

RE-TENDER- NRT/OCTOBER/021/2021

**BILLS OF QUANTITIES FOR CONSTRUCTION OF NAIBUNGA FENCE-
KIMANJO IN NAIBUNGA CONSERVANCY, LAIKIPIA COUNTY.**

Northern Rangelands
Trust
Private Bag Isiolo
60300, Kenya Tel:
+254 (0) 701 555
000

Email: info@nrt-kenya.org

Website: www.nrtkenya.org

Closing Date: 26TH OCTOBER 2021 at 11:00am.

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	3
SECTION I INVITATION FOR TENDERS	4
SECTION II INSTRUCTIONS TO TENDERERS	5
SECTION III CONDITIONS OF CONTRACT	12
APPENDIX TO CONDITIONS OF CONTRACT	21
SECTION IV SPECIFICATIONS, DRAWINGS AND BILLS OF QUANTITIES/SCHEDULE OF RATES	29
SECTION V STANDARD FORMS	

INTRODUCTION

- 1.1 This standard tender document for procurement of works has been prepared for use by procuring entities in Kenya in the procurement of works (e.g. Buildings, Roads, Bridges, Repairs and Maintenance) which the procuring entity considers to be small and where it is not required to be open tendering.
- 1.2 The following guidelines should be observed when using the document: -
 - (a) Specific details should be furnished in the tender notice and in the special conditions of contract (where applicable). The tender document issued to tenderers should not have blank spaces or options.
 - (b) The instructions to tenderers and the General Conditions of Contract should remain unchanged. Any necessary amendments to these parts should be made through Appendix to instructions to tenderers and special conditions of contract respectively.
- 1.3 (a) Information contained in the invitation to tender shall conform to the data and information in the tender documents to enable prospective tenderers to decide whether or not to participate in the tender and shall indicate any important tender requirements
- I. The invitation to tender shall be as an advertisement in accordance with the regulations or a letter of invitation addressed to tenderers who have been prequalified following a request for prequalification.
- 1.4 The cover of the tender document should be modified to include: -
 - II. Tender number.
 - III. Tender name.
 - IV. Name of procuring entity.
 - V. Delete name and address of PPOA.

SECTION I

INVITATION FOR RE-TENDER
NOTICE

The **Northern Rangelands Trust** (“hereinafter referred to as NRT”) invites sealed tenders from eligible, interested bidders for furnishing the necessary labour, material and equipment for purposes of tendering to undertake Building and Civil works for works –

1	CONSTRUCTION OF NAIBUNGA FENCE- KIMANJO IN NAIBUNGA CONSERVANCY, LAIKIPIA COUNTY.	NRT/OCTOBER/024/2021
---	---	-----------------------------

Interested eligible firms may obtain information and inspect tender documents at the:

**NORTHERN RANGELANDS TRUST-
HQ ISILOLO, KENYA**

The tender document may be obtained by interested candidates upon payment of a non-refundable fee of Kshs. 3,000.00 (Three thousand Kenya Shillings) to Northern Rangelands Trust. Bidders must pay the required amounts to **NORTHERN RANGELANDS TRUST** account number **0308167747 BARCLAYS BANK NANYUKI BRANCH** and ATTACH deposit slips with their bid documents upon return of the documents. Tender documents must be submitted in plain sealed envelopes clearly marked as follows: **NRT/SEPTEMBER/021/2021** on the tender the bidder is responding to.

Documents must be addressed to;

**The Chairman Tender
Committee Northern
Rangelands Trust HQ Isiolo,
KENYA**

Dully filled tender documents should be physically submitted in to NRT Offices Lewa, not latter that **26th October 2021 at 11:00am.**

Tenders will be opened immediately thereafter in the presence of the candidates ‘or their representatives who choose to Attend.

Kind Regards

Osman Hussein
OPERATIONS DIRECTOR, NRT

INSTRUCTIONS TO TENDERERS

TABLE OF CONTENTS

CLAUSE	PAGE
1. GENERAL -----	6
2. TENDER DOCUMENTS -----	7
3. PREPARATION OF TENDERS -----	7
4. SUBMISSION OF TENDERS -----	9
5. TENDER OPENING AND EVALUATION -----	9
6. AWARD OF CONTRACT -----	11
7. CORRUPT AND FRAUDULENT PRACTICES -----	11

INSTRUCTIONS TO TENDERERS.

- 1. General**
- 1.1 The Employer as defined in the Appendix to Conditions of Contract invites tenders for Works 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 construction equipment owned;
 - (e) Qualifications and experience of key site management and technical personnel proposed for the Contract;
 - (f) Reports on the financial standing of the Tenderer, such as profit and loss statements and auditor's reports for the last five years;
 - (g) Authority to seek references from the Tenderer's 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 Tenderer's own expense.
- 1.5 The procurement entity's employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender.
- 1.6 The price to be charged for the tender document shall not exceed Kshs.3, 000/=
- 1.7 The procuring entity shall allow the tenderer to review the tender document free of charge before purchase.

8. Tender Documents

- 8.1 The complete set of tender documents comprises the documents listed here below and any addenda issued in accordance with 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/Schedule of Rates (whichever is applicable)
 - (g) Other materials required to be filled and submitted in accordance with these Instructions and Conditions.
- 8.2 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.
- 8.3 A prospective Tenderer making inquiries 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.
- 8.4 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 Tenderers shall acknowledge receipt of each addendum in writing to the Employer.
- 8.5 To give prospective Tenderers 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 4.2 here below.

9. Preparation of Tenders

- 9.1 All documents relating to the tender and any correspondence shall be in English Language.
- 9.2 The tender submitted by the Tenderer shall comprise the following:-
- (a) The Tender;

- (b) Tender Security;
 - (c) Priced Bill of Quantities/Schedule of Rates for lump-sum Contracts
 - (d) Any other materials required to be completed and submitted by Tenderers.
- 9.3 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities/Schedule of Rates. Items for which no rate or price is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities/Schedule of Rates. 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.
- 9.4 The rates and prices quoted by the Tenderer shall not be subject to any adjustment during the performance of the Contract.
- 9.5 The unit rates and prices shall be in Kenya Shillings.
- 9.6 Tenders shall remain valid for a period of *one hundred twenty (120) 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' responses shall be made in writing.
- 9.7 The Tenderer shall prepare one original of the documents comprising the tender documents as described in these Instructions to Tenderers.
- 9.8 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. All pages of the tender where alterations or additions have been made shall be initialed by the person or persons signing the tender.
- 9.9 Clarification of tenders shall be requested by the tenderer to be received by the procuring entity not later than 7 days prior to the deadline for submission of tenders.
- 9.10 The procuring entity shall reply to any clarifications sought by the tenderer within 3 days of receiving the request to enable the tenderer to make timely submission of its tender.

10. Submission of Tenders

10.1 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 Contract as defined in the invitation to tender; and
- (c) Provide a warning not to open before the specified time and date for tender opening.

10.2 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.

10.3 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.

10.4 Any tender received after the deadline for opening tenders will be returned to the tenderer unopened.

10.5 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.

11. Tender Opening and Evaluation

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

11.2 The Tenderers' 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.

11.3 Information relating to the examination, clarification, evaluation and comparison of tenders and recommendations for the award 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.

- 11.4 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 corrected tender figure 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.
- 11.5 The tender evaluation committee shall evaluate the tender within 30 days of the validity period from the date of opening the tender.
- 11.6 Contract price variations shall not be allowed for contracts not exceeding one year (12 months).
- 11.7 Where contract price variation is allowed, the valuation shall not exceed 10% of the original contract price.

- 11.8 Price variation requests shall be processed by the procuring entity within 30 days of receiving the request.
- 11.9 Preference where allowed in the evaluation of tenders shall not exceed 15%
- 11.10 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.
- 11.11 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.

12. Award of Contract

- 12.1 The award of the Contract will be made to the Tenderer who has offered the lowest evaluated tender price.
- 12.2 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.
- 12.3 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 contract shall be formed on the parties signing the contract. At the same time the other tenderers shall be informed that their tenders have not been successful.
- 12.4 The Contract Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will be signed by the Employer and sent to the successful Tenderer, within 7 days following the notification of award. Within 7 days of receipt, the successful Tenderer will sign the Agreement and return it to the Employer.

- 12.5 Within 21 days after receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Performance Security amount stipulated in the Appendix to Conditions of Contract.
- 12.6 The parties to the contract shall have it signed within 14 days from the date of notification of contract award unless there is an administrative review request.
- 12.7 The procuring entity may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.
- 12.8 The procuring entity shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.

13. Corrupt and fraudulent practices

- 13.1 The procuring entity requires that the tenderer observes the highest standard of ethics during the procurement process and execution of the contract. A tenderer shall sign a declaration that he has not and will not be involved in corrupt and fraudulent practices.
- 13.2 The procuring entity will reject a tender if it determines that the tenderer recommended for award has engaged in corrupt and fraudulent practices in competing for the contract in question.
- 13.3 Further a tenderer who is found to have indulged in corrupt and fraudulent practices risks being debarred from participating in public procurement in Kenya.

SECTION III
CONDITIONS OF CONTRACT
Table of Clauses

	<i>Page</i>
1. DEFINITIONS.....	13
2. CONTRACT DOCUMENTS.....	14
3. EMPLOYER’S REPRESENTATIVE’S DECISIONS.....	14
4. WORKS, LANGUAGE AND LAW OF CONTRACT.....	15
5. SAFETY, TEMPORARY WORKS AND DISCOVERIES.....	15
6. WORK PROGRAM AND SUB-CONTRACTING.....	15
7. THE SITE.....	15
8. INSTRUCTIONS.....	15
9. EXTENSION OF COMPLETION DATE.....	15
10. MANAGEMENT MEETINGS.....	16
11. DEFECTS.....	17
12. BILLS OF QUANTITIES/SCHEDULE OF RATES.....	17
13. VARIATIONS.....	17
14. PAYMENT CERTIFICATES AND FINAL ACCOUNT	18
15. INSURANCES	18
16. LIQUIDATED DAMAGES.....	19
17. COMPLETION AND TAKING OVER.....	19
18. TERMINATION.....	19
19. PAYMENT UPON TERMINATION.....	19
20. CORRUPT GIFTS AND PAYMENTS OF COMMISSION.....	20
21. SETTLEMENT OF DISPUTES.....	20
22. APPENDIX TO CONDITIONS OF CONTRACT	21

SECTION III - 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” Includes Central or Local Government administration, Universities, Public Institutions and Corporations and is 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 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,

- (3) Contractor's Tender,
- (4) Conditions of Contract,
- (5) Specifications,
- (6) Drawings,
- (7) 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 Program submitted by the Contractor, as updated with the approval of the Employer's Representative, and complete them by the Intended 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 of 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 Program and Sub-contracting

- 6.1 Within seven days after Site possession date, the Contractor shall submit to the Employer's Representative for approval a program 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 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 Instructions

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

9 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 artists, 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 this Contract, or
- (i) reason of delay in 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 A Contract management meeting 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 that are 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 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 Bill 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 The Contractor shall be paid after each of the following stages of Work listed here below (subject to re-measurement by the Employer's Representative of the Work done in each stage before payment is made). In case of lump-sum Contracts, the valuation for each stage shall be based on the quantities so obtained in the re- measurement and the rates in the Schedule of Rates.
- (i) Advance payment _____ (*percent of Contract Price*,
[after Contract execution] *to be inserted by the Employer*).
 - (ii) First stage (*define stage*) _____
 - (iii) Second stage (*define stage*) _____
 - (iv) Third stage (*define stage*) _____
 - (v) *Five percent (5%) of Contract Price* After defects liability period.
- 14.2 Upon deciding that Works included in a particular stage are complete, the Contractor shall submit to the Employer's Representative his application for payment. The Employer's Representative shall check, adjust if necessary and certify the amount to be paid to the Contractor within 21 days of receipt of the Contractor's application .The Employer shall pay the Contractor the amounts so certified within 30 days of the date of issue of each Interim Certificate.
- 14.3 The Contractor shall supply the Employer's Representative with a detailed final account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer's Representative shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 30 days of receiving the Contractor's account if it is correct and complete.

If it is not, the Employer's Representative shall issue within 21 days a schedule that states the scope of the corrections or additions that are necessary.

If the final account is still unsatisfactory after it has been resubmitted, the Employer's Representative shall decide on the amount payable to the Contractor and issue a Final Payment Certificate. The Employer shall pay the Contractor the amount so certified within 60 days of the issue of the Final Payment Certificate.

14.4 If the period laid down for payment to the Contractor upon each of the Employer's Representative's Certificate by the Employer has been exceeded, the Contractor shall be entitled to claim simple interest calculated pro-rata on the basis of the number of days delayed at the Central Bank of Kenya's average base lending rate prevailing on the first day the payment becomes overdue. The Contractor will be required to notify the Employer within 15 days of receipt of delayed payments of his intentions to claim interest.

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 to the Works, materials and plant; and loss of or damage to property.

16 Liquidated Damages

16.1 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, upon deciding that the Work is completed.

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

18.1 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 stops Work for 30 days continuously without reasonable cause or authority from the Employer's Representative;
- (b) the Contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

- (c) a payment certified by the Employer's Representative is not paid by the Employer to the Contractor within 30 days after the expiry of the payment periods stated in sub clauses 14.2 and 14.3 hereinabove.
 - (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.
- 18.2 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

- 19.1 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.
- 19.2 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.
- 19.3 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

- 20.1 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 favor or disfavor 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

21.1 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

THE EMPLOYER IS

Name: _____

Address: _____

Name of Employer's Representative: _____

Title; _____

Telephone: _____

The name (and identification number) of the Contract is

The Works consist of _____

The Start Date shall be _____

The Intended Completion Date for the whole of the Works shall be

The following documents also form part of the Contract:

The Site Possession Date shall be _____
The Site is located at _____ and is defined in drawings nos.

