there is a deficit of soil, the Contractor shall from approved borrow pits supply selected material in the ordered amount.

Before commencement of filling, the topsoil shall be removed, if so ordered by the Engineer. The removal of this layer will be separately priced in the Bills of Quantities. The Contractor shall carry out the forming of embankments in accordance with the drawing and shall adhere to the slopes, levels, depths and heights shown thereof.

Before earth filling, the sand or gravel bedding of the pipes, according to the drawings shall be made. Soil filled to 50mm over the top of pipes shall be free from stones and be filled in by hand with the utmost care to avoid replacement of pipes.

3.8.2 Compaction of Fill

The 500mm fill over the pipe shall be compacted carefully by hand. In other areas, after removal of topsoil as specified, fill material shall be spread in even layers over the full width of the area to be filled. Each layer shall not exceed 300mm in thickness after compaction.

The Water content of the earth fill material prior to and during compaction shall be distributed uniformly throughout each layer of the material. The allowable ranges of placement water content are based on design considerations. In general, the average placement water content will be required to be maintained at the Proctor Laboratory Standard Optimum Condition. This standard optimum water content is defined as ''that water content which will result in a maximum dry unit weight of the soil when subjected to the standard proctor Compaction Test''.

Proctor compaction tests are to be carried out in accordance with BS1377 and the Contractor shall provide the Engineer with facilities to carry out such test, or cover the cost of tests carried out elsewhere.

As far as practicable, the material shall be brought to the proper water content in the borrow pit before excavation. Supplementary water, if required, shall be added to the material by sprinkling on the earth fill and shall be mixed uniformly throughout the layer.

Compaction of fill shall be carried out to 95 percent standard proctor if not otherwise indicated on the drawings.

The number of tests to be made shall be agreed upon by the Engineer and the Contractor at Commencement of the work.

The machinery the Contractor intends to use for compaction (Pneumatic, vibrating, static or other rollers) must be approved by the Engineer before employment.

The Contractor shall take care that each separate layer is formed with side slopes to ensure that water cannot gather on the surface, thus causing softening of the soil. Compaction shall start from the side of the embankment and continue towards the middle.

On Completion of the embankment to information level and stipulated side slopes, the layer of topsoil mentioned in clause 3.9 shall be applied.

Earth fill is measured after compaction.

3.9 Grass Planting and Top Soil

Top soil shall be selected vegetable soil, well compacted and expect where otherwise specified of 150 mm thickness.

The Contractor shall trim the faces of the side slopes to open channels and elsewhere where directed to the dimensions, inclinations and curves shown on the Drawings, remove all excess material and make good all depressions with suitable material.

Where instructed by the engineer, the Contractor shall plant Kikuyu or other approved grass at the rate of16 plants per m corresponding to 250mm c/c.

The Engineer shall satisfy himself that natural growth of grass will not take place within a reasonable time before instructing the Contractor to grass specified areas.

The Contractor shall be responsible for obtaining suitable grass plants and for making all necessary arrangements with the owners and /or occupiers of the land from which they are to be obtained. The Contractor shall be responsible for the preparation of the embankment for the planting, and for maintaining adequate grass cover and necessary watering during the Contract and maintenance period.

Top soiling and grassing are measured in square metres.

3.10 Ant - Proofing

Where an ant-proof course has been specified, it should be made by application of Rentokil termite soil concentrate or equal dilute one part concentrate to forty parts water (by weight) at the rate of5 litres solution to 1sq. metres to the whole area of the building immediately before (36 hours maximum)the concrete is poured. Additionally to all critical areas, i.e. both sides of wall foundations, piers and porches the application should be 5 litres per running metre. Treatment should not be made when the soil is excessively wet. Precautions should be taken to prevent disturbance of the treated areas before they are covered.

Ant-proofing is measured in square metres.

4 CONCRETE WORKS

4.1 All materials and workmanship for concrete shall comply with BS 8110 and BS 8007 where applicable.

4.2 Materials and Tests

4.2.1 Cement

Cement shall be ordinary Portland cement complying with BS 12. The cement shall be delivered in properly sealed, unbroken bags.

Rapid hardening Portland cement complying with BS 12 may be used with the approval of the Engineer.

Quantities in excess of one ton shall be stored in a water-proof shed with a raised floor. The cement shall be used in the order in which it has been received.

Quantities of less than one tone for early use may be stored on a raised floor and covered by water-proof tarpaulin.

Any cement damaged by water or proving defective shall be removed from the site immediately.

4.2.2 Aggregates for Concrete

The aggregates shall comply in all respects with the requirements of BS 882.

The aggregates shall be free from dust, decomposed material, clay, earthly matter, foreign substances or friable, then or laminated material. The fine aggregate shall be of approved river sand.

Coarse and fine aggregates shall be stored on the sites in separate heaps so that no possibility of any intermixing of the two shall occur. Any materials, which have become intermixed, shall be removed by the Contractor forthwith.

A sample of all aggregates shall be delivered to the site for the approval of the Engineer, and it shall remain on the site until all concrete work is finished.

Should the Engineer so require, the Contractor shall furnish a certificate from an approved testing laboratory in connection with each source of fine and coarse aggregate showing that materials comply with the specifications. All such testing shall be carried out at the Contractor's expenses.

4.2.3 Water

All water to be used for concrete, mortar and curing shall be of good drinkable quality, free from humus acid, chemicals, salts or other matters that in any way whatsoever, may be harmful to the concrete either by diminishing the strength or causing a discoloration of the concrete.

Generally, water from Public mains shall be used, but if this is not possible, the Contractor shall obtain water from other sources approved by the Engineer. The Contractor may be requested to provide test analysis according to BS 3148 from an approved laboratory.

4.2.4 Admixture

Admixture of any kind of accelerating the setting of cement, plasticisers, water proofers, etc. shall not be used except by written permission of the Engineer. The contractor must request supply all details of any admixture.

4.2.5 Concrete Mixture

Concrete shall be" Designed Mixes'' for reinforced concrete and "Nominal Mixes for mass Concrete" to BS 8110 and used as shown on the drawings and in the Bills of Quantities. The Concrete mixes, maximum aggregate sizes, maximum water/cement ratio and minimum cement content shall be in accordance with the following table.