The Defects Liability Period is _____ days.



Amount of Tender Security is Kshs 50,000.00 (Kenya Shillings fifty thousand only)

The name and Address of the Employer for the purposes of submission of tenders

is.....
.....

The tender opening date and time is..... (*Insert tender opening time*)

on day of(*insert date of tender opening*)

The amount of performance security is **5 percent of Contract Price.**

Note: the Employer must select the form of performance security to be accepted.

A bank guarantee of between five 5 percent is acceptable.

A performance bond on the other hand from an insurance company may be of up to thirty (30) percent of the Contract Price.

SECTION IV – SPECIFICATIONS, DRAWINGS AND BILLS OF QUANTITIES / SCHEDULE OF RATES

I. SPECIFICATIONS

Notes for preparing Specifications

- 1.0 Specifications must be drafted to present a clear and precise statement of the required standards of materials and workmanship for tenderers to respond realistically and competitively to the requirements of the Employer and ensure responsiveness of tenders. The Specifications should require that all materials, plant, and other supplies to be permanently incorporated in the Works be new, unused, of the most recent or current models and incorporating all recent improvements in designs and materials unless provided otherwise in the Contract.
- 2.0 Specifications from previous similar projects are useful and it may not be necessary to rewrite specifications for every works contract.
- 3.0 Care must be taken in drafting Specifications to ensure they are not restrictive. In the specification of standards for materials, plant and workmanship existing Kenya Standards should be used as much as possible otherwise recognized international standards may also be used.

II DRAWINGS

1. List of the Contract Drawings
 - Architectural drawings – NRT/ 13/ 03
2. The actual Contract Drawings including Site plans are annexed in a separate booklet

III BILL OF QUANTITIES / SCHEDULE OF RATES

Notes for preparing Bills of Quantities

1. The objectives of the Bills of Quantities are;
 - (a) to provide sufficient information on the quantities of Works to be performed to enable tenders to be prepared efficiently and accurately; and
 - (b) when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Notes for preparing Schedule of Rates

Where the time limit or other constraints do not allow the preparation of a Bill of Quantities for the Works, a lump-sum Contract shall be adopted and a Schedule of Rates (in place of a Bills of Quantities) shall be issued as part of the tender documents.

- The objectives of the Schedule of Rates are;
- (a) to provide sufficient information on the nature of work items to be performed to enable tenders to be prepared efficiently and accurately; and
 - (b) when a Contract has been entered into, to provide a basis for the pricing of Works executed for interim and final valuations.

In order to attain these objectives, Works should be itemized in the Schedule of Rates in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of Schedule of Rates should be as simple and brief as possible.

Measurement of Work executed after every agreed stage should be done and the quantities so obtained used alongside the rates in the schedule to arrive at interim valuation [for each stage] and the final valuation.

PART A: APPENDIX TO CONDITIONS OF CONTRACT:

SPECIAL NOTES TO ALL BIDDERS

1. Bidders are required to make a site inspection at their own cost to verify the scope of the specified works and take their own measurement so as to submit a comprehensive bid. Arrangement for accessing the site will be made with the **Senior Infrastructure Officer, NRT Isiolo** who will also arrange for a **pre-bid site inspection** with all bidders before the closing date for the tender. No claims for lack of information will be entertained after opening of the bids.
2. NRT will expect the highest quality of workmanship. Therefore, workmanship below the expected standards will be replaced at the cost of the Contractor.
3. All prices entered in the Bills of Quantities shall be **in Kenya Shillings** inclusive of all Government taxes and no claims for lack of understanding or omission in this regard will be accepted after the award of the tender. Therefore, bidders are required to ask for clarifications where and if necessary before submitting their bids.
4. This is a fixed price quotation and no variations will be entertained after the award of the tender. Bidders are advised to take this into account so as to include all costs and taxes in their bids.
5. Advance payment to the contractor will be decided by the employer but not exceeding 40 percent.
6. Amount of Tender Security is Kshs 50,000.00 (Kenya Shillings fifty thousand only)
7. The tender will be a lump sum figure in Kenya shillings, to cover all works. Contingency sum, where stated, will only be utilized on justification by the contractor and approval by the client.
8. The bid shall remain valid for **120 days** from the date opening.
9. Payment for the works will be made on progressive completion.
10. The Contractor will be required to maintain a high standard of cleanliness and housekeeping at the site. He/she will regularly cart away all debris or unwanted materials from the site and clear the site prior to the date of handover of the completed works.
11. Canvassing directly by the bidder or by proxy shall lead to automatic disqualification of his bid.

PART B: EVALUATION CRITERIA

The received tenders will be evaluated in three stages as detailed below:

1. Stage 1: Compliance with Mandatory Requirements;
2. Stage 2: The Technical Evaluation (Capacity to Deliver the Service)
3. Stage 3: The Financial Evaluation (Quoted Price)

A. Tender Award Recommendation

Lowest Evaluated Tender (Let)

The Lowest Evaluated Tender (LET) that will be recommended for the award of the contract will be the one found to be the most competitive tender under the Technical and Financial (Price) Evaluation Criteria.

B. Mandatory Requirements (MR)

The following mandatory requirements must be met notwithstanding other requirements in the documents:

No	Requirements	Tenderer's Response
MR 1	Provide documentary evidence of the company's Certificate of Incorporation (Legal Structure).	
MR 2	Provide copy of the company's current Certificate of Tax Compliance issued by Kenya Revenue Authority (KRA) valid at least upto the date of opening the tender.	
MR 3	Submit a completed company's profile using the Confidential Business Questionnaire provided in this tender document.	
MR 4	Visit the site and make a site inspection to confirm site details and scope of work. Bidder MUST sign a site visit register at NRT Works Office.	
MR 5	Provide Tender Security (bid bond) of Kshs 50,000.00 (Kenya Shillings fifty thousand only) from a bank or an Insurance Company approved by PPOA.	

C. TECHNICAL EVALUATION / SCORING CRITERIA

EVALUATION OF OFFERS						
MANDATORY AND TECHNICAL EVALUATION						
		POINT S	TOTAL	Tenderer's Response	WEIGHTED SCORE	MAX SCORE
1	MANDATORY/TECHNICAL REQUIREMENTS		25		25	
1.1	Provide documentary evidence of the company's Certificate of Incorporation (Legal Structure).	5				
1.2	Provide copy of the company's current Certificate of Tax Compliance issued by Kenya Revenue Authority (KRA) valid at least up to the date of opening the tender.	5			1	
1.3	Provide Tender Security (bid bond) of Kshs 50,000.00 (Kenya Shillings fifty thousand only) from a bank or an Insurance Company approved by PPOA.	5			1	
1.4	Registration with National Construction Authority(NCA)	5			1	
1.5	Number of Years in Business	5			5 years and above 5 marks,Others prorate at Number of Yearsx5/5	
2	QUALIFICATION		15		15	
2.1	Experienced personnel	5			5	
2.2	Previous successful experience with NRT	10			10	
3	REFERENCES :		40		40	
3.1	Provide a list of all clients with references (names and telephone of contact persons) to which the company has done similar works in the last 3 years	40			4 Clients or More 40 Points, others prorate at Number of clientsx40/4	
4	ORGANISATION AND EXECUTION OF PROJECT		20		20	
4.1	Submission of Work schedule	5			5	
4.2	Completion period quoted in the form of Tender	15			Shortest period 15 point, Others Prorate at Shorted Periodx15/Bidders Quoted Period.	
	TOTAL GENERAL		100			

Bidders scoring less than 60% do not proceed to next stage

B	FINANCIAL EVALUATION					
1	FINANCIAL EVALUATION		100			
1.1	Checking that the Tenderer has quoted prices based on all costs including duties and taxes		20		20	
1.2	Provide Documentary evidence of Annual turnover in the last one year of 2m.		20		20	
1.3	Lowest evaluated price		60		Lowest bid 60 points, others prorate at Lowest bidx60/bidders quoted Period	
	TOTAL GENERAL		100			
	AVERAGE SCORE					

D. AWARD OF CONTRACT

The contract will be awarded to the Quotation that:

1. Will have complied with all the Mandatory Requirements;
2. Has attained a score exceeding 70% under Technical Evaluation / Scoring Criteria;
3. Has the most competitive corrected price.

APPENDIX II

TENDER SUBMISSION CHECKLIST

A. Tender Submission Format – preliminary and technical

This order and arrangement shall be considered as the Tender Submission Format. Tenderers shall tick against each item indicating that they have provided it.

No.	Item	Tick Where Provided
1	Tender Security (Bid Bond) - Bank Guarantee or Letters of Credit (Banks Licensed by the Central Bank of Kenya)	
2	Declaration Form	
3	Duly completed Tender Form	
4	Confidential Business Questionnaire (CBQ)	
5	Duly completed Qualification Information Form. This should include the required attachments as per the form	
6	Proposed Work program(Work method & schedule)	
7	Duly completed Site Visit Form	
8	Copy of Contractor's Certificate of Incorporation	
9	Copy of Contractor's Certificate of Registration for the relevant category. With NCA registration certificate	
10*	Copy of Valid Tax Compliance Certificate	
11	Copy of PIN certificate	
12	List of previous clients of the Contractor for similar works indicating physical addresses.	

13	Reference letters from previous clients of the Contractor for similar works.	
14	Any other document or item required by the Tender Document that is non-financial. (The Tenderer shall specify such other documents or items it has submitted)	

B. Tender Submission Format – Financial clauses

No.	Item	Tick Where Provided
1	Priced Bill of Quantities (signed and stamped by bidder)	
2	Duly completed Tender Form (Financial)	
3	<p>Audited Financial Statements. The audited financial statements required must be those that are reported within fifteen (15) calendar months of the date of the tender document.</p> <p><i>(For companies or firms that are registered or incorporated within the last one calendar year of the Date of the Tender Document, they should submit certified copies of bank statements covering a period of at least six months prior to the date of the tender document. The copies should be certified by the Bank issuing the statements. The certification should be original).</i></p>	
4*	Any other document or item required by the Tender Document that is financial. (The Tenderer shall specify such other documents or items it has submitted)	



***NOTES TO TENDERERS**

1. Valid Tax Compliance Certificate shall be one issued by the relevant tax authorities and valid for at least up to the tender closing date. All Kenyan registered Tenderers must provide a valid Tax Compliance Certificate.

2. Foreign Tenderers must provide equivalent documents from their country of origin as regards Tax Compliance Certificate OR statements certifying that the equivalent documentation is not issued in the Tenderer's country of origin. The Statement(s) that equivalent documentation is not issued by the Tenderer's country should be original and issued by the Tax authorities in the Tenderer's country of origin.



TENDER FORM

Date:

Tender No.

To:

Operation Director

**Northern Rangelands Company Ltd
Lewa Wildlife Headquarters
ISIOLO, KENYA**

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 offer to construct, install and complete such Works and remedy any defects therein for the sum of Kshs. _____ *Amount in figures*]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 Project Manager'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.....*], which is **120 days** from date of submission 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.

Yours sincerely,

Name of Tenderer

Signature of duly authorised person signing the Tender

Name and Capacity of duly authorised person signing the Tender

Stamp or Seal of Tenderer

NRT/21/2021



NOTES:

1. NRT requires a validity period of at least 120 days.
2. This form must be duly signed, stamped and/or sealed

ii) CONFIDENTIAL BUSINESS QUESTIONNAIRE FORM

All Tenderers are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2 (b) or 2 (c)?, 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.....

Plot No.Street/RoadPostal Address

Postal Code Tel No.....

Mobile and/ or CDMA No..... E-mail:

Nature of your business Certificate of Incorporation

Maximum value of business which you can handle at any time KSh.....

Name of your BankersBranch.....

*Names of Tenderer’s contact person(s)

Designation/ capacity of the Tenderer’s contact person(s)

Address, Tel, Fax and E-mail of the Tenderer’s contact person(s)

.....
.....



Part 2 (a) Sole Proprietor

Your name in full

Nationality Country of origin

*Citizenship details.....



Part 2 (b) Partnership

Give details of partners as follows: -

Names	Nationality	*Citizenship Details	Shares
1.....			
2.....			
3.....			
4.....			
5.....			

Part 2 (c) Registered Company

Private or Public

State the nominal and issued capital of company-

Nominal KSh

Issued KSh.....

Give details of all directors as follows

Name	Nationality	*Citizenship Details	Shares
1.....			
2.....			
3.....			
4.....			
5.....			

Name of duly authorized person to sign for and on behalf of the Tenderer

.....

Capacity of the duly authorized person.....

Signature of the duly authorized person.....