Concrete Grade	Maximum size of Coarse Aggregate	Minimum Cement Content	Maximum Water/ Cement Ratio
10	40mm	210 kg/m^3	
15	40 mm	250 kg/m^3	
20	20 mm	350 kg/m^3	0.5
25	14 mm	390kg/m3	0.5

4.2.6 Trial Mixes

The actual concrete mixes shall be determined prior to starting of concrete works according to BS 8110.

For each grade of concrete three separate batches shall be made using the actual aggregates

The workability of each of the trial batches should be determined and two times three cubes made from each batch for test at 7 days and 28 days.

The average strength of the nine cubes shall exceed the following values.

Concrete grade	Minimum average Of 9 cubes at 7 days	Minimum average Of 9 cubes At 28 days
20	21 N/MM^2	31.5N/MM^2
25	24.5N/MM^2	36.5N/MM^2

For the trial mixes the mix proportions shall be specified under clause 6.3 of BS 8110

4.2.7 Testing of concrete shall comply with BS 8110

All test cubes shall be manufactures, cured and tested as detailed in BS 1881.

The Contractor shall provide at his own expense all the necessary labour, equipment, moulds, transport, etc, required for manufacture of the test cubes. All test cubes requested by the Engineer shall be tested by Ministry of Works, Materials Branch, and the contractor shall allow in his rates for concrete for all costs in relation with the test cubes.

Should the Contractor require independent tests, he shall make them at his own expense, and the results of such tests shall not be valid unless test cubes are manufactured in the presence of the Engineer and tested by an approved agency and to the requirements in all details of the BS mentioned above.

Sufficient moulds and equipment shall be provided to enable a minimum of six test cubes to be prepared on each day when concrete is being mixed or such other number as the Engineer may direct. The Contractor shall be responsible for delivery of the test cubes to the Ministry of Works, materials Branch or other approved testing laboratory.

The Precise location of the concrete, which the test cubes represent, and the time of placing, shall be noted on the drawings or elsewhere.

Where the concrete in the work is compacted by mechanical vibration, and where the concrete in the work is compacted by hand, the test cubes shall also be compacted by hand as specified in BS 1881.

The Engineer may in the Laboratory make test cubes for any purpose from site materials, and the contractor shall supply such materials as required free of charge.

The test cubes shall be store at the site of construction at a place free from vibration under damp sacks for 24 hours after which time they shall be removed from their moulds, marked and buried in damp sand water until the time for delivery to the testing laboratory.

The cubes shall then be placed in damp sand or another suitable damp material and sent to the testing laboratory, where they shall be similarly stored until the date of test. Test cubes shall be kept on the site for as long as practicable but for at least three-fourths of the period before testing, except for tests at ages less than seven days.

4.2.8..Standards for Acceptance of Cube Tests.

The results of all cubes shall be accepted by the Contractor and Engineer as true results of the crushing strength of the cubes. The cube strength shall be calculated from the maximum load the maximum load sustained by the cube at failure.

The appropriate strength required may be considered to be satisfied if the requirements in BS5328: Part 4, clause 3.16, is fulfilled.

If the tests fail to give the required strength, further testing of the concrete shall be carried out. If these tests fail to prove the strength of the concrete used, the contractor shall at his own expense remove and remove and replace all such concrete as directed by the Employer.

4.2.9 Slump Tests

Concrete Consistency shall be determined by a test carried out in accordance with BS 1881 and at the Contractor's expense.

Unless otherwise specified by the Engineer, the following are the slumps for the particular class of work.

	Compaction vibrator by	Compaction hand
Reinforced concrete		30 to 60 mm
Mass concrete	0 to 30 mm	30 to 80 mm

Concrete having a slump test value exceeding the values here-in specified may be rejected by the Engineer.

4.2.10 Steel Reinforcement

Steel for reinforced concrete shall be stored under cover clear off ground and shall comply with BS 4449, BS 4461 and 4483.

All steel reinforcement shall be supplied by an approved manufacturer, and the Contractor may be required to obtain a manufacturer's test certificate in respect of steel reinforcement supplied. In the absence of such a test certificate, the Contractor may be required to submit samples to be tested at the Contractors expense in such a manner as the Engineer may determine.

4.3 Pre-cast Concrete Units

Pre-cast concrete shall be cast in properly made strong moulds true to the shape required. For work described "Finished fair" the moulds shall be lined hardboard, sheet metal or other approved material.

The Concrete shall be thoroughly tamped in the moulds and shall not be removed from then until 7 days after placing the concrete, but the sides may be removed after 3 days, provided the moulds are such that the sides are easily removable without damaging the concrete.

The pre-cast work shall be cast under sheds and shall remain under same for 7 days in the moulds and further 7 days after removal from the moulds. During the whole of this period the concrete shall be shielded by sacking or other approved materials kept wet. It shall then be removed from the sheds and stacked in the open for at least 7 days to season.

All pre-cast work shall be cast in lengths convenient for handling unless otherwise described. Prices are to include for handling reinforcement, hoisting fixing and bedding in cement mortar, and for finishing exposed surface fair where described.

4.4 Workmanship

4.4.1 Inspection of Reinforcement and Formwork

No concreting shall commence until the reinforcement and formwork have been inspected and approved by the Engineer, reinforcement in walls and columns shall be inspected and approved before being enclosed in the formwork. Before concreting any part of the work, the Contractor shall give at least 24 hours notice in writing to the Engineer and obtain his approval

4.4.2 Mixing of Concrete

Concrete for grade 20 and grade 25 shall be mixed by weight batching only, unless approval has been obtained from the Engineer for the concrete materials to be mixed by volume. Concrete for grade 10 and 15 can be mixed by volume.

The weight of coarse and fine aggregates in each batch shall be so computed that batch contains one or more full 50kg bags of cement.

All concrete is to be mechanically mixed in a batch mixer of an approved type. The dry materials for concrete shall be mixed in the mixer until a uniform colour is obtained after which the gauged quantity of water shall be gradually added. After all the water has been added, the mixer shall continue to mix for a period of not less than two minutes.

The mixers shall be equipped with an adjustable device capable of supplying a predetermined amount of water.

On the completion of each mixed batch of concrete, the mixer drum shall be completely emptied before a fresh batch is placed therein. On the cessation of work, the mixer add all handling plant shall be washed out and shall always be left clean and free from hardened concrete.

Any mix considered to be unsatisfactory by the Engineer for any reason, will be discharged to waste at the Contractor’s expense, as and where directed by the Engineer, well clear of all mixed and placing operations in such a manner as to avoid the risk of defective concrete being incorporated in the Works.

The Mixer shall be maintained in a first class condition throughout the Contract and any mixer or plant, which is faulty in any respect, shall not be used. The drums of all mixers shall resolve at the speed recommended by the makers. A mixer which has been out of use for more than 20 minutes shall be thoroughly cleaned out before any fresh concrete is mixed.

The Contractor shall always have one spare mixer ready on the site to avoid interruption in the mixing a casting of concrete.

4.4.3 Transport and Placing of Concrete

Concrete shall be transported in a manner which will avoid a segregation of the constituent material, and placing in the forms shall be completed before the concrete has been taken its final set. In no case shall concrete be placed in the Works more than 30 minutes after mixing. Concrete shall not be dropped through a height greater than 1.2m. Chutes may be used if they are constantly kept free from coatings of hardened concrete or other obstructions. Pumping of concrete through delivery pipes may be used, but only with the prior approval of the Engineer.

Concrete of any unit or section of the work shall be carried out in one continuous operation, and no interruption of the concreting will be allowed without the approval of the Engineer.

The concrete shall be placed in layers as directed by the Engineer over the whole area to be concreted and the second layer shall not be commenced until the first is completed. Sloping beds will not be allowed when placing concrete. Should any accidental segregation occur, the affected area shall be thoroughly turned over by hand until a homogenous mix has been obtained?

When concreting walls and columns, the mix proportions of the first 250mm depth of concrete placed in contact with the horizontal joint should be adjusted by reducing the amount of coarse aggregate.

4.4.4 Compaction

After the concrete has been placed in a position it shall be placed by vibration with a rigid poker type with internal vibrator approved by the Engineer. The Concrete shall be worked well up against the form, joints and around the reinforcement and be free from voids and other imperfections. Under no circumstances shall the concrete be shifted or transported inside the form with vibrator

The Contractor shall always have one spare vibrator ready on the site to avoid interruption in the mixing, casting and vibrating concrete.

In the case of reinforced concrete, a competent steel fixer shall be in constant attendance during the placing of concrete to adjust and correct the position of the reinforcement, if so required, immediately before the concrete is placed. In no case shall the vibrators be attached to or be allowed to come into contact with the reinforcement.

Each freshly placed layer of concrete must be thoroughly compacted and worked into the preceding one but care shall be taken that no damage is done to previous work that has already set. Excessive compaction of concrete shall be avoided.

The upper surface of slabs shall be compacted by an approved external vibrator.

4.4.5 Placing of Concrete under Water

Concrete shall only be placed under water with the prior approval of the Engineer who shall likewise approve the method to be used and the precautions necessary to prevent loss of material. In no circumstances shall concrete be dropped or placed in water in a loose condition or be placed in flowing water. In all cases the cement content shall be increased by 25 per cent for each class of concrete at the Contractor's Expense.

4.4.6 Placing of Concrete on Earth Surfaces

Earth surfaces on which concrete is to be placed shall be clean, firm and free from standing or flowing water. After the excavation has been completed to the approved lines levels and

4.4.7 Construction and Expansion Joints

The position and arrangement of construction joints shall be rebated to form a key with subsequent work. Concreting of any unit or section of the work shall be carried out in one continuous operation up to construction joints and no interruption of the concreting will be allowed without approval.

Where shown on the drawings construction and expansion joints shall be provided with water bars of **P.V.C**. or other approved material. The widths and shapes of the water bars shall be as specified on the drawings and all joints shall be sued. The trade mark of the water bars shall be approved by the Engineer before commencement of work, and fixing and joining of water bars shall be approved by the Engineer before commencement of work, and fixing and joining of water bars shall be approved by the Engineer before casting.

The fusing of water bars shall be performed in a way so as to secure that the two bars joined over the entire width. The fused joint shall be able to withstand tension and shall be intact after 10 consecutive bending. The Engineer may request that the fusing is carried out by specialists.

Where shown on the drawings, joints shall be provided with a joint sealing compound. The sealing compound shall be a two component polysulphide rubber sealing compound complying with BS 4254, and the trade mark shall be approved by the Engineer. The compound shall be placed in a chase made by a fillet strip in the formwork. The compound shall be placed in a case made by a fillet strip in the formwork. The concrete shall be dry and suitable primer shall be applied to the joint before applying the sealant. The procedure for the workmanship shall be approved by the Engineer before

commencement of work, but the contractor shall have the full responsibility for the water tightness of joints.

It should be noted that the lower part of the concrete walls shall be cast together with the floor slab and no joint directly on the slab will be permitted.

Before depositing fresh concrete against concrete which has already set, the face of the latter shall be roughened to expose the coarse aggregate, all cement latency removed whilst the concrete is still green and the surface thoroughly wetted with water and cleared of foreign matter. Cement mortar grout mixed in the proportion of one part of cement to two parts of sand shall be spread to a thickness of 5 mm over the face o the set concrete before the fresh concrete is deposited.

4.4.8 Curing and Protection of Concrete

Curing shall begin as soon as the surface of the concrete has hardened sufficiently. All exposed concrete surfaces shall be cured for a period of seven days by covering them with a layer of sand, hessian canvas or other approved material and kept damp. Concrete shall be protected form sun, wind, heavy rains flowing water for at least three days after placing.

4.4.9Finishesof Horizontal surfaces

Concrete surfaces for floors shall be true to level and falls as shown on the drawings. Water coming to the surface when vibrating shall be removed. After casting the surface shall be smoothened with a wooden flat. After some hours, when the surface has dried up, the surface shall be trowelled smooth with a steel trowel.

All other horizontal surfaces shall have the same surfaces finished except for the final trowelling with steel trowel.

4.4.10Finishesof Vertical Surfaces

The shuttering for exposed concrete faces shall be so constructed that the latter shall be true to line and surface. The concrete shall be consolidated as specified against the shuttering to keep the face of the work free from honeycombing and other blemishes.

After removal of the shattering, no concrete surfaces shall be treated in any way until they have been inspected by the Engineer.

If upon removal of the shuttering, the line or surfaces of the work is, in the opinion of the Engineer, unsightly and not in accordance with the requirements of the Contract, the Contractor shall at his own expenses cut out and make good such portions of the work as the Engineer Directs.