***NOTES TO THE TENDERERS ON THE QUESTIONNAIRE**

1. *The address and contact person of the Tenderer provided above shall at all times be used for purposes of this tender.*
2. *If a Kenyan citizen, please indicate under "Citizenship Details" whether by birth, naturalization or registration.*
3. *The details on this Form are essential and compulsory for all Tenderers. **Failure to provide all the information requested shall lead to the Tenderer's disqualification.***
4. *For foreign Tenderers please give the details of nominal and issued share capital in the currency of the country of origin of the Tenderer.*

OR

SIGNED by the **DULY AUTHORISED REPRESENTATIVE(S)/ ATTORNEY(S)** of
The **BANK**

Name(s) and Capacity (ies) of duly authorized representative(s)/ attorney(s) of the Bank

Signature(s) of the duly authorised person(s)

NOTES TO TENDERERS AND BANKS

1. *Please note that no material additions, deletions or alterations regarding the contents of this Form shall be made to the Tender Security to be furnished by the Tenderer. If any are made, the Tender Security shall not be accepted and shall be rejected by NRCL. For the avoidance of doubt, such rejection will be treated as non-submission of the Tender Security where such Security is required in the tender.*
2. *It is the responsibility of the Tenderer to sensitize its issuing bank on the need to respond directly and expeditiously to queries from NRCL. The period for response shall not exceed five (5) days from the date of NRCL's query. Should there be no conclusive response by the Bank within this period, such Tenderer's Tender Security shall be deemed as invalid and the bid rejected.*
3. ***The issuing bank should address its response or communication regarding the bond to NRCL at the following e-mail address – “osman.hussein@nrt-kenya.org”***
4. *The Tender validity period is ninety (120) days as set out in the Invitation to Tender (at Section I of the Tender document) or as otherwise may be extended by NRCL. Therefore the Tender Security must at all times be valid for at least 30 days beyond the tender validity period.*

iv) TENDER SECURITY – (LETTERS

The Mandatory Conditions to be included in the Letters are in two parts, A and B.

Part A

Form of Documentary credit - “Irrevocable Standby”

Applicable rules - “Must be UCP Latest Version” i.e. Uniform Customs and Practices (UCP) 600 (2007 REVISION) ICC Publication No. 600.

Place of expiry - At the counters of the advising bank.

The SBLC should be available – “By Payment”

Drafts should be payable at - “SIGHT”

Documents required -

1. Beneficiary’s signed and dated statement demanding for payment under the letter of credit no..... (*Insert LC No.*) as.....(*Name of applicant*) (hereinafter called the “Tenderer”) indicating that the “Tenderer” has defaulted in the obligations of the Tenderer as stated by the Beneficiary.

3. The Original Letter of Credit and all amendments, if any.

Additional Conditions -

1. All charges levied by any bank that is party to this documentary credit are for the account of the applicant.
2. There should be no conditions requiring compliance with the specific regulations or a particular country's Law and regulations.

Charges - All bank charges are for the account of the applicant.

*Confirmation instructions – (See notes below)

Part B

The proceeds of these Letters are payable to NRCL -

- a) if the Tenderer withdraws its Tender after the deadline for submitting Tenders but before the expiry of the period during which the Tenders must remain valid.
- b) if the Tenderer rejects a correction of an arithmetic error
- c) if the Tenderer fails to enter into a written contract in accordance with the Tender Document
- d) if the successful Tenderer fails to furnish the performance security in accordance with the Tender Document.

e) if the Tenderer fails to extend the validity of the tender security where NRCL has extended the tender validity period in accordance with the Tender Document.

NOTES TO TENDERERS AND BANKS.

1. *Please note that should the Tender Security (LC) omit any of the above conditions the LC shall not be accepted and shall be rejected by NRCL. For the avoidance of doubt, such rejection will be treated as non-submission of the LC where such LC is required in the Tender.*

2. *It is the responsibility of the Tenderer to sensitize its issuing bank on the need to respond directly and expeditiously to any queries from NRCL. The period for response shall not exceed five (5) days from the date of NRCL's query. Should there be no conclusive response by the Bank within this period, such Tenderer's Tender Security shall be deemed as invalid and the bid rejected.*

3. ***The issuing bank should address its response or communication regarding the bond to NRCL at the following e-mail address – “osman.hussein@nrt-kenya.org”***

4. *The Tender validity period is ninety (120) days as set out in the Invitation to Tender (at Section I of the Tender document) or as otherwise may be extended by NRCL. Therefore the Tender Security must at all times be valid for at least 30 days beyond the tender validity period.*

5. *All Guarantees issued by foreign banks must be confirmed by a local bank in Kenya.*



v) DECLARATION FORM

Date _____

To:

**Operations Director
Northern Rangelands Company Ltd
Lewa Wildlife Headquarters
ISIOLO, KENYA**

Ladies and Gentlemen,

The Tenderer i.e. (full name and complete physical and postal address) _____

_____ declare the following: -

- a) That I/ We have not been debarred from participating in public procurement by anybody, institution or person.
- b) That I/ We have not been involved in and will not be involved in corrupt and fraudulent practices regarding public procurement anywhere.
- c) That I/We or any director of the firm or company is not a person within the meaning of paragraph 3.2 of ITT (Eligible Tenderers) of the Instruction to Bidders.
- d) That I/ We are not insolvent, in receivership, bankrupt or in the process of being wound up and is not the subject of legal proceedings relating to the foregoing.
- e) That I/ We are not associated with any other Tenderer participating in this tender.
- f) That I/ We do hereby confirm that all the information given in this Tender is accurate, factual and true to the best of our knowledge.

Yours sincerely,

Name of Tenderer

Signature of duly authorized person signing the Tender



Name and Capacity of duly authorized person signing the Tender

Stamp or Seal of Tenderer

vi) LETTER OF NOTIFICATION OF AWARD

To:

(Name and full address of the Successful Tenderer).....

Dear Sirs/ Madams,

RE: NOTIFICATION OF AWARD OF TENDER NO.

We refer to your Tender dated..... and are pleased to inform you that following evaluation, your Tender has been accepted as follows: -

.....
.....

This notification does not constitute a contract. The formal Contract Agreement, which is enclosed herewith shall be entered into upon expiry of fourteen (14) days from the date hereof but not later than thirty (30) days after expiry of tender validity pursuant to the provisions of the Public Procurement and Disposal Act, 2005 *(or as may be amended from time to time, or replaced)*.

Kindly sign, and seal the Contract Agreement. Further, initial and stamp on all pages of the documents forming the Contract that are forwarded to you with this letter. Thereafter return the signed and sealed Contract together with the documents to us within fourteen (14) days of the date hereof for our further action.

We take this opportunity to remind you to again note and strictly comply with the provisions as regards the Tender Security, Signing of Contract and Performance Security as stated in the Instructions to Tenderers.

We look forward to a cordial and mutually beneficial business relationship.

Yours faithfully,

CHIEF EXECUTIVE OFFICER

Enclosures:

vii) LETTER OF NOTIFICATION OF REGRET

To: *(Name and full address of the Unsuccessful Tenderer)*..... **Date:**

Dear Sirs/ Madams,

RE: NOTIFICATION OF REGRET IN RESPECT OF TENDER NO.
.....

We refer to your Tender dated..... and regret to inform you that following evaluation, your Tender is unsuccessful. It is therefore not accepted. The brief reasons are as follows:-

1.
2.
3. etc...

The successful bidder was _____.

However, this notification does not reduce the validity period of your Tender Security. In this regard, we request you to relook at the provisions regarding the Tender Security, Signing of Contract and Performance Security as stated in the Instructions to Tenderers.

You may collect the tender security from our *Works Department at our LEWA offices* only after expiry of twenty five (25) days from the date hereof. It is expected that by that time NRCL and the successful bidder will have entered into a contract pursuant to the Public Procurement and Disposal Act, 2005 (*or as may be amended from time to time or replaced*). When collecting the Security, you will be required to produce the original of this letter.

We thank you for the interest shown in participating in this tender and wish you well in all your future endeavors.

Yours faithfully,

CHIEF EXECUTIVE OFFICER.

viii) CONTRACT AGREEMENT FORM

THIS AGREEMENT made this.....day of.....**20...****BETWEEN THE KENYA NORTHERN RANGELANDS COMPANY LIMITED**, a limited liability company duly incorporated under the Companies Act, Chapter 486 of the Laws of Kenya, with its registered office situated at LEWA Conservancy, ISIOLO in the Republic of Kenya and of Post Office Private Bag, ISIOLO in the Republic aforesaid (*hereinafter referred to as the "NRCL"*) of the one part,

AND

..... (**Contractor's full name and principal place of business**) a duly registered entity according to the laws of..... (**state country**) and of Post Office Box Number.....(**full address physical and postal of Contractor**)in the Republic aforesaid, (*hereinafter referred to as the "Contractor"*) of the other part;

WHEREAS NRCL invited tenders for certain works, that is to say for(**NRCL insert description of works**) under Tender Number..... (**NRCL insert tender number**)

AND WHEREAS NRCL has accepted the Tender by the Contractor for the services in the sum of(**NRCL specify the total amount in words which should include any payable taxes, duties and insurance where applicable e.g. Value Added Tax**) (*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 and the Tender Document.
2. Unless the context or express provision otherwise requires: -
 - a) reference to "this Agreement" includes its recitals, any schedules and documents mentioned hereunder and any reference to this Agreement or to any other document includes a reference to the other document as varied supplemented and or replaced in any manner from time to time.
 - b) any reference to any Act shall include any statutory extension, amendment, modification, re-amendment or replacement of such Act and any rule, regulation or order made there under.
 - c) the Official Purchase Order shall also mean the Official Order or Local Purchase Order.
 - d) words importing the masculine gender only, include the feminine gender or (as the case may be) the neutral gender.
 - e) words importing the singular number only include the plural number and vice-versa and where there are two or more persons included in the expression the "*Contractor*" the covenants, agreements obligations expressed to be made or performed by the Contractor shall be deemed to be made or performed by such persons jointly and severally.

f) where there are two or more persons included in the expression the “Contractor” any act default or omission by the Contractor shall be deemed to be an act default or omission by any one or more of such persons.

3. In consideration of the payment to be made by NRCL to the Contractor as hereinbefore mentioned, the Contractor hereby covenants with NRCL to perform and Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract provide the services and remedy any defects thereon in conformity in all respects with the provisions of the Contract.

4. NRCL hereby covenants to pay the Contractor in consideration of the proper performance and provision of the services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

i. The following documents shall constitute the Contract between NRCL and the Contractor and each shall be read and construed as an integral part of the Contract: -

- a) this Contract Agreement
- b) Letter of Acceptance dated
- a) Conditions of Contract
- b) Special Conditions of Contract
- c) Official Purchase Order where applicable.
- d) Specifications
- e) Drawings
- h) Priced Bill of Quantities and agreed upon with NRCL.
- i) Work program (work methods and schedule)
- j) NRCL’s Notification of Award dated.....
- k) Tender Form signed by the Contractor
- l) Declaration Form signed by the Contractor/ successful Tenderer
- m) Warranty

6. In the event of any ambiguity or conflict between the contract documents listed above, the order of precedence shall be the order in which the contract documents are listed in 5 above except where otherwise mutually agreed in writing.

7. The Commencement date shall be the working day immediately following the fulfillment of all the following: -

- a) Execution of this Contract Agreement by NRCL and the Contractor.
- b) Issuance of the Performance Bond by the Contractor and confirmation of its authenticity by NRCL.
- c) Issuance of the Official Order by NRCL to the Contractor.
- d) Where applicable, Opening of the Letter of Credit by NRCL.

8. The period of contract validity shall begin from the Commencement date and end at the expiry of the Defects Liability Period. Provided that the expiry period of the Warranty shall be as prescribed and further provided that the Warranty shall survive the expiry of the contract.

9. It shall be the responsibility of the Contractor to ensure that its Performance Security is valid at all times during the period of contract validity and further is in the full amount as contracted.



10. Any amendment, change, addition, deletion or variation howsoever to this Contract shall only be valid and effective where expressed in writing and signed by both parties.

11. No failure or delay to exercise any power, right or remedy by NRCL shall operate as a waiver of that right, power or remedy and no single or partial exercise of any other right, power or remedy.

12. Notwithstanding proper completion of performance or parts thereof, all the provisions of this Contract shall continue in full force and effect to the extent that any of them remain to be implemented or performed unless otherwise expressly agreed upon by both parties.

13. Any notice required to be given in writing to any Party herein shall be deemed to have been sufficiently served, if where delivered personally, one day after such delivery; notices by electronic mail and facsimile shall be deemed to be served one day after the date of such transmission and delivery respectively, notices sent by post shall be deemed served seven (7) days after posting by registered post (*and proof of posting shall be proof of service*), notices sent by courier shall be deemed served two (2) days after such receipt by the courier service for Local contractors and five (5) days for Foreign contractors.

14. For the purposes of Notices, the address of NRCL shall be Works Office, The Northern Rangelands Company Limited, LEWA Conservancy Offices, Post Office Box Private Bag ISIOLO, + 254- 722 703803. The address for the Contractor shall be the Contractor's address as stated by it in the Confidential Business Questionnaire provided in the Tender Document.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Kenya the day and year first above written.

SIGNED for and on behalf
Of **NRCL**

CHIEF EXECUTIVE OFFICER

SEALED with the **COMMON SEAL**
of the **CONTRACTOR**
in the presence of:-

CONTRACTOR

Affix Contractor's Seal here

WITNESS'S FULL NAMES

and in the presence of:-

WITNESS'S FULL NAMES



DIRECTOR DRAW
 N BY: - **Operations**
Director
 C/o Northern Rangelands Company Limited,
 LEWA Conservancy Offices
 Post Office Private Bag, ISIOLO, KENYA, Telephones: + 254-725023811

ix) PERFORMANCE SECURITY FORM (BANK GUARANTEE)

(To Be Submitted On Bank's Letterhead)

Date:

To:

Operations Director
Northern Rangelands Company Ltd
Lewa Wildlife Headquarters
ISIOLO, KENYA

WHEREAS..... (hereinafter called "the Contractor") has undertaken, in pursuance of your Tender Number.....(*reference number of the Tender*) and its Tender dated(*insert Contractor's date of Tender taken from the Tender Form*) to supply(*description of the works*) (hereinafter called "the Contract);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a bank guarantee by an acceptable bank for the sum specified therein as security for compliance of the Contractor's performance obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor a guarantee;

THEREFORE WE HEREBY AFFIRM that we are Guarantors and responsible to you, on behalf of the Contractor, up to a total of..... (*amount of the guarantee in words and figures*) and we undertake to pay you, upon your first written demand declaring the Contractor to be in default under the Contract and without cavil or argument, any sum or sums within the limits of (*amount of guarantee*) as aforesaid, without you needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until theday of.....20....