Rendering over defective surfaces shall not be permitted. Areas of honeycombing shall with the approval of the Engineer be made good immediately upon removal of the shuttering, and isolated superficial air and water holes shall be filled. Care shall be taken not to leave mortar or cement on parts of the surface which have been cast smooth and without pores.

Unless otherwise instructed the face of exposed concrete placed against shuttering shall after removal of the shuttering be rubbed down with a carborundum stone or in other approved manner to remove fins and other irregularities, and washed perfectly clean.

Concealed concrete faces shall be left as from the shuttering, except that surfaces with honeycombing shall be made good.

4.4.11 Accuracy **of Finish**

The arrangement of all formwork shall be made in such a way that all dimensions shall comply as exactly as possible with those given on the drawings. The following tolerances shall be respected:

Foundations	-50mm
Position of columns and Walls	-5 mm
Thickness of walls	- 5 mm
Lateral dimensions of columns	- 5 mm
Level of slabs of columns	- 5 mm
Level of slabs, beams	- 5mm
Slab thickness	- 5mm
Lateral dimension of beams	- 5 mm
Plumb of columns and walls	- 3 mm in each storey (Non- accumulative)
Window and poor opening sizes	- 5 mm

Surfaces and edges must not show any noticeable warping. On a length of less than 10 m the deviation may be 10 mm at the most.

The Contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work which is not constructed within the tolerance set out above.

4.4.12 Construction of Formwork

All formwork shall be substantially and rigidity constructed of timber or steel or pre-cast concrete or other approved material and shall be true to the shape, line, level and dimensions shown on the Drawings.

All joints shall be sufficiently tight to prevent leakage of cement grout and to avoid the formation of fins or other blemishes, and all faulty joints shall be caulked.

All formwork shall be thoroughly cleaned and coated with an approved type of oil before it is fixed in position. Immediately before concentrating the framework shall be watered thoroughly and washed out to remove sawdust, shabings or other rubbish. Where the appearance of the concrete face is important, the position and direction of the joints shall be as directed.

Fillet strips shall be fixed in the formwork to form a chamber 20 mm by 20 mm on all external corners of the concrete.

Openings for inspection of the inside of the formwork for walls, beans beams and similar work and for the escape of wash water shall be formed in such a way that they can be conveniently closed before starting to place the concrete.

Connections between formwork elements shall be constructed to allow for easy removal of the formwork, and shall be either nailed, screwed, bolted, clamped, braced or otherwise fixed securing a sufficient strength to retain the correct shape and line during compaction of the concrete.

Bracing members placed in the formwork to keep two sides of formwork in exact position shall be approved by the Engineer. Holes in the concrete after bracing arrangement shall be made good by plugging with approved material.

Top formwork shall be provided to concrete faces where the slopes exceed 1 vertical to 2½ horizontal. Such formwork shall be counterweighed or otherwise anchored against floating.

The formwork shall be so designed that the formwork for soffits of slabs and for sides of beams, columns and walls may be removed first leaving the formwork for the soffits of beams and their supports in position. Wedging or other suitable ways of adjustments shall be provided to allow accurate adjustments of the form work and to allow a gradual removal of the same without jarring the concrete.

On demand the Contractor shall provide such drawings and calculations as necessary for determination of the structural strength of the formwork. The Engineer's approval of such drawings and calculations will not relieve the Contractor of his responsibilities under the Contract.

Formwork shall be erected true to line and strutted to prevent deformation under the weight and pressure of the wet concrete, soffits shall be erected with an upward camber as shown on the Drawings or as directed by the Engineer or of 2 mm for each 1 m of horizontal span.

Re-propping of beams will not be approved except when props are reinstated to relieve the beams of loads in excess of the design load. Vertical props shall be supported on folding wedges on sole-plates, or other measures shall be taken whereby the props can be gently lowered vertically when commencing to remove the formwork.

If, in the opinion of the Engineer, the formwork is faulty, inadequate or does not comply with the specifications, then the Contractor shall at his own cost modify the formwork until it meets the approval of the Engineer.

4.4.13 Mould Oil

All faces of formwork that will come in contact with wet concrete shall be treated with approved mould oil or other coating to prevent adherence to the concrete. Such coatings shall be insoluble in water, non-staining, nor injurious to the concrete, shall not become flaky and shall not be removable by rain or wash-water. Liquids that retard the setting of cement shall only be applied to the shuttering when applied to the shuttering when approved. Mould oil and similar coatings shall be kept free from contact with the reinforcement.

4.4.14Holes for Pipes, Cast-in Items etc., General

The Contractor shall be responsible for the co-ordination with the Sub-contractors for the setting out and fixing of all pipes and holes, pockets and chases for pipes. Sleeves provided by the sub-contractors are to be accurately set out and cast in and cutting away in completed concrete work is to be minimized.

Details of all holes etc required in a structural work for services must submitted to the Engineer who will assess the necessity for extra trimming reinforcement.

No openings, holes chases, etc, are to be formed in the concrete without the approval of the Engineer and details of fixtures or fittings to be cast in must be approved.

4.4.15 Pipes through Water Retaining Walls

Pipes passing through water retaining walls and floors shall wherever possible, be built into the structure in-situ. Shuttering shall be formed closely to the outside of the pipe, and concrete shall be placed and compacted thoroughly round the pipe.

Pipes, bolts or other steel items cast into the concrete in water retaining structures must not in any way be in contact with the steel reinforcement.

When not possible to build in place, pipes shall pass through preformed holes. Holes shall be formed with formwork which shall be stripped cleanly and without shock to the concrete. As soon as the shuttering is tripped, the hole shall be thoroughly wire brushed to expose the aggregate. The hole shall be as neat as possible to allow the pipe to be passed through the wall, while the corners shall be chambered or rounded.

The pipe shall be set and the hole filled up as soon as possible. Immediately before filling, the hole shall be continuously soaked so as to saturate the concrete, and the surface coated with a stiff mix of 1:1 sand grout. Shutters shall be fixed true to the faces of the wall and a stiff mix of concrete packed in until the hold is completely filled, particular care to be taken to ensure that the spaces beneath the invert of the pipe and beneath the slopping soffit of the hole are completely filled. Shuttering shall be stripped as soon as possible and the filling rubbed smooth. The filling and the surrounding concrete shall be kept wet for 7 days after filling.

4.4.16 Removal of Formwork

Formwork shall be left in position until the concrete has attained sufficient strength to be self-supporting. The Contractor shall be responsible for the safe removal of the formwork without shock or vibration –which damage the concrete.

Any work showing sign of damage through premature removal of formwork or through premature loading shall be entirely reconstructed at the Contractor's expense. The Engineer may delay the time of removal of formwork if necessary. Subject to the above, the minimum period for removal of formwork shall generally be as follows:

Slabs Soffits (props left under)	7 days
Props	21 days
Beams Sides	3 days
Soffits	21 days
Walls and Columns (unloaded)	2 days

When formwork is removed after3 days, it will be necessary to ensure that the exposed surfaces of the concrete are kept thoroughly wet for the period of curing.

4.4.17 Reinforcement

All bending, cutting, and fixing to comply with BS 8110 and BS 4466.Normally Bending schedules are incorporated into the Contract Drawings, but the Contractor shall satisfy himself about their accuracy and about their complete coverage of the work involved. Any omission, inaccuracy or other errors observed by the contractor shall be reported to the Engineer before commencement of the work.

In case of errors in Bending Schedules, no extra payment will be approved, provided the reinforcement is shown correctly on the Contract drawings.

The number, size, shape and position of all the reinforcement shall, unless otherwise directed or permitted by the Engineer, be strictly in accordance with the drawings.

Bars shall be of the shown lengths, and lapping, except where indicated on the Drawings, is not permitted unless approved by the Engineer.

Spacing between bars shall not differ more than 5 mm from the required spacing. Any inaccuracy in the total length of a bar as cut shall be compensated for in the end hooks or other approved parts of the bar.

The internal radius of a bend shall neither be less than allowed by BS 4466 nor less the radius given in the Bending schedule. The steel reinforcement shall be assembled and fixed in the form of a rigid case. To prevent displacement before or during concentrating the bars shall be secured one to the other with

approved binding wire at each intersection. In slabs and walls binding at every second intersection is sufficient.

Concrete cover blocks (mix 1:3) shall unless otherwise directed be used between the reinforcement, the bottoms and sides of the forms to ensure the specified concrete cover to the bars. Variations of cover shall be kept within plus/minus 3 mm from the specified cover.

The minimum clear horizontal distance between adjacent bars shall be of 25 mm or the diameter of the bars whichever is the biggest, and 25 mm vertically. Space bars shall be inserted at such intervals that the bars so not perceptibly sag. Projecting bars shall be adequately protected against displacement both during and after concreting.

At the time of fixing and when concrete is being placed, all reinforcement shall be free from oil, painting grease ,dust and scale or any other coating which would destroy and bond with the concrete. The Contractor must obtain the Engineer's approval of the reinforcement when places, before any concreting is commenced.

5. PIPEWORK

5.1 General

All pipes, couplings gaskets lubricants seals coupling machinery etc; necessary for the proper construction of the pipe work as detailed in the Bill of Quantities and drawings shall be supplied by the contractor.

The contractor shall be responsible for ensuring that the pipes, couplings and other fittings laid or installed on each section of the work are of the standard and pressure classifications specified as appropriate to the circumstances, and are manufactured of the specified materials.

The Engineer reserves his right to refuse any materials that in his opinion is inferior.

The Engineer has the right to test any material upon delivery and materials found defective shall be replaced forthwith by the contractor.

If the contractor procures materials of different specifications in respect of flanges and threads etc, he shall at his own cost provide all adaptors and other fittings necessary to make considerations to the satisfaction of the Engineer.

All materials shall be marked as specified in the relevant current British or ISO standard for easy identification.

5.2 Handling and Storing of Pipes and Fittings

The method of transportation, handling and storing of pipes and fittings shall be in accordance with the manufacturer's recommendations.

Pipe valves and other fittings shall be handled, removed, lifted or lowered with the least possible impact. Handling equipment shall be of approved type. In slinging pipes, only flat slings shall be used and the use of chain slings hooks or other devices working on scissors or grab principles shall not be permitted. Pipes shall be slung from two or more points as the Engineer may direct and the slinging, lifting and lowering shall be in the hands of a competent and experienced man.

Pipes storage shall be supported clear of the ground on approved supports adequately braced to prevent rolling. They shall not be stacked more than four tiers high without the approval of the Engineer. Materials of different classification shall be stored separately. All pipes and associated materials shall at all times be protected from sun and dirt to the satisfaction of the Engineer.

No valves shall be lifted the spindle. Valves and other fittings shall not be stacked more than one tier high without the permission of the Engineer and they shall not be stored in a dirty place or condition**.**

Shortly before laying or fixing any valve, pipes or fitting the contractor shall in the presence of the Engineer or his representative carefully examine each valve, pipe and fitting to ascertain damage or defect occasioned to the valves, pipes and fittings during loading, unloading, handling, storage and transportation. All damage and all defects revealed by this examination shall be repaired and remedied by the contractor.

5.3 Laying and Joining of Pipes.

All laying and jointing of pipes except jointing of PVC and polythene pipes shall be in conformity with BS 6700 and BS 8010.

The bottom of the trench or surface of the bed shall be finished to a smooth even surface at the correct level to permit the barrel of the pipe to rest on the surface throughout its whole length between joint and sling holes. If considered necessary by the Engineer, fine-screened material shall be placed and consolidated in the trench bottom to provide such bed. In general the preparation of the trench bottom and bed shall be completed for a length of one pipe in advance of the pipe-laying.

The bottom of the trench and pipe bed shall be inspected by the Engineer, and only when passed as satisfactory shall pipe-laying commence.

Each pipe shall be laid accurately to line, level and gradient so that, except where otherwise directed, the finished shall be in a straight line both in horizontal and vertical plans. The levels and gradients shown on the drawings shall be rigidly adhered to unless otherwise ordered by the Engineer.

Notwithstanding any flexibility provided in pipe joints, pipes must be securely positioned to prevent movement during and after the making of a joint. On screw and socket joints, threads shall be coated with an approved tape to ensure water tightness. The contractor shall take care that all pipes and couplings are clean and free of foreign matter before subsequent sections are jointed.

The contractor shall obtain from the manufacturer or other approved supplier the necessary tackle required for the proper jointing of the pipes. The contractor shall make himself and his employers acquainted with and comply with instructions issued by the manufacturers of the various types of proprietary joints and couplings for incorporation on the works. The contractor shall be responsible for obtaining copies of such **instructions**

No person shall be employed on the jointing of pipes that is not thoroughly experienced and skilled in the particular work in hand.