EITHER

SEALED with the)
COMMON SEAL)
 of the said **BANK**)

thisday) _____
) **BANK SEAL**
 of20....)
 in the presence of :-)

_____)
)
 and in the presence of:-)



_____))
_____))
OR
SIGNED by the DULY AUTHORISED
REPRESENTATIVE(S)/ ATTORNEY(S) of
The BANK

Name(s) and Capacity (ies) of duly authorized representative(s)/ attorney(s) of the Bank

Signature(s) of the duly authorized person(s)

NOTES TO CONTRACTORS AND BANKS

- 1. Please note that no material additions, deletions or alterations regarding the contents of this Form shall be made to the Performance Security Bond (the Bond) to be furnished by the successful Tenderer/ Supplier. If any are made, the Bond may not be accepted and shall be rejected by NRCL. For the avoidance of doubt, such rejection will be treated as non-submission of the Bond where such Bond is required in the tender and Contract.*
- 2. NRCL shall seek authentication of the Performance Security from the issuing bank. It is the responsibility of the Contractor to sensitize its issuing bank on the need to respond directly and expeditiously to queries from NRCL. The period for response shall not exceed five (5) days from the date of NRCL's query. Should there be no conclusive response by the Bank within this period, such Contractor's Performance Security may be deemed as invalid and the Contract nullified.*
- 4. The issuing Bank should address its response or communication regarding the bond to NRCL at the following e-mail address – "osman.hussein@nrt-kenya.org"*

x) PERFORMANCE SECURITY (LC)

Mandatory Conditions that should appear on the Performance Security (LC).

Form of Documentary credit - “Irrevocable Standby”

Applicable rules - “Must be UCP Latest Version” i.e. UCP 600 (2007 REVISION) ICC Publication No. 600.

Place of expiry - At the counters of the advising bank.

The SBLC should be available – “By Payment”

Drafts should be payable at - “SIGHT

Documents required -

1. Beneficiary’s signed and dated statement demanding for payment under the letter of credit no..... (Insert LC No.)as.....(Name of Applicant) (hereinafter called the “Contractor”) indicating that the “Contractor” has defaulted in the performance and adherence to and performance of the contract between the Beneficiary and the Contractor.
2. The Original Letter of Credit and all amendments, if any.

Additional Conditions -

1. All charges levied by any bank that is party to this documentary credit are for the account of the Applicant.
2. (Include) that there should be no conditions requiring compliance with the specific regulations or a particular country’s laws and regulations.

Charges - All bank charges are for the account of the Applicant.

Confirmation instructions – (See notes below)

1. *Please note that should the Performance Security (LC) omit any of the above conditions the LC shall not be accepted and shall be rejected by NRCL. For the avoidance of doubt, such rejection will be treated as non-submission of the LC where such LC is required in the tender and Contract.*
2. *NRCL may seek authentication of the Performance Security (LC) from the issuing bank. It is the responsibility of the Contractor to sensitize its issuing bank on the need to respond directly and expeditiously to queries from NRCL. The period for response shall not exceed five (5) days from the date of NRCL's query. Should there be no conclusive response by the Bank within this period, such Contractor's Performance Security (LC) may be deemed as invalid and the Contract nullified.*
3. *The issuing bank should address its response or communication regarding the bond to NRCL at the following e-mail address – “osman.hussein@nrt-kenya.org”*
4. *All Guarantees issued by foreign banks must be confirmed by a local bank in Kenya.*



xi) LETTER OF ACCEPTANCE

[Letter-head paper of the Employer]

_____ [date]

To: _____

[name of the Contractor]

[Address of the Contractor]

Dear Sir,

This is to notify you that your Tender dated _____

for the execution of _____

[Name of the Contract and identification number, as given in the Tender documents] for the Contract

Price of Kshs. _____ [amount in figures][Kenya

Shillings _____ (amount in words)] in accordance with the Instructions to

Tenderers is hereby accepted.

You are hereby instructed to proceed with the execution of the said Works in accordance with the Contract documents

Authorized Signature

Name and Title of Signatory

Attachment: Agreement

SECTION – xiii MISCELLANEOUS WORKS

2.1 Access Facilities

The Contractor shall provide adequate access facilities to various sites within the project area to facilitate construction activities at no extra cost to the Employer. These new facilities provided by the Contractor shall be extended to other contractors executing works for the project or other agencies free of charge.

2.2 Existing Services and Structures

The Contractor's attention is specifically drawn to connections to and protecting of existing services and installations. The Contractor shall be deemed to have included in his tender rates and prices adequate provision to comply with all such requirements.

2.3 Amendments to Designs

Where amendments are required to the civil designs due to prevailing ground conditions, the amended designs shall be produced by the Contractor and approved by the Engineer. No extra payment shall be made for design work to the Contractor.

PART C: SPECIFICATIONS SCOPE OF WORK AND BILLS OF QUANTITIES FOR CONSTRUCTION OF NAIBUNGA FENCE- KIMANJO IN NAIBUNGA CONSERVANCY.

TABLE OF CONTENTS

1. EXCAVATIONS AND SITE CLEARANCE.....	58
1.1. Examine the Site.....	58
1.2. Bottoms of excavations to receive foundations.....	58
1.3. Sides of excavations.....	59
1.4. Rock.....	59
1.5. Starting level.....	59
1.6. Blasting.....	59
1.7. Cart away.....	59
1.8. Borrow pits.....	59
1.9. Filling obtained from excavations.....	60
1.10. Hardcore filling.....	60
1.11. Materials found in excavations.....	60
1.12. Rates for excavations.....	60
1.13. Rates for disposal.....	61
1.14. Diothene sheeting.....	61
1.15. Cutting down trees.....	61
2. CONCRETE WORK.....	62
2.1. Code of Practice.....	62
2.2. Supervision.....	62
2.3. Contractor's plant, Equipment and Construction procedures.....	62
2.4. Tolerance.....	63
2.5. Materials generally.....	63
2.6. Samples.....	63
2.7. Cement.....	64
2.8. Aggregates.....	64
2.9. Water.....	64
2.10. Ready mixed concrete.....	65
2.11. Concrete mixes.....	65
2.12. Concrete strengths.....	65
2.13. Testing Equipment.....	65
3. MEASURED PROPORTIONS OF CONCRETE.....	68
3.1. Cement.....	68
3.2. Aggregates.....	68
3.3. Concrete classes 20 to 25.....	68
3.4. Mechanical Mixing and Placing of Concrete.....	68
3.5. Mixing of concrete by hand.....	69
3.6. Compaction.....	69
3.7. Formwork for structures.....	70
3.8. Removing of formwork.....	71
3.9. Construction joints.....	71
3.10. Curing and Protection.....	71
3.11. Faulty Concrete.....	72
3.12. Rod Reinforcement.....	72
3.13. Fabric Reinforcement.....	72
3.14. Fixing Rod Reinforcement.....	72
3.15. Position and Correctness of Reinforcement.....	72

3.16. Spacer Blocks.....	73
3.17. Concrete Cover to Reinforcement.....	73
4. WALLING.....	78
4.1. Stone.....	78
4.2. Concrete Blocks.....	78
4.3. Bricks.....	78
4.4. Concrete Vent Blocks.....	79
4.5. Wall Reinforcement.....	80
4.6. Wall Ties.....	81
4.7. Chasing.....	81
4.8. Mortars.....	81
4.9. Setting Out.....	81
4.10. Bonding Walling.....	81
4.11. Laying and Jointing.....	81
4.12. Fair face.....	81
4.13. Damp-proof Courses.....	81
4.14. Prices to Include.....	81
5. ROOFING AND RAINWATER DISPOSAL.....	31
5.1. Preparation of Surfaces.....	31
5.2. Protection.....	31
5.3. Concrete Tile Roofing.....	31
5.4. Rainwater Disposal Goods.....	31
6. CARPENTRY AND JOINERY.....	84
6.1. Species of Timber.....	84
6.2. All Timber.....	84
6.3. Generally.....	84
6.4. Insect Damage.....	84
6.5. Seasoning of Timber.....	84
6.6. Pressure Impregnated Preservative Treatment.....	84
6.7. Clearing up.....	85
6.8. Workmanship.....	85
6.9. Jointing.....	85
7. JOINERY.....	86
7.1. Fixing Joinery.....	88
7.2. Bedding Frames, etc.....	88
7.3. Plugging Concrete and Walls.....	88
7.4. Fiberboard.....	88
7.5. Plywood.....	88
7.6. Block board.....	90
7.7. Chipboard.....	90
7.8. Flush Doors.....	90
7.9. Ironmongery.....	90
7.10. Prices to Include.....	91
7.11. Nails, Screws and Bolts.....	91
8. METAL WORK.....	92
8.1. All Materials.....	92

8.2. Strut and Steel Work.....	92
8.3. Nails Screws and Bolts.....	92
8.4. Workmanship.....	93
8.5. Rainwater Goods.....	93
8.6. Metal Windows and Doors.....	93
8.7. Fixing Metal Windows and Doors.....	93
8.8. Quality of Materials and Workmanship.....	94
8.9. Structural Hollow Sections.....	94
8.10. Electric Welding.....	95
8.11. Painting.....	95
9. PLASTERWORK AND OTHER FINISHING.....	96
9.1. Lime Plaster.....	96
9.2. Polished Terrazzo.....	96
9.3. Glazed/Ceramic Wall and Floor Tiles.....	96
9.4. Vinyl Tiling.....	96
9.5. Quarry Tiles.....	96
9.6. Marble Tiles and Terrazzo Tiles.....	96
10. ELECTRICAL INSTALLATIONS.....	97
10.1. Compliance with Regulations.....	97
10.2. Power Supply Line.....	98
10.3. Meter Board.....	98
10.4. Earthing.....	98
10.5. Sub-Mains.....	98
10.6. Conduits.....	98
10.7. Cooker Point.....	98
10.8. Light Fittings.....	99
10.9. Schedule of points.....	100
11. ADDITIONAL NOTES TO CONTRACTORS.....	101

1. EXCAVATIONS AND SITE CLEARANCE

1.1. Examine the Site

The Contractor is assumed to have examined the site carefully and ascertained for himself its nature and kind of materials to be excavated and cleared.

Excavations shall be the widths and depths indicated on the Drawings or to such lesser or greater depths as the NRT Engineer deems necessary and so instructs the Contractor in order to obtain satisfactory foundations.

Any difference in quality of the Works actually executed under such instructions and that provided in the Bills of Quantities shall be measured and valued by the NRT Engineer as a variation under the relevant Conditions of Contract.

If, however the Contractor excavates to any greater depths or widths than are shown on the Drawings or directed, then the Contractor shall, at his own expense, satisfactorily fill in such extra depth and width with concrete similar to that described for the foundation.

1.2. Bottoms of excavations to receive foundations

The Contractor shall report to the NRT Engineer when secure bottoms to the excavations have been obtained. Any concrete or other work executed before the excavations have been inspected and approved shall, if so directed, be removed and new work substituted after the excavations have been approved, all at the Contractors expense.

The surface of the bottoms of excavations to receive foundations shall be levelled or graded to fall as required.

1.3. Sides of excavations

Sides of Excavations shall be maintained vertical by means approved by the NRT Engineer, and the Contractor shall also allow for keeping same free from fallen material in his rates for excavations.

The Contractor shall also allow for keeping excavations free from water and mud by bailing, pumping or otherwise, in his rates for excavations.

1.4. Rock

Excavations in Rock shall exclude all materials which can be removed by hand and does not necessarily require the use of compressors or other mechanical equipment although the Contractor may use such equipment to loosen the materials for ease of its removal. All top soils, black cotton and other clay soil, murrum, stone, and other fill and all similar materials will not be classified as rock.

Rock has been measured hereafter as extra over excavations for excavating in soft or hard rock.

Soft rock shall be deemed to mean any material which cannot reasonably be removed without the use of mechanical plant such as rippers, compressors, excavators, but which does not require drilling, wedging or blasting. Local tuffs, magadi, highly consolidated laterite weathered lavas, boulders or out crops of harder rock exceeding one cubic meter in volume, Nairobi building stone and similar material shall be classified as soft rock.

Hard Rock shall be classified as materials which is massive and geologically homogenous and which requires the use of drilling, wedging, or blasting for its removal such as black trap and similar materials.

The NRT Engineer's decision shall be final with regard to classification of excavated material.

1.5. Starting level

Unless otherwise described the starting level of all excavations has been measured from the level remaining after completion of reduced level excavations. However the Contractor's prices should include for carrying out the excavation work in any alternative sequence that may be required.

1.6. Blasting

No blasting shall be allowed without the prior approval of the Local Authorities and the NRT Engineer

1.7. Cart away

All surplus excavated materials where so directed and all rubbish are to be removed from the Site and the Contractor is to find his own dump site and shall pay all charges required by any Local Authority.