Pipes shall not be cut without the permission of the Engineer. The cut shall be made with an approved mechanical pipe cutter and the edges of the cut shall be clean, true and square. Threading of steel pipes shall be done with an approved device.

Subject to permission of the Engineer, pipes shall be covered over with approved fill material upon successful completion of laying and jointing. Joints shall be left exposed until completion of the test. The fill for surrounding and cushioning shall consist of uniformly readily compatible material free from tree roots, vegetables matter, building rubbish and excluding clay lumps retained on 75 mm sieve and stone retained on a 25 mm sieve.

The materials for bedding shall, where ordered, consist of suitable selected materials obtained from the excavations or from approved borrow pits and transported to the location where they are required. Upon successful completion of the pressure test the pipeline shall be back-filled as specified.

The contractor shall provide concrete indicator posts at every place where the change in class of pipe occurs with engraved marking on the post indicating class of pipe and direction.

The rate for pipe work shall include for supplying, storing, handling, laying and jointing of pipes and is measured in linear meters. The rates shall also include for levelling of the trench bottom, compacting the foundation, and embedding the pipe together with the materials used for bedding all to the satisfaction of the Engineer.

5.4 Valves and Fittings

Unless otherwise directed all valves and other fittings and specialist and specialists shall be individually supported and their weight shall not be borne by the pipeline joints or couplings etc. All supports for valves and fittings shall be of concrete grade 20.

Air valves shall be installed at high points in the pipeline as shown on the drawings. Before the valves are installed all the air nozzles shall be probed to see that they are clear. No air valves shall be stored before erection in the open in sunlight, or upside down to expose the balls and air cavities.

Scour valves shall be installed at high points in the pipeline as shown on the drawings. The contractor shall be in agreement with the Engineer on the exact position of scour valves in particular situations.

Scour valves shall, where possible, discharge in the direction of natural drainage and at such a distance from the works as to preclude erosion effects.

Unless otherwise directed the controlling valve for a scour shall be installed not more than 1.5 m from the main pipeline.

Ends of all scours shall be protected from intrusion of animals and other foreign matter by suitable screening securely fixed to the pipe end.

Valve penstocks and other fittings shall be securely fixed and where required extension spindles and headstocks shall be properly aligned and fixed in a vertical position unless otherwise directed.

Before each valve is put into service all gears bearings and spindles shall be oiled with approved oil as recommended by the valve manufactures. All valves, fittings specials shall be fixed with proper sealing tape, gaskets, washers etc as necessary to the specification of the Engineer. The valves shall be with non-rising spindle and shall if not otherwise stated be supplied with hand wheels.

The rates in the Bill of Quantities shall cover for the supply, storing, handling, installation and jointing, together with all bolts, washers, gaskets and lubricants, painting of all fittings with 2 coats of approved oil paints etc.

5.5 Flanges

Where flanged joints are used flanges shall be in accordance with the requirements of BS 4504: Part 1 or BS 4772. Where screwed joints are used, thread shall comply with BS 21.

The minimum pressure rating shall be for a working pressure of 1.0 N/MM2 (approximatly100 meters head) corresponding to NP 10 flanges. The hydraulic test pressure shall not exceed 1.6 N/mm2.

Flanges in pipelines with higher-pressure rating shall be for the ratings specified in the Bill of Quantities.

Bolts nuts and washers shall comply with the requirements of B.S. 2494 and shall have a minimum thickness of 2mm. The names of manufacturers and specifications of the products offered shall be provided at the time of tender.

5.6 Ductile iron

Ductile iron pipes and fittings shall comply with BS 4772 or ISO 2531. The pressure rating of the pipes shall be for a minimum working pressure of 2.5N/MM2. Care should be taken when testing, not to exceed the permissible test pressure for the fittings installed.

Joints shall be either “Viking Johnson” or flanged joints as specified in the drawings and the bill of quantities.

Before any other joint is used written approval of the Engineer must be obtained. Pipes and fittings shall be coated inside and outside with a hot material complying with the requirements of BS 4164 or with cold applied material complying with BS type 11 materials.

5.7 Grey Iron or Cast Iron

Grey iron or cast pipes and fittings shall comply with BS 4622 or ISO/R 13. The pressure rating of the pipes shall be for a minimum working pressure of 1.0N/mm^2 (approximately 100 metres head) and a hydraulic test pressure of 1.6N/mm^2.

Joints, internal and external coatings to be as specified in clause 505, Ductile iron.

5.8 Steel

Steel pipes and fittings shall comply with BS 534, BS 1387 or BS 3601. Pipes complying with BS 1387 shall be of "Medium" or "Heavy" classes as specified in the Bills of Quantities and Drawings.

5.9 Unplasticised Polyvinyl Chloride Pipes

All uPVC pipes and fittings shall comply with BS 3505 or with ISO 161/1-1976 (E).

Pipes indicated with a pressure class conform to the following working pressures:

Class B- 0.6N/mm2 (MARKING: RED)

Class C – 0.9N/MM2 (MARKING: BLUE)

Class D – 1.2N/MM2 (MARKING: GREEN)

Class E – 1.5N/MM2 (MARKING: BROWN)

All fittings shall be of pressure class "E" and be manufactured of cast iron, PVC OR STEEL. Joints to be solvent cement joints for nominal sizes equal to or smaller than -50mm and mechanical joints (Rubber ring) for nominal sizes equal to or bigger than -80 mm.

For both types of joints the manufacturer's jointing instructions must be strictly adhered to. PVC pipes and fittings shall be stored under cover, which fully protects the material from sunlight.

5.10 Protection of Pipes

The concrete used for bedding, hunching and surrounding the pipes shall concrete "Grade 10"unless otherwise ordered by the engineer. The concrete protection shall have total dimensions not less than given below:

I. Bedding concrete shall have a width of at least 300mm bigger than the external diameter of the pipe and shall support at least the bottom quarter of the pipe and shall support at least the bottom quarter of the pipe circumference. It shall have a minimum depth of 150 mm measured under the pipe throughout.

II. Bedding and hunching shall comprise a concrete bed with a minimum width of 300 mm more than the external diameter of the pipe and a minimum thickness of 150 mm below the pipe, and haunting with a minimum thickness of 150 mm on both sides of the pipe. The top of the launching to be flush with the top of the pipe.

III. Surrounding concrete shall comprise a concrete be as described above together with 150 mm concrete on both sides and on top of the pipe, giving a pipe protection of at least 150 mm concrete everywhere around the pipe.

Concreting of bedding, hunching or surround shall not be done until the pipes have been jointed, inspected and tested.

PVC pipes shall be protected with polythene or roofing felt wrapping before concreting.

5.11 Testing of Pressure Pipes

Pressure pipelines (together with all fittings and valves incorporated in the mains) shall, before being covered, be tested with water as specified in BS 6700.

At least two days notice must be given in writing to Engineer before pressure testing is commenced.

Water Pressure Test

The water pressure to be applied will be 1.5 times the nominal working pressure for the class of pipes being tested. The Engineer, however, reserves the right to alter this figure.

Main shall be filled and tested in sections of convenient length which must not exceed 500 meters where pipes are laid with steep gradients the length of pipes tested at any time shall be as directed by the Engineer.

The ends of pipes under test shall be closed by means of caps or blank flanges provided by the contractor. Gate valves must not be used for this purpose. All scour valves and air valves shall be replaced by blank flanges before commencement of the test.

After laying, jointing and anchoring, the main should be slowly and carefully charged with water so that all air is expelled, allowed to stand full for several days and then tested under pressure. The test pressure shall be applied by means of a manually operated test pump connected to the main and to two parallel installed pressure gauges calibrated at an approved testing laboratory. The test pressure shall be maintained for 24 hours, and if there is any leakage or any other defects, the contractor should rectify as directed by the Engineer at his own cost. Water drained from the pipes shall be discharged in a way that does not affect the stability of the works or adjacent structures. The contractor shall provide all necessary equipment, water and labour to test the pipes to the pipes to the approval of the Engineer.

The contractor shall allow for all expenses in connection with testing in the Bill of Quantities for the appropriate item.

5.12 Cleaning and Sterilization of Water Supply Pipes

The contractor shall before handling over and during the maintenance period clean pipeline, chambers and manholes for all dirt and rubbish.

All pipes shall be thoroughly cleaned and washed out to remove all contamination, and all water from these operations shall be removed and drained away.

Sterilization should be carried out in accordance with BS 6700.

Following the satisfactory cleaning the contractor shall with the use of a portable dosage system or by some other approved method introduce a solution of a sterilizing chemical containing chlorine into the pipeline. The Solution shall be introduced at a very slow rate and shall be of such strength as to give a chlorine concentration of not less than 50 parts per million throughout the length of the pipelines. The whole system shall then remain charged for 24 hours, after which a test shall be made for residual chlorine. If no residual chlorine is found, the sterilization process will have to be carried out again, until a satisfactory result is obtained.

Finally, the pipes shall be thoroughly flushed out and recharged with supply water. On completion of the sterilization process the pipes shall be left full of water.

The contractor shall in his rates for pipeline sterilization include for all cost of labour, transport, materials equipment, chemicals and water necessary for the satisfactory completion of the cleansing and sterilization operation.

5.13 Auxilliary Work

a) Valve Chamber

Unless otherwise directed or detailed all valves, meters and other mechanical fittings shall be housed in chambers with lockable covers. Valve work shall be so placed in chambers as to facilitate operation, meter reading etc. through the cover opening. Chambers are measured in numbers and shall be prices as lump sum items covering all composite work to completion as specified on the drawings or as instructed by the Engineer inclusive of expectations in excess of trench excavation, concrete supports for valves and backfilling around the chambers.

b) Thrust Blocks and Anchors

The contractor shall provide thrust blocks at all bends tees and whenever else instructed by the Engineer indicated in the drawing.

Enlargements shall be excavated in sides and bottom of the trench to accommodate anchorages and thrust blocks

Concrete thrust and anchor blocks shall be formed in accordance with the typical sections shown on the drawings or as directed by the Engineer. Additional excavation shall be made after the bends etc. Have been jointed and the concrete shall be placed immediately after the completion of the excavation.

Concrete used for thrust and anchor blocks shall be grade 15 and shall after placing be kept in view for not less than six hours. No pressure shall be applied in any section of mains until the concrete has cured at least three days.

All PVC material shall be wrapped with two layers of bituminous felt for the entire length in contact with concrete. Thrust blocks are measured in numbers and shall be priced as lump sum items covering all necessary works and materials together with excavation, backfilling and formwork.

c) Road Crossings

When the contractor encounters a road where a "Road Crossing" is indicated on the drawings or where to his opinion, such a crossing is required, he shall immediately inform the Engineer. On the receipt of the above information, the Engineer will issue appropriate instructions. The contractor shall include in his rates any royalty/fees to be paid to the Ministry of Transport and Communication or Local authorities.

d) Painting

Painting and other protection of the external and internal pipe surfaces shall be in accordance with manufacturer's recommendations. Painting on all other works especially in buildings will be as specified in the Bill of Quantities or as directed by the Engineer.

e) Indicator Posts

Indicator posts should be erected on the pipeline as per the Engineer's instructions.

All indicator posts of sluice valves, air valves, change in directions for pipeline, change in class of pipes, washouts etc should be painted with blue gloss paint (2 coats). The engraved letters to be painted with white gloss paint.

SECTION D:

SPECIFICATIONS, DRAWINGS AND BILLS OF QUANTITIES/SCHEDULE OF RATES

SECTION D.