1.8. Borrow pits

Borrow pits shall only be allowed to be opened on the Site with the approval of the NRT Engineer

1.9. Filling obtained from excavations

Filling obtained from surplus excavated material will only be incorporated if suitable material arises and is to be free from all weeds, roots vegetable soil or other unsuitable materials and is to be filled in layers each of not more than 250mm finished thickness. Each layer to be well wetted and consolidated as described hereafter.

1.10. Hardcore filling

Hardcore for filling under floors shall be good hard stone or quarry waste to be approved by the NRT Engineer broken to pass not greater than a 150 mm ring or to be 75% of the finished thickness of the layers being compacted, whichever is less. Hardcore shall be free from all weeds, roots vegetable soil, clay, black cotton soil or other unsuitable materials.

It shall be well graded with smaller stones and fine materials to give a dense compact mass after consolidation. Sufficient fine material shall be added to each layer to give gradation of materials as necessary to obtain a solid compact mass after rolling. Hardcore filling shall be laid in layers each of a consolidated thickness not exceeding 250 mm. Each layer shall be compacted by at least 8 passes of a 10 ton smooth wheeled roller or a 2 ton vibrating roller until all movement ceases.

Sufficient water must be added to obtain maximum compaction to the NRT Engineer's approval. To each layer a 25 mm thick layer of sand complying with the specifications for fine aggregates for concrete shall be spread over the surface and forced into the hardcore by the use of a vibrating roller weighing not less than 2 tons; this operation should be carried out when the materials are dry and repeated whilst the sand is well watered. Should all the sand be absorbed the NRT Engineer may require a further layer to be applied and the process repeated.

The top surface of hardcore shall be levelled or graded to the falls as required and shall then be blinded with a layer of similar materials broken to 25mm gauge and surfaced with a 10 ton smooth wheeled roller. The surface so obtained shall be to the NRT Engineer's approval.

1.11. Materials found in excavations

No sand, aggregate, murrum, or other material found in the excavations is to be used in the Works without the permission of the NRT Engineer.

1.12. Rates for excavations

The rates for excavation, including excavation in rock, **MUST INCLUDE**, leveling and preparing bottoms and all faces to receive concrete, etc. and for any extra excavation required for planking and strutting.

Prices shall include for excavating in any material encountered unless specifically otherwise described handling etc of extra bulk after excavating, or before consolidating, any extra excavation required for formwork or planking and strutting, circular work, grubbing up any old drains, roots, etc., that may be encountered for trimming sides and leveling and ramming bottoms, forming steppings and trimming excavation or filling to embankments and batters as required.

In his prices for excavations the Contractor shall allow for keeping the whole of the excavations free from spring, Underground River or stream, drainage, storm or seepage water. The Contractor shall allow and make provision for keeping the whole of the Works thoroughly drained and clear of water below the lowest level of any part of them so long as may be required and if considered necessary by the NRT Engineer, continuously day and night by petrol or hand pumps or other mechanical appliances, pipes, chutes, dams, manholes, sumps, diversions or any other means necessary for that purpose. Water pumped from the trenches shall not be allowed to run down the road channels but shall be conveyed to the nearest surface water sewer, ditch or river through troughs, chutes or pipes.

1.13. Rates for disposal

Rates for disposal of excavated materials are to include for the selection of spoil as it arises and for all double handling and re- excavation from spoil heaps not specifically ordered by the NRT Engineer.

1.14. Diothene sheeting

Diothene sheeting shall be 1,000 gauge as described and as approved. Joints in sheeting shall be treble folded with 150mm fold and taped at 300mm intervals with 50mm wide black plastic adhesive tape as manufactured by Cello tape Limited. The sheeting shall not be stretched but shall be laid loose with sufficient wrinkles to permit shrinkage up to 15%.

1.15. Cutting down trees

The Contractor must consult the NRT Engineer before cutting down or pruning and trees or shrubs encountered on the Site.

Trees and other woody vegetation designated to remain undisturbed shall be protected from damage throughout the entire construction period. Any damage resulting from the Contractor's operations or neglect shall be repaired by the Contractor.

Earth fill, stockpiling of materials, vehicular parking, and excessive foot or vehicular traffic shall not be allowed within the drip line of vegetation designated to remain in place. Vegetation damaged by any of these or similar actions shall be replaced with viable vegetation

of the same species or as specified and approved by the Engineer.

2. CONCRETE WORK

2.1. Code of Practice

All workmanship, materials, tests and performances in connection with reinforced concrete work are to be in conformity with the latest edition of the British Standard Code of Practice (C.P 110 for “the Structural Use of Concrete”) where not inconsistent with these Preambles.

2.2. Supervision

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

2.3. Contractor's plant, Equipment and Construction procedures

Unless otherwise agreed and only for large construction works, not less than 30 days prior to the installation of the Contractor's plant and equipment for processing, handling, transporting, storing and proportioning ingredients, and for mixing, transporting and placing concrete, the Contractor shall submit drawings for approval by the Engineer, showing proposed general plant arrangements together with a general description of the equipment he proposes to use.

After completion of installation, the operation of the plant and equipment shall be subject to the approval of the NRT Engineer.

Where these preambles, the Bills of Quantities or the Drawing require specific procedures to be followed, such requirements are not to be construed as prohibiting use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of the NRT Engineer that equal results will be obtained by the use of such alternatives.

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

2.4. Tolerance

On all setting dimensions of 5 meters and over a maximum non-accumulative tolerance of plus or minus 5 millimeters will be allowed. On all setting out dimensions under 5 meters a maximum non-accumulative tolerance of plus or minus 3 millimeters will be allowed. On the cross-sectional dimensions of structural members, unless otherwise required by the Drawing, a minimum tolerance of plus or minus 3 millimeters will be permitted.

The top surface of concrete floor slabs and beams shall be within 6 millimeters of the normal level and line shown on the Drawings. Columns shall be truly plumb and non-accumulative tolerance of 3 millimeters in each storey and not more than 15 millimeters out of

plumb in their full height will be permitted. The Contractor shall be responsible for the cost of all corrective measures required by the NRT Engineer to rectify work which is not constructed within the tolerance set out above.

2.5. Materials generally

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

The source of supply for all materials used for concrete work shall be approved by the NRT Engineer before these materials are delivered on the Site. All materials shall comply with the requirements of the latest appropriate British Standard unless otherwise agreed with the NRT Engineer, whose approval shall be obtained in writing.

The suppliers of materials shall give the NRT Engineer access to their premises when directed for the purpose of obtaining samples of the materials for testing.

2.6. Samples

Samples of materials shall be submitted as soon as possible after the Contract is signed. No deliveries in bulk shall be made until the samples are approved by the NRT. All condemned material shall be removed from the Site within 24 hours.

Unless otherwise agreed every effort shall be made to enable the NRT Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of the materials or construction does not comply with the requirements of this specification, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

Samples of all materials proposed to be used shall be submitted to the Engineer and shall be tested where required, by the materials Branch of the Ministry of Works or other approved testing place, and receive his approval prior to being delivered in bulk upon the Works.

The Contractor's attention is drawn to the fact that the testing of samples of aggregate, sand and cement by the Materials Branch, MOW., takes time and it is of the utmost importance that the samples should be submitted for testing as soon as possible after the letting of the Contract. The Ministry will not accept any responsibility whatsoever for delay in the commencement of the Contract due to delay on the part of the Contractor in submitting samples.

2.7. Cement

Cement, unless otherwise specified, shall be Ordinary Portland Cement of a brand approved by the NRT Engineer and shall comply with the requirements of B.S. 12 with the exceptions that it may contain reactive volcanic ash (or not than 10% of the total weight) and the quality of insoluble residue permitted in B.S. 12 may be exceeded. A manufacturer's Certificate of Testing in accordance with B.S. 12 shall be supplied for each consignment delivered to the Site unless otherwise agreed.

Should the Contractor require using cement of the rapid hardening variety, he shall obtain the approval of the NRT Engineer and also obtain any instructions regarding modifications to these Preambles caused thereby. Any additional cost that may be caused by the use of rapid hardening cement shall be at the Contractor's expense.

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

If delivered in bags, each bag shall be properly sealed and marked with the manufacturer's name and on the Site is to be stored in a weather-proof shed of adequate dimension with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has set or partly set, shall be completely discarded and not used in the Works. Bags shall not be stored higher than 1,500 mm in height.

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

2.8. Aggregates

The aggregates shall conform to the requirements of B.S. 882 and the sources and types of all aggregate are to be approved in all respects by the NRT Engineer before work commences.

The grading of aggregates shall be done within the limits set out in B.S. 882 and as later specified and the grading, once approved, shall be adhered to throughout the Works and not varied without the approval of the NRT Engineer.

Fine aggregate shall be clean, coarse, siliceous sand of good, sharp, hard quality and shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substances. It shall be graded within the appropriate limits set out in B.S. 882.

Coarse aggregate shall be good, hard, clean and durable crushed rock, crushed gravel or natural gravel, approved black trap or similar stone, free from dust, decomposed stone, clay, earthy matter, foreign, substances or friable thin elongated or laminated pieces. It shall be graded within the appropriate limits set out in B.S. 882 for its respective nominal size.

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

Aggregates shall be delivered to the Site in their prescribed sizes or grading and shall be stockpiled on paved areas or boarded platforms in separate units to avoid intermixing. On no account shall aggregates be stockpiled on the ground.

2.9. Water

The water used for mixing concrete shall be from an approved source, clean, fresh, and free from harmful matter.

The amount of water to be used in any particular class of concrete shall ensure complete hydration and for thorough mixing and subsequent working of the concrete in place, taking into consideration the purpose for which the concrete is intended for and the method of compacting.

Therefore for given aggregates the cement content shall be sufficient to provide adequate workability with a low water/cement ratio so that the concrete can be completely compacted with the means available.

2.10. Ready mixed concrete

Ready-mixed concrete may only be used with the permission of the NRT Engineer.

2.11. Concrete mixes

Concrete mixes shall have been described either by the volumetric proportions or by the 28-day cube strength.

The maximum cement content shall not exceed 500kg/m³ or as otherwise described in the contract or directed by the NRT Engineer.

Cement contents in excess of 500kg/m³ should not be used unless special consideration has been given in design to the increased risk of cracking due to drying shrinkage in the sections or to thermal stresses in thicker sections.

Where the minimum dimension of concrete to be placed at a single time is greater than 600mm and especially where the cement content is likely to exceed 400kg/m³ or more, measures to reduce temperature, such as selection of the cement type with slower release of heat of hydration may be considered.

2.12. Concrete strengths

Concrete mixes shall have the following minimum strengths as given by Works Cube Tests:-

Minimum Crushing Strengths at 28 Days

N/MM

Class 25 25

Class 20 20

The average strength obtained from cube tests shall be 10% higher than the minimum strengths shown above.

Works Cube Tests will not be required for class 15 blinding concrete which shall comprise 1: 4: 8 by volume

Volumetric mixes shall comprise the following:

Cement/Kg : Fine Aggregate/CM : Coarse Aggregate/CM

1: 2 : 4 50: 0.07 : 0.14

1 : 3: 6 50: 0.10 : 0.20

1: 4 : 8 50: 0.13 : 0.26

2.13. Testing Equipment

The Contractor shall provide the following equipment for carrying out control tests on the Site:-

- a. Straight edge 3 meters and 1 meter long for testing the accuracy of the finished concrete
- b. A glass graduated cylinder for use in the silt test for organic impurities in the sand;
- c. Slump test apparatus;
- d. Four 150 mm steel cube moulds with base plates and tamping rods to B.S. 1881

3. MEASURED PROPORTIONS OF CONCRETE

3.1. Cement

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

3.2. Aggregates

Unless otherwise agreed concrete aggregates shall be measured by weight in a weight batching machine. Volume batching may also be accepted with prior approval by the NRT Engineer.

For Class 15 concrete and other volumetric mixes, aggregates may be measured by volume using approved gauge boxes of such sizes as to give the correct proportions.

Weight batching machines shall be of an approved type and shall be properly maintained and checked for accuracy at regular intervals.

3.3.

Concrete classes 20 to 25

The weights of fine and coarse aggregate to be used in concrete classes 20 to 25 shall be within accepted limits to be agreed with the NRT Engineer.

The proportions of fine to coarse aggregate and cement which the Contractor proposes to use for each of the mixes specified shall first be approved by the NRT Engineer.

The NRT Engineer may require at any time during the Contract the proportions of fine to coarse aggregate to be altered in order to produce a mix of greater strength or improved workability and providing that the total proportions of aggregate to cement remain unchanged, no claim for additional cost will be considered.

3.4. Mechanical Mixing and Placing of Concrete

The concrete shall be mixed only in approved power-driven mixers of a type and capacity suitable for the work, and in any event not smaller than 0.40/ 0.28 m³ capacity. Concrete mixers may be of the revolving drum or the revolving blade type and the mixing or blades shall be operated uniformly at the mixing speed recommended by the manufacturer. Mixers shall be fitted with an automatic recorder registering the number of batches discharged.

It is desirable for the mixers to be equipped with an accurate water measuring device. All materials shall be thoroughly dry before the water is added and the mixing of each batch shall continue for a period of not more than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in color.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 100% extra cement shall be added to the first batch and no extra payment will be made on this account.

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

The concrete shall be mixed as near to the place where it is required as is practicable, and only as much as is required for a specified section of the work shall be mixed at one time, such section being commenced and finished in one operation without delay. All concrete must be efficiently handled and used in the work within twenty (20) minutes of mixing. The temperature of the materials as charged into the mixer shall be such that the temperature of the mixed concrete at the time it is placed in final position does not exceed 30deg.C.

Mixing shall continue for at least 90 seconds, after all materials including water, which shall be added last of all, have been passed into the drum and before any portion of the batch is discharged.

It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by approved means which do not cause separation or otherwise impair the quality of the concrete. Approved mechanical means of handling will be encouraged, but the use of chutes for placing concrete is subject to the prior approval of the NRT Engineer.

Concrete shall be placed from a height not exceeding 1,500 mm directly into its permanent position and shall not work along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs, beams, and similar members, and shall be placed in horizontal layers not exceeding 1,500 mm deep in walls and similar members.

Concrete in columns may be placed to a height of 4 meters with careful placing and vibration with satisfactory results. Where the height of the column exceeds 4 meters suitable openings must be left in the shutters so that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of approved extent. At the completion of a specified or approved part a construction joint of the form and in the positions hereinafter specified shall be made. If stopping of concreting be unavoidable elsewhere, a construction joint shall be made where the work stopped. A record of all such joints must be made by the contractor and a copy supplied to the NRT Engineer.

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

The Contractor shall provide runways for concreting to the satisfaction of the NRT Engineer. Under no circumstances will the runways be allowed to rest on the reinforcement.

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

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

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

3.5. Mixing of concrete by hand

Where it is not practical to employ machine mixing and approval has been obtained from the Engineer, concrete shall be mixed by hand as near as practicable to the site where it is to be deposited. Hand mixed concrete shall be made in batches of not more than 0.25 m³.

The mixing shall be done on a clean watertight, non-absorbent platform approved by the NRT Engineer. The cement and fine aggregate shall then be added and mixed dry until the mixture is thoroughly blended and uniform in color. The coarse aggregate shall then be added and mixed until the coarse aggregate is uniformly distributed throughout the batch. The correct quantity of water shall be added using a can with a nose nozzle and the mixing continued until the entire batch of concrete is homogenous and has the desired consistency.

Mixing shall be carried out until the whole batch has been turned at least three times dry and three times wet.

For hand mixing the cement content shall be increased by 10% over that required for machine mixing.

The platform shall be emptied before a subsequent batch is mixed and thoroughly cleaned, if not in use for more than 30 minutes, before the next batch is prepared.

3.6. Compaction

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

Concrete shall not be placed at a rate greater than that which permit satisfactory compaction nor to a depth greater than 400 mm before it is compacted.

During and immediately after placing, the concrete shall be thoroughly compacted by means of constant tamping, spading, slicing and vibration. Vibration is required for all concrete of Class 40, 35 and 25.

Care shall be taken to fill every part of the forms to work the concrete under and around the reinforcement without displacing it and to avoid disturbing recently placed concrete which has begun to set.

Any water accumulation on the surface of newly placed concrete shall be removed and no further concrete shall be placed there until such water is removed.

Internal vibrators shall be of a frequency of not less than 7,000 cycles per minute and shall have a rotating eccentric weight of at least 0.50 kg, with an eccentricity of not more than 12 mm. Such vibrators shall visibly affect the concrete within a radius of 250 mm from the

vibrator.

Internal vibrators shall not be inserted between layers of reinforcement less than one and one half times the diameter of the vibrators apart. Contact between vibrators and reinforcement and vibrators and formwork shall be avoided.

Internal vibrators shall be inserted vertically into the concrete wherever possible at not more than 500 mm centers and shall constantly be moved from place to place. No internal vibrator shall be permitted to remain in any one position for more than ten seconds and it shall be withdrawn very slowly from the concrete.

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

At least one internal vibrator shall be of the high frequency low amplitude type applied with the principle direction of vibration in the horizontal plane. They shall be attached directly to the forms at not more than 1,200 mm centers.

In addition to internal and external vibration the upper surface of suspended floor slabs shall be leveled by tamping or vibrating to receive finishes. Vibrating elements shall be of low frequency high amplitude type operating at a speed of not less than 3,000 r.p.m.

Construction joints shall be permitted only at the positions predetermined on the Drawing or as instructed on the Site by the NRT Engineer. In general they shall be perpendicular to the lines of principle stress and shall be located at points of minimum shear, viz, vertically at, or near, mid-spans of slabs, ribs and beams.

3.7. Formwork for structures

Formwork shall include all temporary forms required for forming the concrete together with all temporary construction required for the support. All formwork shall be so constructed that there shall be no loss of material from the concrete and shall be of sum quality and strength as will ensure rigidity throughout the placing, compaction and setting of the concrete. After hardening, the concrete shall be in the position and of the shape, dimensions and surface as described in the contract.

Falsework or centering shall be founded upon a solid footing safe against undermining and protected from softening. Falsework which cannot be founded on satisfactory footing shall be supported on piling which shall be spaced, driven and removed in a manner approved by the NRT Engineer.

The design of the forms shall also take into account the effect of vibration of concrete as it is paced. They shall be built mortar tight and of sufficient rigidity to prevent distortion due to the pressure of concrete and other loads incidental to the construction operations and so as to prevent warping and the opening of joints due to shrinkages of the timber.

The form shall be so constructed that they shall be capable of being removed without shock, vibration or damage to the concrete. All forms for beams and similar members shall be designed and constructed so that the sides may be removed without disturbing the bottom boards or supports thereof. The supporting struts shall be adjusted and securely fixed in position by approved means.

Form clamps, bolts and anchors shall be used to fasten forms. The use of wire ties to hold forms in position during placing of concrete will not be permitted. Bolts or clamps shall be positive in action and shall be of sufficient strength and number to prevent spreading or springing of the forms. They shall be of such type that they can be entirely removed or cut back 25mm or more below the finished surface of the concrete leaving no metal within 25mm of the concrete surface. The cavities shall be filled with grout and the surface left sound, smooth, even and uniform in color.

Where reinforcement passes through the faces of a construction joint the stopping off board shall be drilled so, that the bars can pass through, or the board shall be made in sections with a half round indentation in the joint faces for each bar, so that when placed, the board is a neat and accurate fit and no grout leaks from the concrete through the bar holes or joints.

Where holes are to be provided in formwork for weep holes and the like, they shall be neatly trimmed off to fit the pipe and caulked with an approved material to form a waste-tight joint

Formwork for columns and small concrete sections, or where directed by the NRT Engineer, shall be fitted with trap doors through which saw dust, shaving and other debris can be removed.

All formwork for new lifts of concrete shall be tightly and accurately fitted against the concrete already cast to ensure that the surface of the new work will be quite flush and in line with that of the old one.

All surfaces of the formwork which come into contact with the wet concrete shall be treated with an approved non-staining mould oil or similar oil. Any material which will adhere to or discolor concrete shall not be used. The Contractor shall ensure that the oil will be kept from contact with the reinforcement or embedded fittings.

All forms shall be set and maintained true to the line designated until the concrete is sufficiently hardened. Forms shall remain in place for periods which shall be as specified in the Table below. When forms appear to be unsatisfactory in any way, either before or during the placing of concrete, the NRT Engineer shall order the work stopped until the defects have been corrected.

Formworks shall be provided for concrete surfaces at slopes of 30 degrees to the horizontal or steeper. Surfaces at slopes less than 20 degrees may be formed by screeding. Surfaces at slopes between 20 degrees and 30 degrees shall generally be formed unless the Contractor can demonstrate to the satisfaction of the Engineer that such slopes can be screeded with the use of special screed boards to hold the concrete in place during vibration.

Horizontal or inclined formwork to the upper surface of concrete shall be adequately secured against uplift due to pressure of fresh concrete. Formwork to voids within the body of concrete shall also be tied down or otherwise secured against floating.

All timber used for forms, false work and centering shall be sound wood, well-seasoned and free from loose knots, shakes, large cracks, warping and other defects. Before use on the work, it shall be properly stacked and protected from injury from any source. Any timber which becomes badly warped cracked, prior to the placing of concrete shall be rejected.

Where steel shuttering is to be used, it shall be of approved manufacture and panels shall fit tightly and accurately to form a true surface and joints, which will not allow the escape of liquid from the concrete. All rivets and bolt heads must be countersunk on the inside face and finished flush, so as to leave no mark on the resulting concrete surface. The provisions for timber shuttering specified above shall also apply to steel shuttering where applicable.

All formwork shall be approved by the Engineer before concrete is placed within it. The Contractor shall, if required by the Engineer, provide the latter with copies of his calculations, of the strength and stability of the formwork or false work, but notwithstanding the Engineer's approval of these calculations, nothing will relieve the Contractor of his responsibility for safety or adequacy of the formwork.

The rates for formwork shall include for the cost of submission of details, providing and transporting all materials for formwork and Falsework, erection including provision of supports, fillets and chamfers 75mm and less in width, bolts, ties, fixings, cutting to waste, drilling or notching the formwork for reinforcement where required.

3.8. Removing of formwork

In the determination of the time for the removal of forms and Falsework, consideration shall be given to the location and character of the structure, the weather and other conditions influencing the setting of the concrete and the admixture used in the mix.

No formwork shall be removed without the prior approval of the NRT Engineer and in no case shall shuttering of props be removed before the periods mentioned in the Table below have elapsed after placing the concrete. Compliance with these requirements shall not relieve the Contractor of his obligation to delay the removal of the forms, if the concrete has not set sufficiently hard.

Minimum period for formwork removal

POSITION OF FORMWORK	MINIMUM PERIOD FOR TEMP. OVER 10° C.	STRENGTH TO BE ATTAINED
Vertical or near vertical faces of mass concrete	24 hours	0.2C
Vertical or near vertical faces of reinforced walls, beams and columns	48 hours	0.3C
Underside of arches, beams and slab formwork only	4 days	0.5C
Supports to underside of arches,		

Note: C is the nominal strength for the class of concrete used.

When shuttering is removed after 3 days it will be necessary to ensure that the exposed surfaces of the concrete are kept thoroughly wetted for the period of curing specified in this section.

Forms shall be removed in such a manner as will not injure the concrete. The formwork shall be removed by gradual easing without jarring and only under competent supervision. Before removal of the shuttering, the concrete shall be examined and removal shall only be proceeded with, if the concrete has attained sufficient strength to sustain all the loads to which it will be subjected.

The Contractor shall be responsible for any injury or damage to the work caused by or arising out of the removal of formwork and props and any advice, permission or approval given by the NRT Engineer relative to the removal of formwork and props shall not relieve the Contractor of this responsibility. Any work showing sign of damage through premature removal of shuttering or through premature loading shall be entirely reconstructed at the Contractor's expense.

Where props are to be left in position under slabs and beams, the formwork shall have been made in such a fashion, that it can be removed without disturbing the props in any way. Otherwise it must be left in position for the full period that the props are left in position.

False work supporting any span of a continuous or rigid frame structure shall not be released before the period specified for the concrete placed in that span. The same shall apply for the adjacent portions of each adjoining span over a distance of at least half the length of the span where false work is to be released.

The shuttering for any part of a structure supported by concrete placed subsequently to that in, or on the shuttering, shall not be removed until the supporting concrete has matured, and such shuttering shall be prominently marked with a warning against premature removal.

The structure shall not be assumed to be capable of carrying its full load until 28 days have elapsed from completing the placing of the concrete.

All Falsework materials shall be completely removed. Falsework piling shall be removed to at least 0.5m below the surface of the original ground or original stream bed.

3.9. Construction joints

Suspended concrete slabs are generally to be cast using alternate bay construction in bays not exceeding 20 meters in length. No two adjacent bays are to be cast within a minimum period of 48 hours of each other. The joints between adjacent bays are to be in positions agreed with the NRT Engineer.

Under no circumstances shall concrete be allowed to tail off, but it shall be deposited against stopping-off boards

Before placing new concrete against concrete already hardened, the face of the old concrete shall be thoroughly hacked, roughened and cleaned, and laitance and loose materials removed there from, and immediately before placing the new concrete the surface shall be saturated with water and covered with a coat of mortar at least 25 mm in thickness composed of cement and fine aggregate in the proportion used in the concrete.

4.10. Curing and Protection

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of Hessian sacking, polythene sheeting, or other approved means. Curing by covering with sand will no longer be accepted. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor will be required to provide complete coverage of all fresh concrete for a

minimum period of 7 days. Hessian or polythene sheeting shall be in the maximum widths obtained and shall be secured against wind. The Contractor will not be permitted to use old cement bags, sand, Hessian or other material in small pieces

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

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

3.11. Faulty Concrete

Any concrete which fails to comply with these preambles, or which shows signs of setting before it is placed shall be taken out and removed from the site. Where concrete is found to be defective after it has set, the concrete shall be cut out and replaced in accordance with the NRT Engineer's instructions.

On no account shall any faulty, honeycombed, or otherwise defective concrete be repaired or patched until the NRT Engineer has made an inspection and issued instructions for the repair. The whole of the cost whatsoever, which may be occasioned by the need to remove faulty concrete, shall be borne by the Contractor.

3.12. Rod Reinforcement

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

Hot rolled bars to B.S. 4449 (metric units)

Reinforcement of concrete

Cold worked steel to B.S. 4461 (metric units)

Reinforcement of concrete.

Unless otherwise agreed the Contractor will be required to submit a test certificate of the rolling. Reinforcement shall be stored on racks above ground level. All reinforcement shall be free of loose mill scale or rust, grease, paint or other substances likely to reduce the bond between the steel and concrete.

3.13. Fabric Reinforcement

To be electrically cross-welded steel wire mesh reinforcement to B.S. 4483, 1969 and of the size and weight specified.