BILL OF QUANTITIES

Preamble to Bill of Quantities

a) The Bill of Quantities shall form part of the contract Documents and is to be read in conjunction with the Instructions to Tenderer's Conditions of contract Part I and ii Specifications and drawings.
b) The brief description of the items in the Bill of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the conditions of Contract and Specifications for full direction and description of work and materials.
c) The Quantities set forth in the Bill of Quantities are estimated and provisional, representing substantially the work to be carried out, and are given to provide a common basis for tendering and comparing of Tenders. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular group of items in the quantities of work actually done in fulfilment of his obligation under the Contract.
d) The prices and rates inserted in the Bills of Quantities will be used for valuing work executed, and the Engineer will measure the whole of the works executed in accordance with this Contract.
e) A price or rate shall be entered in ink against every item in the Bill of Quantities with already have provisional sums, affixed thereto. The Tenderers are reminded that no ''nil" or "indicated" rates or "lump- sum" discounts will be accepted. The rates for various items should include discounts if any. Tenderers who fail to comply will be disqualified.
f) Provisional sums (including Day works) in the Bill of Quantities Shall be expended in whole or in part at the discretion of the Engineer in accordance with Sub-clause 52.4 and Clause 58 of part of the Conditions of Contract.
g) The price and rates entered in the Bill of Quantities shall, except insofar as it is otherwise provided under the contract, include all Constructional plant to be used, labour, insurance, supervision, compliance, testing, construction materials for all temporary works erection, maintenance of works, overheads and profits, taxes including input and output VAT , Contractual Fees and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones water, use and replenishment of all consumables but shall not include for materials to be incorporated into permanent works. All materials for permanent works shall be supplied by the Employer to the Contractor who shall thereafter take custody of the materials for use in various work sites.
h) Errors will be corrected by the Employer for any arithmetic errors in computation summation as follows:
    a) Where there is a discrepancy between amount in words and figures, the amount in words will govern; and
    b) Where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and quantity, the unit rate as quoted will govern; unless in the opinion of the Employer, there is an obviously gross misplacement of decimal point in

the unit price event the total amount as quoted will govern and the unit rate will be corrected.

c) If a Tenderer does not accept the correction of errors as outlined above, his Tender will be rejected.

i) The Bills of Quantities, unless otherwise expressly stated herein, shall be deemed to have been prepared in accordance with the principles of the latest edition of the Civil Engineering Standards Method of Measurement (CESMM).

j) "AUTHORISED" Directed" or Approved" shall mean the authority, direction or approval of the Engineer.

k) Unless otherwise stated, all measurements shall be net taken on the finished work carried out in accordance with the details shown on the drawings or instructed, with no allowance for extra cuts or fills, waste or additional brake horse power (112 kilowatt) with a single, rear-mounted, hydraulic thickness necessary to obtain the minimum finished thickness or dimensions required in this Contract. Any work performed in excess or the requirements of the plans and specifications will not be paid for, unless ordered in writing by the Engineer.

l) (a) Hard material, in this Contract, shall be defined as the material which in the opinion of the engineer, require blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a dozer tractor of at least 150 ripper. Boulders of more than $0.2m^3$ occurring in soft material shall be classified as hard material

(b) Soft material shall be all material other than hard material

m) The word '' Take Custody" shall be taken to mean delivery, unloading, stocking, 0getting from store, transporting, unloading getting into position for fixing all the materials concerned and all other constituency expenses.

n) Where dimensions are entered they will unless otherwise stated have the following meaning:-

Mm	- millimetre
M	- Linear Meter
L	- Length
W	- Width
D	-Depth
ND	-Nominal Diameter
PN	- Nominal Pressure
LS	- Lump Sum
PC	- Prime Cost

BILL OF QUANTITIES FOR CHEPTARIT WATER PROJECT

NO	DESCRIPTION	UNITY	QUANTITY	RATE	AMOUNT
01	Clear light bush 1m wide	M^2	1980		
02	Supply, handle, lay, joint and test 25mm G.1 class B pipeline as per engineer's specification	M	1980		
03	Supply, test and deliver to site die stock size 25mm to 50mm	NO	1		
04	Supply, and deliver to site spanner No 18(Record type)	NO	2		
05	Supply and deliver to site spanner No 24 (Record type)	NO	2		
06	Supply, fix and test G.1 union socket at position as per engineer's specification	NO	10		
	TOTSLS				

EVALUATION CRITERIA 2015-2016.

Department of Lands, Water, Environment and Natural Resources.

Evaluation will be done as per the requirements stated on the advert and the document as below:-

1) ***Mandatory Requirements (MR)****:* At this stage, the tenderer's submission would either be ***responsive*** or ***non-responsive***. The non-responsive submissions would be eliminated from the entire evaluation process and will not be considered further.

2) ***Technical Evaluation:*** This section would be marked out of 100 and would determine the ***technical score*** (TS). Only bidders who score 70% and above would be subjected to ***financial evaluation***. Those who score below 70% would be eliminated at this stage from the entire evaluation process and would not be considered further.

3) ***Financial Evaluation:***The formulae for determining the Financial Score (FS) shall be as follows:-

FS= 100 X $^{FM}/_{F}$ where *FS* is the financial score; *Fm* is the lowest priced bidder and *F* is the price of the bidder under consideration.

i) MANDATORY REQUIREMENTS

No.	Requirements	BIDDERS							
		No	No	No	No	No	No	No	No
MR1	Must Submit a copy of certificate of Registration/Incorporation								
MR2	Must Submit a copy of Valid Tax Compliance certificate								
MR3	Must submit business license								
MR4	Must submit a copy of PIN / VAT certificate								
MR5	Must Fill the Form of Tender in the Format provided								
MR6	Must Provide a copy of CR12 Mandatory								
MR7	Must Submit NCA registration certificate NCA 8 and above								
MR8	Must provide bid bond of 2% of total bid sum								
MR9	Must submit a dully filled up Confidential Business Questionnaire in format provided								
Responsiveness									

2) TECHNICAL EVALUATION

This will be marked out of 100 as below:-

No.	Evaluation Attribute	Weighting Score	Bidder							
			No.	No.	No	No	No	No	No	No
T.S. 1	Provide a list of clients and references to which the company has done similar work.	• Clients with references letters from 6 No clients = max=30 marks								
T.S. 2	Financial Strength Provide audited accounts for the last two years	• audited accounts for the last two years - max=20 marks								
T.S. 3	Provide Details of any relevant certifications and/or trainings. Such certifications / trainings may be for your company or for your individual staff as relevant to project under consideration . ***Attach evidence.***	• Details of certifications and/or trainings with proof(single certificate=50) –max= 20 marks								

No.	Evaluation Attribute	Weighting Score	Bidder							
			No.	No.	No	No	No	No	No	No
T.S. 4	Equipment and accessories owned or leased by the company during the contract period.	Provide details / list of equipment and accessories with a proof of ownership(log book ,receipts, leases)=5max per equipment-max= 20 marks								
T.S. 5	Organization structure	Give structure with details of responsibilities max=10 marks								
TOTAL										

FINANCIAL EVALUATION

At financial score consideration will be based on the lowest quoted price.

NB:PROJECT DETAILS AND DRAWINGS WILL BE PROVIDED BY THE PROJECT ENGINEER OR HIS REPRESENTATIVE DURING THE PRE-SITE VISIT.