3.14. Fixing Rod Reinforcement

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and Schedules and in accordance with B.S 4466 (1969). Reinforcement must be cut and bent cold and no welded joints will be permitted unless so detailed.

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

No concreting shall be commenced until the NRT Engineer has inspected the reinforcement in position and until his approval has been obtained and the Contractor shall give two clear days' notice of his intention to concrete.

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

4.15. Position and Correctness of Reinforcement

Irrespective of whether any inspection and/or approval of the reinforcement has been carried out as above, it shall be the contractor's sole responsibility to ensure that the reinforcement complies with the details on the Drawings or Schedule and is fixed exactly in the positions shown therein and in the positions to give the prescribed cover. The Contractor will be held entirely responsible for any failure or defect in any portion of the reinforced concrete structure and including any consequent delay, claims, third party claims, etc. where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed Drawings of Schedules.

.16. Spacer Blocks

Spacer blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.G. wires set into the spacer blocks or other approved means shall be provided where necessary to ensure that the requisite cover is obtained.

Where hollow concrete block construction is used, spacer blocks are to be provided as described above made to fit the width of the rib less 3 mm tolerance and with single or double grooves (depending on the number of reinforcement bars used per rib) in the top surface with wire ties at each groove.

3.17. Concrete Cover to Reinforcement

Unless otherwise directed the concrete cover to rod reinforcement over main bars on any face shall be:

Foundation against each face 75 mm

Foundations against blinding 50 mm

Columns 40 mm

Beams 25 mm

Slabs 20 mm

4. WALLING

4.1. Stone

Stone for wall shall be hard, dense stone, obtained from an approved quarry. Samples of stones shall be deposited with the NRT Engineer at least 14 days prior to the start of the works. Stone walling described as load-bearing shall have a minimum crushing strength of 3.50N/sq.mm and shall comply with CP. 111: Part 2.

4.2. Concrete Blocks

All hollow or solid concrete blocks for general use shall comply with B.S. 2028 Type 'A' of minimum crushing strength of 3.5 Newton's per square millimeter, and must be obtained from an approved manufacturer, equal to samples deposited with and approved by the NRT Engineer.

All concrete blocks must be cured for a minimum period of four weeks before use and all testing of blocks is to be carried out by an approved Ministry of Works Materials Testing Laboratory.

4.3. Bricks

All bricks shall be of sizes as required and shall be hard, sound, square, uniform in shape and free from cracks, stones and other defects. Samples of bricks shall be deposited with and be approved by the NRT Engineer before being used and all subsequent bricks in the works shall be equal to the approved samples. Please refer Hydroform manual for detailed guidelines.



4.4. Concrete Vent Blocks

Concrete vent blocks or air bricks shall be standard louver type, size 225 mm x 225 mm high.

4.5. Wall Reinforcement

All 150 mm and 100 mm walling shall be reinforced with 20 Gauge hoop iron 25 mm wide, or similar reinforcement centrally in joints at approximately 450 mm centers (vertically for the full length of the walls, lapped and crimped 300 mm at running joints and full width of wall at angles and intersections).

4.6. Wall Ties

20 Gauge hoop iron ties 25 mm wide and 450 mm long to be provided at every alternate course at all connections between block wall and reinforced concrete columns or walls, one end to be cast into the concrete and the other bent and built into mortar joint of walling.

4.7. Chasing

Chasing in load-bearing walling of electrical conduit, pipes, etc, is to be kept to a minimum size of cut and positions and runs chases are to be approved by the NRT Engineer before any cutting is commenced. Horizontal runs will not be permitted.

4.8. Mortars

Cement mortar shall consist of one part of Portland cement, to three parts of sand by volume.

The cement/lime mortar shall consist of one part of Portland cement, one part of lime and six parts of sand by volume.

The ingredients of mortar shall be measured in proper gauge boxes on a boarded or metal platform, the ingredients being thoroughly mixed dry, and again whilst adding water. In the case of cement lime mortar the sand and lime shall be mixed first and then the cement added.

All mortar is to be thoroughly mixed to a uniform consistency with only sufficient water to obtain a plastic condition suitable for troweling. No mortar that has commenced to set is to be used or remixed for use.

4.9. Setting Out

The Contractor shall provide proper setting out rods and set out on the same all work showing opening, sills and lintels and shall build the various walls and piers to the thickness, widths and heights shown upon the Drawings.

No part of the walling shall be carried up more than 1 meter higher at one time than any other part and in such cases the jointing shall be made in long steps so as to prevent cracks arising and all walls shall be leveled round at floor and wall heads. At no time shall more than 5 courses of blocks be laid in any one day during construction.

4.10. Bonding Walling

All blocks shall be properly bonded together and in such a manner that no vertical joint in any one course shall be within 100 mm of a similar joint in the courses immediately above and below. Alternate courses of walling at all angles and intersections shall be carried through the full thickness of the adjoining walls.

All reveals, quoins and other angles and joints of the walls, etc., shall be built strictly true and square. New walling is to be bonded into existing at junction, except at expansion joints.

4.11. Laying and Jointing

All bricks and blocks are to be well wetted before laying and tops of walls left off shall be well wetted before commencing building. All joints are to be 10mm thick and flushed up and grouted in solid as the work proceeds

All exposed faces of walls for plastering are to be left rough and the joints raked out while mortar is green to form adequate key.

All other shall be cleaned down on completion with a wire brush or as necessary and mortar dropping, smear marks, etc., removed and rates must include for this.

4.12. Fair face

Walling described as fair faced shall be built with selected blocks and pointed with neat flush joints. Stone walling shall be fine chisel dressed.

4.13. Damp-proof Courses

Damp-proof courses shall be bituminous felt to B.S 743, weighing 4 Kg per square meter, free from tears and holes and be laid with



150 mm minimum laps on and including a leveling screed of cement mortar.

4.14. Prices to Include

The prices for walling shall include for all straight cutting, bonding, plumb angles, forming reveals, pinning up to underside of concrete soffits and cutting up to sides of columns and cutting and pinning ends of lintels and sills.

5. ROOFING AND RAINWATER DISPOSAL

5.1. Preparation of Surfaces

All materials to receive roofing shall be clean, dry, free of fins or projections and loose materials, and with cracks or voids filled with cement mortar.

5.2. Protection

All roofing surface shall be kept clean and protected and handed over watertight at completion.

5.3. Concrete Tile Roofing

Concrete single lap tiles fittings shall be to B.5 473 & 550 Part 2, Group B, of the color, finish, type, and manufacturer approved by the NRT Engineer. A full range of fittings must be available to match the tiles and shall be specified.

Tiles and fittings must be true to shape and uniform structure. Surface coating shall be firmly bonded. Fixing shall include nailing to battens at every third course, at eaves, verges, and at the top course under the ridge. Ridge and hips shall be bedded in cement mortar and roofs shall be left water tight.

5.4. Rainwater Disposal Goods

Gutters and down-pipes shall be in 24 gauge galvanized mild steel.

6. CARPENTRY AND JOINERY

6.1. Species of Timber



The

following timber shall be used: Standard

Common Name: Botanical Name

Cypress: Cypress spp.

African Mahogany: (Munyama) Khaya anthotheca

Pine:

6.2. All Timber

All timber shall be accordance with the latest approved Grading Rules issued by the Government of Kenya (Legal Notice No. 358). All timber for permanent work on the building shall before use be approved by the NRT Engineer and shall be of the best quality in accordance with the. E.A. Export Timber Grading Rules-KEFRI/MoPW.

All carpentry timbers are to be used seasoned to moisture content of not more that 18% of the dry weight. All joinery timbers are to be seasoned to moisture content of not more than 10% of the dry weight.

Plywood shall be in accordance with B.S 1455.

Timber for structural use to be Special Structural, Pine or Cypress.

Timber for Carpentry shall be SECOND (OR SELECT) GRADE and timber for joinery shall be FIRST (OR PRIME) GRADE.

6.3. Generally

All timber as it arrives on Site shall be inspected by the Contractor, and any timber brought on the Site and not complying with the

Specification or not approved, must be removed forthwith from the Site and only timber as approved shall be used in the Works

The Contractor shall upon signing the Contract purchase sufficient supplies of specified hardwoods to avoid possible shortage at a later date.

6.4. Insect Damage

All timber shall be free of live borer beetle or other insect attack when brought upon the Site. The Contractor shall be responsible up to the end of the maintenance period for executing at his own cost any work necessary to eradicate insect attack of timber which becomes evident, including the replacement of timber attacked or suspected of being attacked, notwithstanding that the timber concerned may have already been inspected and passed as fit for use.



6.5. Seasoning of Timber

All timber shall be seasoned to a moisture content of not more than 18% for Carpentry and 10% for joinery.

7.6. Pressure Impregnated Preservative Treatment

All carpentry timbers, sawn joinery and timber grounds for fixing joinery shall be treated with pressure impregnated "Celcure" or "Tenalith" solution with a minimum net retention of 0.35 lbs of dry salt per cubic foot. If so required "charge sheets" issued after treatment with "Celcure" or "Tenalith" shall be submitted by the Contractor to the NRT Engineer for his retention. All cut ends and any other faces of timbers sawn after treatment shall be treated before fixing with "Celcure B" or "Wolmanol" solution brushed on.

The Contractor's prices for such timber hereinafter must allow for the above treatment.

6.7. Clearing up

The Contractor is to clear out and destroy or remove all cut ends, shaving and other wood waste from the parts of the buildings and the Site generally, as the work progresses and at the conclusion of the work.

This is to prevent accident borer infestation and to discourage termites and decay.

6.8. Workmanship

All Carpenter's work shall be accurately set out in strict accordance with the Drawings and shall be framed together and securely fixed in the best possible manner with properly made joints; all brads, nails and screws, etc., shall be provided as necessary, directed and approved, and the Contractor's prices shall allow for all the foregoing.

All workmanship shall be of the best quality.

All Carpenters' work shall be left with sawn surfaces except where particularly specified to be wrought.

6.9. Jointing

All timber shall be as long as possible and practicable to eliminate joints. Where joints are unavoidable surfaces shall be in contact over the whole area of the joint before fastenings are applied.

No nails, screws, or bolts are to be fixed in any split end. If splitting is likely, or is encountered in the course of any work, holes for nails are to be prepared at diameter not exceeding 4 of the diameter of the nails. Clenched nails must be bent at right angles to the



grain.

Lead holes are to be bored for all screws. When the use of bolts is specified the holes are to be bored from both sides of the timber and are to be of the diameter $D + D/6$, where D is the diameter of the bolt. Nuts must be brought up tight but care is to be taken to avoid crushing of the timber under the washers.

7. JOINERY

All joinery shall be accurately set out with all joints, ironmongery and other works connected there with fully delineated.

All joinery shall be executed with workmanship of the best quality. All work must be planed, sanded and finished to the approval of the NRT Engineer. All joinery has been described by nominal sizes and a 3mm reduction off specified sizes will be allowed for each wrought face except where described as finished sizes in which case joinery shall hold up full dimensions

All framed work shall be cut, properly tendoned, shouldered and framed together.

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

All wrought timber dimensions given in the bills of quantities are finished sizes unless otherwise stated.

Should any of the joinery shrink, warp, wind, or develop any other defects within the defects liability period specified in the contract, the same shall be removed and new fixed in its place together with all the other work that may be affected thereby all at the contractor's expense.

Reasonable tolerance shall be provided at all connections between the joinery works and the building so that any irregularities or other movements shall adequately be allowed for.

All cornice, architrave, frames and other joinery works shall be accurately scribed to fit in the contour of any irregular surfaces against which they may be required to form a close butt connection.

The arrangement, joinery and fixing of all joinery shall be such that shrinkage in any part and in any direction shall be compensated for and not impair the strength or appearance of the work or cause damage to adjacent structures.

All pencil marks are to be removed before oiling or varnishing joinery work. All joinery work to be finished perfect and clean without nail holes, clean up all waste and protect finished work from staining or damage.

Woodwork to receive finishes other than paint shall have all stains and pencil marks removed, be well rubbed down and all defects leveled up with hard stopping of a color to match the adjoining surface.

Woodwork to be clear varnished shall be well rubbed down and the varnish is to be applied with a fine hair brush, rubbed back with the fine graded steel wool between coats and afterwards buffed up to produce an approved finish.

Insulating boards or similar surfaces shall be filled and made good as necessary and lightly brushed down to remove all dirt, dust and loose particles.



7.1. Fixing Joinery

All beads, fillets and small members shall be fixed round or oval brads or nails well punched in and stopped. All larger members shall be fixed with screws. Brass screws shall be used for fixing of all hardwoods, the heads let in and pelleted over with wood pellets to match the grain.

7.2. Bedding Frames, etc

The Contractor's rates must include for bedding frames, sills, etc., in mortar or dressing surfaces of walls, etc.in lieu.

7.3. Plugging Concrete and Walls

Round wood plugs shall not be used. All work described as plugged shall be fixed with screws to plugs formed by drilling concrete, walls, etc., with a proper tool of suitable size at 750 mm spacing and filling the holes completely with "Philplug" rawl plastic or "Rawlplugs" in accordance with the manufacturer's instructions. Alternatively, and where so agreed by the NRT Engineer, hardwood dovetailed fixing slips, dipped in "Wolmanol" or "Celcure B" solution cut and pinned or bedded in cement mortar (1:3) may be used.

7.4. Fiberboard

Fiberboard shall be 12mm "Celotex", or other equal and approved termite-proofed softboard, cut to panels with V-edges.

7.5. Plywood

Plywood shall be manufactured to comply with B.S. 1455 (Grades br 2, Type INT for Interior work"; type WPB for "exterior work) Marine plywood shall comply with B.S. 1088



7.6. Block board

Block board shall be laminated board to approval, and exposed edges shall be lipped with 20 mm hardwood and rates shall include for lipping.

7.7. Chipboard

Chipboard shall be manufactured to comply with B.S. 5669

7.8. Flush Doors

Semi-solid flush doors shall be manufactured to the thickness specified and consist of 100 mm wide framing all round with minimum 25 mm thick horizontal core battens at not more than 75 mm centers, pressure-impregnated as described and bored with 15mm diameter ventilation holes at 300 mm centers. **Doors shall have two lock blocks and be faced both sides with 6mm plywood requirement of B.S 459 Part 2A, and equal to an approved sample.**

7.9. Ironmongery

All locks and ironmongery shall be fixed with screws, etc., to match. Before the woodwork is painted, handles shall be removed, carefully stored and re-fixed after completion of painted and locks oiled and left in perfect working order. All keys shall be labeled with the door reference marked on labels before handing to the NRT Engineer on completion.

Rates for fixing are to include for all cutting, sinking, boring, mortising and fitting in hardwood or soft wood or metal sections and for supplying all necessary and matching screws.

Rates for door furniture shall also include for fixing prior to painting and for labeling all keys with door references and handing to the Client.

All locks, springs and other items of the ironmongery with movable parts shall be properly tested, oiled, cleaned and adjusted where necessary and left in a perfect working condition upon completion of the works by the Contractor.

All ironmongery already fixed to be covered before painting doors. If any paint should get on to the ironmongery, it must be removed with chemical solvents and not scratched off.

All door ironmongery to be checked and adjusted and all moving parts lubricated. Faulty or weak springs are to be replaced at no extra cost to the contract.

7.10. Prices to Include

Prices of items hereafter shall include for the foregoing labor etc., and in addition the prices of linear items are included all internal and external angles, either mitred or tongued, all fair, fitted, stopped notched or returned ends, all similar incidental labors and all short lengths.

7.11. Nails, Screws and Bolts

Nails, screws and bolts shall be of best quality mild steel of lengths and weights approved by the NRT Engineer. Nails shall be to B.S.

1202 and bolts to B.S.
916

Bolts shall project at least two threads through nuts and all bolts passing through timber shall have washers under heads and nuts.

8. METAL WORK

8.1. All Materials

All materials shall be the best quality, free from defects. The materials in all stages of transportation, handling and piling shall be kept clean and damage from breaking, bending and distortion prevented.

8.2. Strut and Steel Work

Materials and workmanship shall conform to the requirements of B.S. 449 Steel frames, trusses and purlins shall be carried out by a Nominated Sub-Contractor.

8.3. Nails Screws and Bolts

Nails, screws and bolts shall be of best quality mild steel of lengths and weights approved by the NRT Engineer. Nails shall be to B.S.

1202 and bolts to B.S.
916

Bolts shall project at least two threads through nuts and all bolts passing through timber shall have washers under heads and nuts.

8.4. Workmanship

All work shall be neatly carried out in the most workmanlike manner and strictly as directed by the NRT Engineer. Welding shall be neatly cleaned off and units shall be prefabricated in the workshop wherever possible, the minimum of site welding being employed.

All screwed work shall have full internal and external threads and holes shall have been cleaned off. Countersinking must be concentric.

8.5. Rainwater Goods

Prices shall include for building in, casting in or cutting mortices for fastenings, all making good, jointing, short lengths and all extra joints in the case of fittings.

8.6. Metal Windows and Doors

Metal windows and doors shall be manufactured to B.S. 990 from hot rolled mild steel sections produced by reputable mills and to be of dimensions and weights laid down in B.S. 990. All large casements and doors are to be made from heavy sections.

Corners of frames are to be mitred and welded, and glazing bars, etc., either tendon riveted or welded into frames. Top-hung on steel hinges and fitted with bronze peg stays. Side-hung casements are to be hung on projecting hinges and fitted with bronze single point handle and cabin hook with concealed sliding stays.

8.7. Fixing Metal Windows and Doors

The Contractor's prices for fixing metal windows, door, etc, shall include for assembling and fixing, including screwing to wood frames or cutting mortices for lugs in concrete or walling and running with the cement mortar (1:4), bedding frames in similar mortar and

bedding
sills, and transoms, making good plaster around both sides, and fixing, oiling and adjusting all fittings and frames.

8.8. Quality of Materials and Workmanship

The quality and workmanship of materials used in this Contract shall conform to the requirement of the following British Standard: B.S. 15 - Mild steel for general structural purposes.

B.S. 449 - The use of structural steel in building

B.S. 442 - Hot Rolled Hollow Sections

B.S. 994 - Cold Rolled Steel Sections

8.5. 938 - General requirements for the Metal Arc Welding of structural steel tubes to B.S. 1775

B.S. 1856 - General requirements for the Metal Arc Welding of mild
steel. B.S. 639 - Covered Electrodes for the Metal Arc Welding of Mild
Steel

Materials may be required at any time to be tested in accordance with the British Standards listed above.

The cost of successful tests will be borne by the Client, but the Sub-Contractor shall supply at his own expense test specimens when required. The cost of tests which do not comply with the Standard will be borne by the Sub-Contractor.

8.9. Structural Hollow Sections

All hollow sections are to be connected by electric welding.

For butt welds the fusion surfaces of each member must be properly aligned and prepared.

8.10. Electric Welding

All welding is to be accordance with the requirements of B.S. 1856 and 938 and the electrodes shall comply with B.S. 639.

Fusion faces shall be free from irregularities which could interfere with the welding material. These faces shall also be free from any deleterious material such as rust, grease and paint.

All welds shall be of the specified finished sizes and the sequence of the welding shall be carried out in a manner that will give minimum distortion to the welded parts.

Edges for welding shall be prepared by planning or machine flame cutting

During welding all parts will be maintained in their correct position.

Welding shall be carried out with each closely following the one prior with sufficient time between to allow removal of slag.

Each run of weld is to be inspected and the Sub-Contractor shall ensure that unsatisfactory welds are cut out or remade to the required standard.

The minimum size of fillet weld shall be 6mm

All completed welds shall have a regular and smooth surface. The weld material shall be solid with complete fusion throughout the weld and to the fare cut metals.

Any defects shall be out or made good to

approval. External faces of butt welds to be ground smooth.

8.11. Painting

All steel is to be brushed and any loose scale, dirt or grease shall be removed before any painting is commenced. One coat of red oxide primer Type A to B.S. 2523 shall be applied at the shop. Any damage to the priming paint shall be made good to the NRT Engineer's satisfaction at the site.

9. PLASTERWORK AND OTHER FINISHING

9.1. Lime Plaster

Lime plaster shall consist of a backing coat in cement, lime and sand (1:2:9) and a finishing coat of lime putty skim with 10% cement added.

9.2. Polished Terrazzo

Polished terrazzo shall consist of a first coat of cement and sand (1:3) and a 12mm finishing coat of "Snowcrete" and marble chippings (1:2), colored with "Cementone No. 1" coloring compound mix in the proportions of 1:10, compound to cement. The overall thickness will be as specified in the measured work.

9.3. Glazed/Ceramic Wall and Floor Tiles

Wall tiles shall be size 150 x 150 x 6mm thick or as specified in the contract documents, manufactured to comply with B.S. 1281. Floor tiles shall be of size 300 x 300 x 6 mm or as specified in the contract documents. Wall and floor tiles shall always be laid with matching PVC edge strips unless otherwise specified.

9.4. Vinyl Tiling

Vinyl asbestos floor tiles shall be stored and laid in accordance with the manufacturer's written recommendations using a bitumen-based

adhesive. The tiles shall be laid with butt joints straight both ways. Tiling shall start from the center of a room or area.

9.5. Quarry Tiles

Quarry tiles shall be bedded in 10mm thick cement mortar (1:3) with 10mm joint laid straight both ways. The joints shall be filled with cement mortar neatly flush pointed. The tiles are to be soaked in water before laying.

9.6. Marble Tiles and Terrazzo Tiles

The tiles are to be bedded in 10mm thick cement mortar (1:3) with fine butt joints. The surface is to be washed and polished on completion.

10. ELECTRICAL INSTALLATIONS

10.1. Compliance with Regulations

The installation shall comply in all respects with:

- (i) The current edition of the installation of Electrical Engineers regulations for the electrical equipment of building.
- (ii) The requirements of the Kenya Power and Lighting Company Limited.

On completion, if required, the Electrical Sub-Contractor must supply a certificate of completion to the power company, and must make any further modifications which may be called for by them without cost to the Employer.

10.2. Power Supply Line

From a point at the top of the building, provide a 32 mm conduit adjacent where the overhead power line will be connected to the meter board position. The Client must arrange for a connection by the Kenya Power and Lighting Company, but the Contractor is required to provide all necessary facilities to the installation engineers, who will provide a supply to the meter board position.

10.3. Meter Board

At the meter board position, provide a recessed pressed steel meter box of adequate size to house the Company's meters, and having a glazed inspection window, and padlock. Do all necessary writing in the meter board, and provide control switches for sub-mains

10.4. Earthing

From the metal clad meter box provide a copper earth wire and connect to the incoming power main, using proper earth connecting clips.

10.5. Sub-Mains

From the meter board position, provide sub-mains to the consumer units, situated as shown on the Service Drawings.

10.6. Conduits

The entire installation is to be carried out in conduits whether electric supplies are installed in walls, concrete slabs or roof space.

All conduits shall be solid drawn plastic tubes with metal switch boxes, angles, tees and draw-in boxes with screwed connections of not less than 19mm diameter but of adequate size for drawing-in the specified cables. Where conduits occur in reinforced concrete work these must be fixed at the appropriate time, using extension rings, so that conduits are well clear of reinforcement.

10.7. Cooker Point

Where cooker outlet is shown, the Contractor shall provide a 30 ampere supply and cooker control unit and a short length of conduit to ground floor level to enable the cooker to be wired.

10.8. Light

Fittings

Where light fittings are shown, these shall be of the types listed below. The Contractor is required to provide a fluorescent tube in each fluorescent fitting, and an 11 watt energy saving lamp in each tungsten fitting must be provided. The Contractor shall supply and fix the following:

“PENDANT” The outlets where a pendant is shown, this shall comprise a white plastic ceiling rose, short length of white plastic covered flex, and a white lamp-holder.

“GLOBE” Where a bracket is shown on wall outlets, these shall comprise a twin white plastic bracket or other approved.

KHEAD” Where a bulkhead fitting is shown on wall outlets, provide an approved waterproof bulkhead fitting.

“FLOURESCENT” Where a fluorescent fitting is shown, provide a 1,220mm “Atlas” fluorescent slim line fitting.

“BATTEN HOLDER” Where a batten holder is shown on a ceiling outlet, provides an approved plastic batten holder.

“SECURITY LIGHTS” Where security lights are shown on a wall outlet this shall comprise a 500W halogen bulb or other approved

10.9. Schedule of points

A full schedule of lighting and power points on each circuit is to be provided to, and approved by, the EEA Engineer by the Contractor, all in accordance with the electrical layouts shown on the Contractors plan. An electrical design will be provided by the contractor and approved by the EEA Engineer before any installations are carried out.

11. ADDITIONAL NOTES TO CONTRACTORS

- Equipments and resources mentioned in the specifications and or the contractors tender, at the discretion of the NRT Engineer, may be verified before signing and commencement of the Contract
- The materials to be used in construction shall be as prescribed in the specifications and any departures shall be approved by the NRT Engineer before the start of Works.
- Schedule of Site Meetings will be agreed with NRT Engineer prior to start of contract but scheduled meetings may be changed by agreement between both parties in advance of the meetings.
- Any discrepancies or inconsistencies in these Specifications must be drawn to the attention of the NRT Engineer as soon as possible for discussion and interpretation
- Monitoring will be carried out on site with both Contractor Supervisor and NRT Engineer using agreed Site Inspection forms developed by NRT. The Contractor is also required to make available a Site Instruction Book and ensure it is at the site throughout the duration of the contract.

- Irrespective of whether any inspection, monitoring and/or approval of the Works has been carried out as above, it shall be the contractor's sole responsibility to ensure that the Works complies with the details on the Designs, Drawings, Specifications and is carried out to the highest acceptable standards
- All design works indicated in the Bill of Quantities (Roof trusses, electrical design, mechanical, carpentry etc) shall be presented by the Contractor for approval to the NRT Engineer at least Two weeks prior to when it is planned to be implemented so that they can be properly studied and approved in good time.
- Unless otherwise agreed, the contractor shall be responsible for the testing, prior to final certification and handover, to the satisfaction of the NRT Engineer, all electrical, mechanical and plumbing works constructed or installed by the contractor and this should be allowed for in his quotation.

**CONSTRUCTION OF CONSTRUCTION OF NAIBUNGA FENCE-
KIMANJO IN NAIBUNGA CONSERVANCY, LAIKIPIA COUNTY**

SUMMARY

ITEM	DESCRIPTION	TENDERER'S AMOUNT	OFFICIAL USE ONLY
	1. Construction of Naibunga Fence - Kimanjo		
	2. Provisional Sums from page..... PC/1		
	TOTAL CARRIED TO FORM OF AGREEMENT		

Amount in words: Kenya Shilling:

Completion Period..... Weeks

Contractor's signature and stamp:

Address:

Date:

Witness: Name and signature

Address:

Date: