

REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KAKAMEGA

DEPARTMENT OF ROADS, PUBLIC WORKS AND ENERGY

RMLF

CONTRACT NO: 754116-2019/2020

PROJECT NAME: **PROPOSED ROUTINE MAINTANANCE AND
IMPROVEMENT OF LOT 4 ROADS IN MALAVA SUB – COUNTY**

SUBMISSION DATE LINE: 11TH November 2019

Kindly note that manual submissions will not be accepted.

SITE VISIT: 6TH November 2019. (*Department of Roads, Public Works and
Energy, Kakamega at 10:00 a.m).*

Telephone: 056-31850/1852/31853

Email: roads@kakamega.go.ke

Website: www.kakamega.go.ke

The chief Officer's Office

P.O. Box 36 – 50100

KAKAMEGA

TABLE OF CONTENTS

SECTION I - INVITATION TO TENDERERS'	170
SECTION II - INSTRUCTIONS TO TENDERERS	173
SECTION IV-CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION).....	194
SECTION V-SPECIFIC SPECIFICATIONS.....	226
SECTION VI-DRAWINGS.....	287
SECTION VII – BILLS OF QUANTITIES	290
SECTION VIII – STANDARD FORMS.....	294

SECTION I - INVITATION TO TENDERERS

DATE: 25th October 2019

Tender reference No.

PROJECT NAME: PROPOSED ROUTINE MAINTANANCE AND IMPROVEMENT OF LOT 4 ROADS IN MALAVA SUB – COUNTY

Tender Name: **PROPOSED ROUTINE MAINTANANCE AND IMPROVEMENT OF LOT
4 ROADS IN MALAVA SUB – COUNTY**

The *County Government of Kakamega* invites interested eligible candidates for : **PROPOSED
ROUTINE MAINTANANCE AND IMPROVEMENT OF LOT 4 ROADS IN MALAVA
SUB – COUNTY**

Details of the required information can be downloaded **FREE OF CHARGE** from the County Website:
www.kakamega.go.ke or from Public Procurement Information Portal www.tenders.go.ke

Prices quoted should be net inclusive of all taxes, expressed in Kenya shillings and shall
remain valid for a period of **120 days** from the closing date.

Tenders must be accompanied by a Tender Security of **Ksh. 120,000.00** in form of a
guarantee from a reputable bank or an insurance company approved by Public Procurement
Regulatory Authority (PPRA).

Completed tender documents **MUST** be submitted online through suppliers' portal by use of the
respective negotiation numbers so as to be received on or before Monday 11th November 2019
by 11:00AM.

Kindly note that manual submissions will not be accepted.

County Head of Supply Chain Management.

FOR: ACCOUNTING OFFICER.

ROADS, PUBLIC WORKS AND ENERGY

FORM OF INVITATION FOR TENDERS

Date 25th October 2019

To: _____

Dear Sir/ Madam,

Tender reference No

Tender Name: **PROPOSED ROUTINE MAINTANANCE AND IMPROVEMENT OF LOT
4 ROADS IN MALAVA SUB – COUNTY**

We hereby invite tenderers to submit a tender for the execution and completion of the above Contract.

A complete set of tender documents may be downloaded from the County Website at no cost.

All tenders must be submitted on – line through the supplier portal and a security in the form and amount specified in the tendering documents, on or before **11th November 2019 at 11:00am.**

Yours faithfully,

County Head of Supply Chain Management.

FOR: ACCOUNTING OFFICER.

SECTION II - INSTRUCTIONS TO TENDERERS

TABLE OF CLAUSES

<u>CLAUSE NUMBERS</u>	<u>DESCRIPTION</u>
<u>PAGE</u>	

GENERAL

1.	Definitions.....	6
2.	Eligibility and Qualification Requirements	6
3.	Cost of Tendering	7
4.	Site Visit	8

TENDER DOCUMENT

5.	Tender Documents	8
6.	Clarification of Tender Documents	9
7.	Amendments of Tender Documents	9

PREPARATION OF TENDER

8.	Language of Tender	10
9.	Documents Comprising the Tender	10
10.	Tender Prices	10
11.	Currencies of Tender and Payment	11
12.	Tender Validity	12
13.	Tender Surety	12
14.	No Alternative Offers	13
15.	Pre-tender meeting	13
16.	Format and Signing of Tenders	14

SUBMISSION OF TENDERS

17.	Sealing and Marking of Tenders	14
18.	Deadline and Submission of Tenders	15
19.	Modification and Withdrawal of Tenders	15

TENDER OPENING AND EVALUATION

20.	Tender Opening	16
21.	Process to be Confidential	16
22.	Clarification of Tenders	16
23.	Determination of Responsiveness	17
24.	Correction of Errors	17
25.	Conversion to Single Currency	18
26.	Evaluation and Comparison of Tenders	19

AWARD OF CONTRACT

27.	Award Criteria	20
28.	Notification of Award	20
29.	Performance Guarantee	21
30.	Advance Payment	21

Appendix to Instructions to Tenderers	22
---	----

INSTRUCTION TO TENDERERS

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

GENERAL

1. Definitions

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

2. Eligibility and Qualification Requirements

2.1 Eligibility requirements

This invitation to tender is open to all tenderers who are qualified as stated in the appendix.

2.2 Qualification Requirements

To be qualified for award of Contract, the tenderer shall provide evidence satisfactory to the Employer of their eligibility under Sub clause 2.1. above and of their capability and adequacy of resources to effectively carry out the subject Contract. To this end, the tenderer shall be required to update the following information already submitted during prequalification: -

- (a) Details of experience and past performance of the tenderer on the works of a similar nature and details of current work on hand and other contractual commitments.
- (b) The qualifications and experience of key personnel proposed for administration and execution of the contract, both on and off site.
- (c) Major items of construction plant and equipment proposed for use in carrying out the Contract. Only reliable plant in good working order and suitable for the work required of it shall be shown on this schedule. The tenderer will also indicate on this schedule when each item will be available on the Works. Included also should be a schedule of plant, equipment and material to be imported for the purpose of the Contract, giving details of make, type, origin and CIF value as appropriate.
- (d) Details of sub-contractors to whom it is proposed to sublet any portion of the Contract and for whom authority will be requested for such subletting in accordance with clause 4 of the Condition of Contract.
- (e) A draft Program of Works in the form of a bar chart and Schedule of Payment which shall form part of the Contract if the tender is accepted. Any change in the Program or Schedule shall be subjected to the approval of the Engineer.
- (f) Details of any current litigation or arbitration proceedings in which the tenderer is involved as one of the parties.

2.3 Joint Ventures

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

- (a) The tender, and in case of a successful tender, the Form of Agreement, shall be signed so as to be legally binding on all partners

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

3. Cost of Tendering

- 3.1 The Tenderer shall bear all costs associated with the preparation and submission of his tender and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.
- 3.2 The price to be charged for the tender document shall be NIL (no charge will be requested for this particular tender).
- 3.3 The County Government of Kakamega shall allow the tenderer to view the tender document free of charge.

4. Site Visit

- 4.1. The tenderer is advised to visit and examine the Site and its surroundings and obtain for himself on his own responsibility, all information that may be necessary for preparing the tender and entering into a contract. The costs of visiting the Site shall be the tenderer's own responsibility
- 4.2. The tenderer and any of his personnel or agents will be granted permission by the Employer to enter upon premises and lands for the purpose of such inspection, but only upon the express condition that the tenderer, his personnel or agents, will release and indemnify the Employer from

and against all liability in respect of, and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused, which but for the exercise of such permission, would not have arisen.

- 4.3. The Employer shall organize a site visit at a date to be notified. A representative of the Employer will be available to meet the intending tenderers at the Site. Tenderers must provide their own transport. The representative will not be available at any other time for site inspection visits.

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

TENDER DOCUMENTS

5 Tender Documents

- 5.1 The Tender documents comprise the documents listed here below and should be read together with any Addenda issued in accordance with Clause 7 of these instructions to tenderers.
- a. Form of Invitation for Tenders
 - b. Instructions to Tenderers
 - c. Form of Tender
 - d. Appendix to Form of Tender
 - e. Form of Tender Surety
 - f. Statement of Foreign Currency Requirements (Where applicable)
 - g. Tender and Confidential Business Questionnaires
 - h. Details of Sub contractors
 - i. Schedules of Supplementary Information
 - j. General Conditions of Contract – Part I
 - k. Conditions of Particular Application – Part II
 - l. Specifications
 - m. Bills of Quantities
 - n. Drawings
 - o. Declaration Form
- 5.2 The tenderer is expected to examine carefully all instructions, conditions, forms, terms, specifications and drawings in the tender documents. Failure to comply with the requirements for tender submission will be at the tenderer's own risk. Pursuant to clause 22 of Instructions to Tenderers, tenders which are not substantially responsive to the requirements of the tender documents will be rejected.
- 5.3 All recipients of the documents for the proposed Contract for the purpose of submitting a tender (whether they submit a tender or not) shall treat the details of the documents as "private and confidential".

6 Inquiries by tenderers

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

7. Amendment of Tender Documents

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

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

In order to allow prospective tenderers reasonable time in which to take the Addendum into account in preparing their tenders, the Employer may, at his discretion, extend the deadline for the submission of tenders.

PREPARATION OF TENDERS

8. Language of Tender

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

9. Documents Comprising the Tender

The tender to be prepared by the tenderer shall comprise:

- i. the Form of Tender and Appendix thereto,
- ii. a Tender Security as prescribed
- iii. the Priced Bills of Quantities and Schedules
- iv. the information on eligibility and qualification
- v. any other materials required to be completed and submitted in accordance with the Instructions to Tenderers.

The Forms, Bills of Quantities and Schedules provided in the tender documents shall be used without exception (subject to extensions of the schedules in the same format and to the provisions of clause 13.2 regarding the alternative forms of Tender Surety).

10. Tender Prices

All the insertions made by the tenderer shall be made in INK and the tenderer shall clearly form the figures. The relevant space in the Form of Tender and Bills of Quantities shall be completed accordingly without interlineations or erasures except those necessary to correct errors made by the tenderer in which case the erasures and interlineations shall be initialed by the person or persons signing the tender.

A price or rate shall be inserted by the tenderer for every item in the Bills of Quantities whether the quantities are stated or not. Items against which no rate or price is entered by the tenderer will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bills of Quantities.

The prices and unit rates in the Bills of Quantities are to be the full [all-inclusive] value of the Work described under the items, including all costs and expenses which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause prior to the deadline for submission of tenders, shall be included in the rates and prices and the total Tender Price submitted by the tenderer.

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

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

Unless otherwise specified the tenderer must enter the amounts representing 7.5% of the sub-total of the summary of the Bills of Quantities for Contingencies and Variation of Prices [V.O.P.] payments in the summary sheet and add them to the sub-total to arrive at the tender amount.

The tenderer shall furnish with his tender written confirmation from his suppliers or manufacturers of basic unit rates for the supply of items listed in the Conditions of Contract clause 70 where appropriate. The Employer may require the tenderer to justify such rates so obtained from the suppliers or manufacturers.

The rates and prices quoted by the tenderer are subject to adjustment during the performance of the Contract only in accordance with the Provisions of the Conditions of Contract. The tenderer shall complete the schedule of basic rates and shall submit with his tender such other supporting information as required under clause 70 of the Conditions of Contract Part II.

Contract price variations shall not be allowed within the first 12 months of the contract.

Where quantity contract variation is allowed, the variation shall not exceed 15% of the original contract quantity.

Price variation requests shall be processed by the County Government of Kakamega within 30 days of receiving the request.

11. Currencies of Tender and Payment

- a. Tenders shall be priced in Kenya Shillings and the tender sum shall be in Kenya Shillings.
- 11.2 Tenderers are required to indicate in the Statement of Foreign Currency Requirements, which forms part of the tender, the foreign currency required by them. Such currency should generally be the currency of the country of the tenderer's main office. However, if a substantial portion of the tenderer's expenditure under the Contract is expected to be in countries other than his country of origin, then he may state a corresponding portion of the contract price in the currency of those other countries. However, the foreign currency element is to be limited to two (2) different currencies and a maximum of 30% (thirty percent) of the Contract Price.

- 11.3 The rate or the rates of exchange used for pricing the tender shall be the selling rate or rates of the Central Bank ruling on the date thirty (30) days before the final date for the submission of tenders.
- 11.4 Tenderers must enclose with their tenders, a brief justification of the foreign currency requirements stated in their tenders.

12. Tender Validity

- a. The tender shall remain valid and open for acceptance for a period of sixty (60) days from the specified date of tender opening or from the extended date of tender opening (in accordance with clause 7.4 here above) whichever is the later.
- b. In exceptional circumstances prior to expiry of the original tender validity period, the Employer may request the tenderer for a specified extension of the period of validity. The request and the responses thereto shall be made in writing or by cable, telex or facsimile. A tenderer may refuse the request without forfeiting his Tender Surety. A tenderer agreeing to the request will not be required nor permitted to modify his tender, but will be required to extend the validity of his Tender Surety correspondingly.

13. Tender Security

- a. The tenderer shall furnish as part of his tender, a Tender Security in the amount and form stated in the Appendix to Instructions to Tenderers.
- b. The tender security shall not exceed 2 percent of the tender price.
- 13.3 The Tender Security shall be valid at least thirty (30) days beyond the tender validity period.
- 13.4 Any tender not accompanied by an acceptable Tender Surety will be rejected by the Employer as non-responsive.
- 13.5 The Tender Sureties of unsuccessful tenderers will be returned as promptly as possible but not later than twenty eight (28) days after expiration of the tender validity period. The Tender Surety of the successful tenderer will be returned upon the tenderer executing the Contract and furnishing the required Performance Security.
- 13.6 The Tender Surety may be forfeited:
- a) if a tenderer withdraws his tender during the period of tender validity; or
 - b) in the case of a successful tenderer, if he fails, within the specified time limit

- i. to sign the Agreement, or
 - ii. to furnish the necessary Performance Security
- c) if a tenderer does not accept the correction of his tender price pursuant to clause 23.

14 No Alternative Offers

- 14.1 The tenderer shall submit an offer which complies fully with the requirements of the tender documents unless otherwise provided for in the appendix.

Only one tender may be submitted by each tenderer either by himself or as partner in a joint venture. A tenderer who submits or participates in more than one tender will be disqualified.

- 14.2 The tenderer shall not attach any conditions of his own to his tender. The tender price must be based on the tender documents. The tenderer is not required to present alternative construction options and he shall use without exception, the Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price. Any tenderer who fails to comply with this clause will be disqualified.

15 Pre-tender Meeting

- 15.1 If a pre-tender meeting is convened, the tenderer's designated representative is invited to attend at the venue and time in the Invitation to Tender. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

- 15.2 The tenderer is requested as far as possible to submit any questions in writing or by cable, to reach the Employer not later than seven (7) days before the meeting. It may not be practicable at the meeting to answer questions received late, but questions and responses will be transmitted in accordance with the following:

- (a) Minutes of the meeting, including the text of the questions raised and the responses given together with any responses prepared after the meeting will be transmitted without delay to all purchasers of the tender documents. Any modification of the tender documents listed in – Clause 9 which may become necessary as a result of the pre-tender meeting shall be made by the Employer exclusively through the issue of a tender notice pursuant to Clause 7 and not through the minutes of the pre-tender meeting.

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

16 Format and Signing of Tenders

- 16.1 The copy of the tender and Bills of Quantities shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer. All pages of the tender where amendments have been made shall be initialed by the person or persons signing the tender.
- 16.2 The complete tender shall be without alterations, interlineations or erasures, except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person or persons signing the tender.

SUBMISSION OF TENDERS

17 Deadline for Submission of Tenders

- 17.1 Tenders must be received by the Employer at the address specified in clause 17.2 and on the date and time specified in the Letter of Invitation, subject to the provisions of clause 7.4, 18.2 and 18.3.
- 17.2 The Employer may, at his discretion, extend the deadline for the submission of tenders through the issue of an Addendum in accordance with clause 7, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline shall thereafter be subject to the new deadline as extended.
- 17.3 Any tender received by the Employer after the prescribed deadline for submission of tender will be returned unopened to the tenderer.

18 Modification and Withdrawal of Tenders

- 18.1 The tenderer may modify or withdraw his tender after tender submission, provided that written notice of the modification or withdrawal is received by the Employer prior to prescribe deadline for submission of tenders.
- 18.2 The tenderer's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions for the submission of tenders, with the inner and outer envelopes additionally marked "MODIFICATION" or "WITHDRAWAL" as appropriate.

- 18.3 No tender may be modified subsequent to the deadline for submission of tenders.
- 18.4 No tender may be withdrawn in the interval between the deadline for submission of tenders and the period of tender validity specified on the tender form. Withdrawal of a tender during this interval will result in the forfeiture of the Tender Surety.
- 18.5 Subsequent to the expiration of the period of tender validity prescribed by the Employer, and the tenderer having not been notified by the Employer of the award of the Contract or the tenderer does not intend to conform with the request of the Employer to extend the period of tender validity, the tenderer may withdraw his tender without risk of forfeiture of the Tender Surety.

19 Determination of Responsiveness

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

20 Conversion to Single Currency

- 20.1 For compensation of tenders, the tender price shall first be broken down into the respective amounts payable in various currencies by using the selling rate or rates of the Central Bank of Kenya ruling on the date twenty one (21) days before the final date for the submission of tenders.

- 20.2 The Employer will convert the amounts in various currencies in which the tender is payable (excluding provisional sums but including Day works where priced competitively) to Kenya Shillings at the selling rates stated in clause 25.1.

21 Evaluation and Comparison of Tenders

- 21.1 The Employer will evaluate only tenders determined to be substantially responsive to the requirements of the tender documents in accordance with clause 23.
- 21.2 In evaluating tenders, the Employer will determine for each tender the evaluated tender price by adjusting the tender price as follows:
- (a) Making any correction for errors pursuant to clause 24.
 - (b) Excluding Provisional Sums and provision, if any, for Contingencies in the Bills of Quantities, but including Day works where priced competitively.
- 21.3 The Employer reserves the right to accept any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in the accrual of unsolicited benefits to the Employer, shall not be taken into account in tender evaluation.
- 21.4 Price adjustment provisions in the Conditions of Contract applied over the period of execution of the Contract shall not be taken into account in tender evaluation.
- 21.5 If the lowest evaluated tender is seriously unbalanced or front loaded in relation to the Employer's estimate of the items of work to be performed under the Contract, the Employer may require the tenderer to produce detailed price analyses for any or all items of the Bills of Quantities, to demonstrate the relationship between those prices, proposed construction methods and schedules. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in clause 29 be increased at the expense of the successful tenderer to a level sufficient to protect the Employer against financial loss in the event of subsequent default of the successful tenderer under the Contract.
- 21.6 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding provisional sums to a non-indigenous sub-contractor.
- 21.7 Preference where allowed in the evaluation of tenders shall not exceed 15%. Preference of 15% will be adjusted for youth, women and persons with disabilities on evaluated bidders.

In other cases where the difference in price is negligible (margin of 5%, Kakamega residents may be preferred.

- 21.8 The County Government of Kakamega may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.
- 21.9 The County Government of Kakamega 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.
- 21.10 A tenderer who gives false information in the tender document about its qualification or who refuses to enter into a contract after notification of contract award shall be considered for debarment from participating in future public procurement.
- 21.11 Poor past performance shall not be used as an evaluation criteria unless specifically provided for in the appendix.

TENDER EVALUATION CRITERIA

Tenders will be evaluated in 3 stages:

- a) Preliminary Examination
- b) Technical Examination
- c) Financial Evaluation.

PRELIMINARY EXAMINATION (MANDATORY REQUIREMENTS)

1. Copy of Valid Tax Compliance Certificate.
2. Copy of Certificate of Incorporation/ Registration.
3. Dully filled and signed Form of Tender.
4. Bid security of Ksh 120,000.00
5. Dully filled and signed Confidential Business Questionnaire.

6. Dully filled and signed Bill of Quantities.
7. Copy of CR12 to confirm company Directors.
8. Copy of valid registration certificate from the National Construction Authority (NCA 8 and above) in road/civil engineering works.
9. Duly filled and signed site visit certificate
10. Duly filled and Signed declaration form

The tenderers who do not satisfy any of the above requirements shall be considered Non-Responsive and their tenders will not proceed for technical.

TECHNICAL EVALUATION

The award of points in this section shall be as shown below:

ITEM	DESCRIPTION	SCORES	MAX-POINTS
1	Experience as main contractor in works of a similar nature and size completed over the last five years(similar works completed in the last five(5)years (Attach a completion certificates.) 5 Projects and above successfully completed 4 Projects successfully completed 3 Projects successfully completed 2 Projects successfully completed 1 Projects successfully completed None or no relevant project	20 16 12 8 4 0	20
2	Names and address of client who may be contacted for further information on the completed projects (Name, firm, postal address, email address, Tel/Mobile. No. etc 4 Clients and above 3 Clients and above	4 3 2	

	2 Clients and above 1 Clients and above None	1 0	 4
3	Major items of construction equipment proposed to carry out the contract(owned, leased or hired) and undertaking that they will be available for the contract ie schedule of contractor's equipment but not limited to the listed items below: Attach log books for vehicles, purchase receipts for equipment or lease agreements) Earthworks machines(at least 5) Transportation equipment Any other relevant construction equipment	 20	 20
4	Qualifications and experience of key site management and technical personnel proposed for the contract and an undertaking that they shall be available for the contract ie qualifications and experience of key personnel. (Attach signed CV'S)	20	20
5	Financial Capabilities <u>Annual Turnover</u> Provide audited reports for last 3 Assessment of adequate current bank statement for the last 6 months <u>Credit worthiness</u> Letter of credit to show assess credit	10 6	16

7	Submit <u>Detailed</u> work schedule (indicate project duration)	10	10
8	Authority to seek references from the tenderers bankers with details of Name, address, and telephone numbers and account numbers.	2	2
9	Litigation and arbitration history. Information regarding any litigation , current or during the last five years, in which the tenderer is involved , the parties concerned and disputed amount(Provide affidavit)	3	3
10	Schedule of Rates (Materials & Labour)	5	5
	TOTAL SCORE (Pass Mark 75%)		100

FINANCIAL EVALUATION

The lowest evaluated bidder will be recommended for award, based on tender sum comparison.

AWARD OF CONTRACT

27 Award Criteria

- 27.1 Subject to Sub-clause 27.2, the Employer will award the Contract to the tenderer whose tender is determined to be substantially responsive to the tender documents and who has offered the lowest evaluated tender price subject to possessing the capability and resources to effectively carry out the Contract Works as required in Sub-clause 2.1 and 2.2 hereabove.
- 27.2 The Employer reserves the right to accept or reject any tender, and to annul the tendering process and reject all tenders, at any time prior to award of Contract, without thereby incurring any liability to the affected tenderers or any obligation to inform the affected tenderers of the grounds for the Employer's action.

28 Notification of Award

- 28.1 Prior to the expiration of the period of tender validity prescribed by the Employer, the Employer will notify the successful tenderer by cable, telefax or telex and confirmed in writing by a letter that his tender has been accepted. This letter (hereinafter and in all Contract documents called “Letter of Acceptance”) shall name the sum (hereinafter and in all Contract documents called “the Contract Price”) which the Employer will pay to the Contractor in consideration of the execution and completion of the Works as prescribed by the Contract.
- 28.2 At the same time that the Employer notifies the successful tenderer that his tender has been accepted, the Employer shall notify the other tenderers that the tenders have been unsuccessful.
- 28.3 Within fourteen [14] days of receipt of the Form of Contract Agreement from the Employer, the successful tenderer shall sign the form and return it to the Employer together with the required Performance Security.
- 28.4 The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.

29 Performance Guarantee

- 29.1 Within twenty eight [28] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with a Performance Security in the amount stated in the Appendix to Instructions to Tenderers and in the format stipulated in the Conditions of Contract.
- 29.2 The Performance Security to be provided by the successful tenderer shall be an unconditional Bank Guarantee issued at the tenderer’s option by a reputable Bank approved by the Employer and located in the Republic of Kenya and shall be divided into two elements namely, a performance security payable in foreign currencies (based upon the exchange rates determined in accordance with clause 60(5) of the Conditions of Contract) and a performance security payable in Kenya Shillings. The value of the two securities shall be in the same proportions of foreign and local currencies as requested in the form of foreign currency requirements.
- 29.3 Failure of the successful tenderer to lodge the required Performance Security shall constitute a breach of Contract and sufficient grounds for the annulment of the award and forfeiture of the Tender Security and any other remedy under the Contract. The Employer may award the Contract to the next ranked tenderer.

30 Advance Payment

An advance payment, if approved by the Employer, shall be made under the Contract, if requested by the Contractor, in accordance with clause 60(1) of the Conditions of Contract. The

Advance Payment Guarantee shall be denominated in the proportion and currencies named in the form of foreign currency requirements. For each currency, a separate guarantee shall be issued. The guarantee shall be issued by a Bank located in the Republic of Kenya, or a foreign Bank through a correspondent Bank located in the Republic of Kenya, in either case subject to the approval of the Employer.

22 Corrupt or fraudulent practices

- 22.1 The County Government of Kakamega requires that tenderers observe the highest standard of ethics during the procurement process and execution of contracts. A tenderer shall sign a declaration that he has not and will not be involved in corrupt or fraudulent practices.

CLAUSE

13 Tender Security

Amount of Tender Security is as stipulated in the tender document.

- 16 (i) The name and address of the Employer for the purposes of submission of tenders is as indicated on the cover page.
- (ii) The name of the proposed Works and where available the Contract Number is as per cover page.
- (iii) The tender opening date and time remains as indicated above.

28 Performance Guarantee

The amount of Performance Security is Ksh 10%. A bank guarantee of ten (10) percent of the Contract Price is acceptable.

- 22.2 past performances will be considered before making final decision on recommendation to award.

Close 26.7 See the preference guidelines on Youth, Women and Persons with disabilities and Kakamega Residents

The Conditions of Contract, Part I – General Conditions, shall be those forming Part I of the “Conditions of Contract for works of Civil Engineering Construction, First Edition 1999, prepared by the Federation Internationale des Ingenieurs – conseils (FIDIC). The Conditions are subject to variations and additions set out in Part II hereof entitled “Conditions of Contract, Part II - Conditions of Particular Application”.

Note

- i. The standard text of the General Conditions of Contract must be retained intact to facilitate its reading and interpretation by tenderers. Any amendments and additions to the General Conditions, specific to a given Contract, should be introduced in the Conditions of Particular Application or in the Appendix to Form of Tender.
- ii. The Conditions of Particular Application take precedence over the General Conditions of Contract.

- iii. Copies of the FIDIC Conditions of Contract can be obtained from:
FIDIC Secretariat

P.O. Box 86

1000 Lausanne 12

Switzerland

Fax: 41 21 653 5432

Telephone: 41 21 653 5003

SECTION IV-CONDITIONS OF CONTRACT PART II (CONDITIONS OF
PARTICULAR APPLICATION)

TABLE OF CLAUSES

CLAUSE NUMBERS	DESCRIPTION	PAGE
1.	Definitions and interpretation.....	25
2.	Engineer's Duties and Authority.....	25
4.	Assignment and sub-contracting.....	25
5.	Contract Document	26
10	Performance security	27
11	Inspection of Site	27
14	Programme to be submitted	28
15	Contractor's superintendence	28
16	Engineers at liberty to object.....	29
19	Safety, security and profession of the environment	29
21	Insurance of works and contractors equipment.....	30

23	Third Party Insurance	30
25	Insurance notices	31
26	Compliance with statutes and regulations	31
28	Royalties.....	31
29	Interference with traffic and Adjoining properties.....	31
34	Labour.....	32
41	Commencement and delays.....	34
42	Possession of site.....	34
45	Working hours.....	35
47	Liquidated damage.....	35
49	Defects liability.....	35
52	Variations.....	35
54	Plant, Temporary works and materials.....	36
55	Quantities.....	36
56	Measurements	36
58	Provisional sums.....	37
60	Certificate and payments.....	37
63	Remedies.....	43
65	Special Risks.....	44
67	Settlement of Disputes.....	44
68	Notices.....	44
69	Default of Employer.....	45
70	Changes in cost and legalization.....	45
73	Declaration Against waiver.....	47
74	Bribery and collusion	47
75	Contract Confidential	48
76	Employer's officers.....	48
77	Taxes and duties.....	48
78	Joint Ventures	49

CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION)

GENERAL

The Conditions of Contract Part II – Conditions of Particular Application, modify and compliment like-numbered clauses in the Conditions of Contract Part I – General Conditions. Both Parts shall be read together, with the Conditions of Particular Application prevailing in case of conflict or discrepancy. Clauses of the General Conditions not specifically modified and supplemented shall remain in effect.

Clause No.

Definitions and Interpretation

1.1 (a)(i) The said “Employer” shall be the County Government of Kakamega represented by the department and authority indicated on the cover page.

(iv) The said “Engineer” shall be _____ (*Name of the Engineer*) or any other competent person appointed by the Employer, and notified to the Contractor, to act in replacement of the Engineer.

(b)(i) Insert in line 2 after “the Bills of Quantities”, the following, “the rates entered by the Contractor (whether or not such rate be employed in computation of the Contract Price)”.

Add the following sub-clause;

Engineer’s Duties and Authority

2.1 (b) The Engineer shall obtain specific approval of the Employer before taking any of the following actions specified in Part I:

- (i) Consenting to the sub-letting of any part of the Works under clause 4.
- (ii) Certifying additional cost determined under Clause 12
- (iii) Determining an extension of time under Clause 44
- (iv) Issuing a variation under Clause 51 except in an emergency situation as reasonably determined by the Engineer.
- (v) Fixing rates or prices under clause 52

4 Assignment and Subcontracting

4.1 Delete the second and third sentence and substitute:

No single subcontract may be for more than 20 percent of the Contract Price nor shall the sum of all subcontracts exceed 25 percent of the Contract price. No one subcontractor may be awarded subcontracts to a total value greater than 10 percent of the Contract Price. All subcontracts greater than 2 percent of the Contract Price are to have the prior consent of the Engineer. The Contractor shall however, not required such consent for purchases of materials or to place contracts for minor details or for any part of the Works of which the manufacturer of supplier is named in the Contract. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any subcontractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.

5 Contract Documents

5.1 (a) The language governing this Contract shall be English.

The “Ruling Language” which shall be used to interpret this Contract shall be English. Communication between the Contractor and Engineer or Engineer’s representative shall be in English.

(b) The law applicable to this Contract shall be the laws of the Republic of Kenya. Except to the extent otherwise provided by the Contract, the Kenyan courts shall have exclusive jurisdiction to hear and to determine all actions and proceedings

in connection with and arising out of the Contract, and the Contractor shall submit to the jurisdiction of Kenyan courts for the purpose of any such actions and proceedings.

5.2

Delete the documents listed 1-6 and substitute:

- (1) The Contract Agreement;
- (2) The Notification of Award;
- (3) Tender and Appendix to Form of Tender;
- (4) The Conditions of Contract Part II;
- (5) The Conditions of Contract Part I (FIDIC);
- (6) The Special Specifications;
- (7) The Standard Specifications for Road and Bridge Construction, MOTC – 1986;
- (8) Clarifications and rectifications accepted by the Employer; and
- (9) The Drawings;
- (10) The priced Bills of Quantities; and
- (11) Schedules and other documents forming part of the Contract.

8.1

Add to sub clause 8.1 the following:

- (a) Within 28 days after receipt of the Engineer's order to commence the Works, the Contractor shall establish an office at the Site duly equipped for the Contractor's representative and his supervisory personnel.

The Contractor shall maintain this office throughout the Contract period. The said office shall be the legal domicile of the Contractor, and all correspondence sent to this office shall be deemed to have been sent to the Contractor's head office.

- (b) A foreign Contractor or a Kenya-foreign joint venture, if not registered in Kenya under the applicable laws of Kenya, shall undertake registration upon receipt of the letter of acceptance and prior to signing of the Contract.

10.1 Performance Security

In lines 1, 2 and 3 delete the words "If the Contract... within 28 days" and substitute "The Contractor shall obtain a Performance Security within 28 days"

Add the following at the end of this Sub-Clause: -

The Performance Security shall be issued by a Bank incorporated in Kenya. The amount of guarantee shall be as stated in the Appendix to Form of Tender.

The bank guarantee, shall be issued either (a) by an established and reputable bank approved by the Employer and located in Kenya or a foreign bank through a correspondent established and reputable bank located in Kenya and approved by the Employer or (b) directly by a foreign bank acceptable to the Employer. The performance security shall normally be in the currency or currencies requested for payment by the Contractor and in the same proportions as those requested for payment in the Contract.

The performance security may, subject to the approval of

The Engineer, be adjusted at the end of each period of 12 months to reflect the residual value of the Contract Works.

10.2 The performance guarantee shall be valid until a date 28 Days after the date of issue of the Taking-Over Certificate.

The security shall be returned to the Contractor within 28 Days of the expiration.

10.3 Delete sub-clause 10.3

11.1 **Inspection of Site**

Add the words “and the Contractor shall be deemed to have based his tender on all the aforementioned” after the words “affect his tender”.

Delete the last paragraph completely and replace with the following:

“The Employer in no way guarantees completeness nor accuracy of the soil, materials, subsurface and hydrological information made available to the Contractor at the time of tendering or at any other time during the period of the Contract, and the Contractor shall be responsible for ascertaining for himself all information as aforesaid for the execution of Works and his tender shall be deemed to have been priced accordingly.

14.1 **Programme to be Submitted**

The time within which the Programme shall be submitted shall be fourteen (14) days. This detailed Programme shall be based upon the Programme submitted by the Contractor as part of his tender and shall, in no material manner, deviate from the said Programme.

The program shall be in the form of a Critical Path Method Network (CPM Network) showing the order of procedure and a description of the construction methods and arrangements by which the Contractor proposes to carry out the works .It should also be supplemented by a time -bar chart of the same program. The program shall be coordinated with climatic, groundwater and other conditions to provide for completion of the works in the order and by the time specified. The program shall be revised at three-month intervals and should include a chart of the principle quantities of work forecast for execution monthly.

During the execution of the works, the Contractor shall submit to the Engineer full and detailed particulars of any proposed amendments to the arrangements and methods submitted in accordance with the foregoing.

If details of the Contractors proposals for Temporary Works are required by the Engineer for his own information the Contractor shall submit such details within fourteen days of being requested to do so.

The Contractor shall allow in his Programme for the following public holidays per calendar year in Kenya upon which the Contractor shall not be permitted to work

New Year's Day (1st January)

Good Friday

Easter Monday

Labour Day (1st May)

Madaraka Day (1st June)

Idd-Ul-Fitr

Mashujaa Day (20th October)

Jamhuri Day (12th December)

Christmas Day (25th December)

Boxing Day (26th December)

The Contractor should also allow per calendar year for a further 2 unspecified public holidays which may be announced by the Government of Kenya with no prior notification, and upon which he shall not be permitted to work.

14.2 Add the following at the end of this sub clause:-

The Employer shall have the right to withhold payment at any time if the Contractor fails to submit the contractual construction programmes in accordance with sub clause 14.1 above or revise construction programmes due to his negligence, failure or omission.

14.3 **Cash Flow Estimate to be Submitted**

The time limit within which a detailed cash flow estimate is to be submitted shall be fourteen (14) days.

In preparing the estimates, the Contractor shall make provision for Advance payment, repayment of advance, retention, payment for services provided by the Employer and timing implications of sub clause 60 – Certificates and Payments.

15 **Contractor's Superintendence**

Add the following at the end of the first paragraph of sub-clause 15.1:

15.1 The Contractor shall, within seven (7) days of receipt of the Engineer's order to commence the Works, inform the Engineer in writing, the name of the Contractor's representative and the anticipated date of his arrival on Site.

Add the following sub-clause 15.2:

15.2 The Contractor's agent or representative on the Site shall be an Engineer registered by the Engineer's Registration Board of Kenya in accordance with the Laws of Kenya cap. 530 or have equivalent status approved by the Engineer and shall be able to read, write and speak English fluently.

16.2 **Engineer at Liberty to object**

At the end of this clause add "by a competent substitute approved by the Engineer at the Contractor's own expense".

The Contractor is encouraged to the extent practicable and reasonable, to employ staff and Labour with appropriate qualifications who are Kenyan citizens.

16.3 **Employment of local personnel**

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience who are Kenya citizens.

Safety, Security and Protection of the Environment

19.1 Add at the end of sub clause 19.1 the following: -

The formulation and enforcement of an adequate safety program shall be the obligation of the Contractor with respect to all the Works under this Contract, regardless of whether performed by the Contractor or his subcontractors. The Contractor shall, within 14 days after commencement of the Works, meet the Engineer to present and discuss his plan for the establishment of such safety measures as may be necessary to provide against accidents, unsafe acts and so forth. Within 28 days after commencement of the Works, the Contractor shall submit a written safety program to the Engineer covering the overall Works and based on the laws and regulations of Kenya. In addition, he shall prepare special safety programs for blasting and handling of explosives as stipulated in the General and Special Specifications.

Notwithstanding the foregoing, the Contractor shall observe the following measures with a view to reducing or eliminating adverse environmental effects by the Site Works:

- (i) All queries and borrow pits shall be filled and landscaped to their original state after extraction of construction material
- (ii) Soil erosion due to surface runoff or water from culverts or other drainage structures should be avoided by putting in place proper erosion control measures that shall include, but not limited to grassing, planting of trees, gabions etc.
- (iii) Long traffic diversion roads shall be avoided so as to minimize the effect of dust on the surrounding environment. In any case, all diversions shall be kept damp and dust free at the Contractor's expense.
- (iv) Spillage of oils, fuels and lubricants shall be avoided and if spilt, shall be collected and disposed of in such a way as not to adversely affect the environment.
- (v) Rock blasting near settlement areas shall be properly coordinated with the relevant officers of the Government so as to minimize noise pollution and community interference.

- (vi) Dumping shall be done only at designated dumping areas and not haphazardly on surroundings.

Insurance of Works & Contractor's Equipment

- 21.1 (a) Delete the first sentence of this clause and replace with the following:

“Prior to commencement of the Works the Contractor shall, without limiting his or the Employer's obligations and responsibilities under Clause 20, insure to the satisfaction of the Employer.”

- (b) Add the following words at the end of sub - paragraph (a) and Immediately before the last word in (b)

“it being understood the insurance shall provide for compensation to be payable in the types and proportions of the currencies required to rectify the loss or damage incurred.”

In sub clause 21.1(b), delete the words “or as may be specified in Part II of these Conditions”.

- 21.2 (a) Delete the words “from the start of Work at the Site” and substitute with the words “from the first working day after the commencement date”

(c) Add the following sub-clause: “It shall be the responsibility of the Contractor to notify the insurance company of any change in the nature and extent of the Works and to ensure the adequacy of the insurance coverage at all times during the period of the Contract”.

23.1 Third Party Insurance

Add the following at the beginning of this sub-clause: -

“Prior to commencement of the Works”

23.2 Minimum Amount of Insurance

Add the following at the end of this sub-clause: -

“ with no limits to the number of occurrences.”

- 25.1 Insert the words “as soon as practicable after the respective insurances have been taken out but in any case” before the words “Prior to the start of Work at the Site”

Add the following sub-clauses 25.5 to 25.7

25.5 Insurance Notices

Each policy of insurance effected by the Contractor for the purpose of the

Contract shall include a provision to the effect that the Insurer shall have a duty to give notice in writing to the Contractor and Employer of the date when a premium becomes payable not more than thirty (30) days after the giving of such notice.

25.6 Re-insurance in Kenya

The risks against which the Contractor is obliged to insure under the Contract shall be insured through established and reputable companies approved by the Employer and located in Kenya and any cover against risks which the Contractor may enjoy shall be reinsured in Kenya by an approved Kenyan Insurance Company In respect of the Contractor’s obligations under the Contract.

- 25.7 It shall be the responsibility of the Contractor to notify the insurers under any of the insurances referred or event which by the terms of such insurances are required to be so notified and the Contractor shall indemnify and keep indemnified the Employer against all losses, claims, demands, proceedings, costs, charges and expenses whatsoever arising out of or in consequence of any default by the Contractor in complying with the requirements of this sub clause whether as a result of avoidance of such insurance or otherwise.

26. Compliance with Statutes, Regulations

Add the following sub-clause 26.2;-

The Employer will repay or allow to the Contractor all such sums as the Engineer shall certify to have been properly payable and paid by the Contractor in respect of such fees. Provided always that, without prejudice to sub clause, nothing contained in this clause shall be deemed to render the Employer liable to all claims which may be considered to fall within the provisions of clause 22.1.

Royalties

28.2 Add the following at the end of this sub-clause;

“The Contractor shall also be liable for all payments or compensation, if any, that are levied in connection with the dumping of part or all of any such material.”

Interference with Traffic and Adjoining Properties

29.2 Add new sub-clause 29.2;

The Contractor shall reinstate all properties whether public or private which are damaged in consequence of the construction and maintenance of the Works to a condition at least equal to that prevailing before his first entry on them.

If in the opinion of the Engineer the Contractor shall have failed to take reasonable and prompt action to discharge his obligations in the matter of reinstatement, the Engineer will inform the Contractor in writing of his opinion, in which circumstances the Employer reserves the right to employ others to do the necessary work of reinstatement and to deduct the cost thereof from any money due or to become due to the Contractor.

The Contractor shall promptly refer to the Employer all claims, which may be considered to fall within the provisions of Clause 22.1.

LABOUR

34.2 **Conditions of Employment of Labour**

The Contractor shall be responsible for making all arrangements for and shall bear all costs relating to recruitment, obtaining of all necessary visas, permits or other official permission for movements of staff and Labour.

34.3 **Fair Wages**

The Contractor shall, in respect of all persons employed anywhere by him in the execution of the Contract, observe and fulfill the following conditions:

- (a) The Contractor shall pay the rates of wages, observe hours of Labour and provide conditions, housing amenities and facilities not less favorable than those required by the Regulation of wages (Building and Construction Industry) Order 1998, and any subsequent amendments thereto, or in any ministry of Labour or other government department in consultation with the district whose general circumstances in the trade or industry in which the Contractor is engaged are similar. The Contractor shall at all times during the continuation of the Contract display, for the information of his employees, a notice setting out the general rates of wages, hours and conditions of Labour of his employees and a copy of this clause.
- (b) In the absence of any rates for wages, hours or conditions of Labour so established, the Contractor shall pay rates or wages and observe hours and conditions for Labour which are not less favorable than the general circumstances in the trade or industry in which the Contractor is engaged.
- (c) Where the absence of established rates of wages, hours and conditions of Labour or the dissimilarity of the general circumstances in the trade or industry in which the Contractor is engaged prevent the Contractor from observing rates of wages, hours and conditions of Labour ascertained under sub-paragraph (a) or (b) above, the Contractor in fixing the rates of wages, hours and conditions of Labour of his employees shall be guided by the advice of the Labour department.
- (d) The Contractor shall recognize the freedom of his employees to be members of trade unions.
- (e) The Contractor shall maintain records of the times worked by, and the wages paid to his employees. The Contractor shall furnish to the Employer, if called upon so to do, particulars of the rates of wages, hours and conditions of Labour as the employer may direct.
- (f) The Contractor shall be responsible for observance by his sub-Contractors of the foregoing provisions.

34.4 Breach of Fair Wages Clause

Should a claim be made to the Employer alleging the Contractor's default in payment of fair wages to any workman employed on the Contract and if proof thereof satisfactory to the Employer is furnished by the Labour department, the Employer may, failing payment by the Contractor, pay the claims out of any monies due or which may become due to the Contractor under the Contract.

34.5 Recruitment of Unskilled Labour

Any additional unskilled Labour which may be required by the Contractor for the Works and which is not in his employ at the time of the acceptance of the tender shall be recruited by the Contractor from the Labour office nearest to the Site of the Works.

34.6 **Compensation for injury**

The Contractor shall, in accordance with the Workman's Compensation Act Chapter 236 of the laws of Kenya and any other regulations in force from time to time in Kenya, pay compensation for loss or damage suffered in consequence of any accident or injury or disease resulting from his work to any workman or other person in the employment of the Contractor or any sub-contractor.

34.7 **Labour Standards**

- a) The Contractor shall comply with the existing local Labour laws, regulations and Labour standards.
- b) The Contractor shall formulate and enforce an adequate safety program with respect to all Work under this Contract, whether performed by the Contractor or his sub-contractors. The Contractor has assurance from the Employer of cooperation where the implementation of these safety measures requires joint cooperation.
- c) Upon written request of the Employer the Contractor will remove or replace any of his employees employed under this Contract.

34.8 **Recruitment**

The Contractor shall not induce personnel of the employer or the Engineer to leave their regular employment and shall not, without the prior consent in writing of the Employer, employ personnel who have resigned from such service within the preceding twelve months.

35 Add the following sub clauses 35.2 and 35.3:-

35.2 The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.

35.3 The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means. The Contractor shall also notify the relevant authority(s) whenever such report is required by the law.

41.1 **Commencement and Delays**

Insert immediately after the word Works----- “on Site within 28 days” and before the word -----
---after

41.2 **Definition of Commencement**

For the purposes of this clause, the Works shall be deemed to have commenced when all of the following conditions are satisfied;

- a) The approved competent and authorized agent or representative of the Contractor is resident in the project area and is giving his whole time to the superintendence of the Works.
- b) The provision by the Contractor of evidence that all insurances required by the Contract are in force.
- c) The Contractor has an established office in the project area with postal address for receipt of correspondence.
- d) The principal items of constructional plant have been brought to Site and put to work in the execution of the permanent Works.

42.4 **Possession of Site and Access Thereto**

Add the following to this clause 42.4;

The Contractor shall not enter any part of the Site until he has requested and received permission to do so from the Employer or the Engineer.

The Contractor shall not use any portion of the Site for any purpose not connected with the Works.

44.1 Add at the end of sub-clause 44.1 the following:

Neither rains falling between 1st November and 31st December (inclusive) and between 1st February and 31st May (inclusive) nor floods caused by such rains shall be deemed exceptional weather conditions such as may fairly entitle the Contractor to an extension of time for the completion of the Work.

Delete sub-clause 45.1 and substitute:

“Subject to any provision to the contrary contained in the Contract, the Contractor shall have the option to work continuously by day and by night and on locally recognized days of rest.

If the Contractor requests for permission to work by day and night and if the Engineer shall grant such permission, the Contractor shall not be entitled to any additional payment for so doing. All such work at night shall be carried out without unreasonable noise or other disturbance and the Contractor shall indemnify the Employer from and against any liability for damages on account of noise or other disturbance created while or in carrying out night work and from and against all claims, demands, proceedings, costs, charges and expenses whatsoever in regard or in relation to such liability. In addition, the Contractor shall be required to provide, for any work carried out by night or recognized days of rest, adequate lighting and other facilities so that the Work is carried out safely and properly. In the event of the Engineer granting permission to the Contractor to work double or rotary shifts or on Sundays, the Contractor shall be required to meet any additional costs to the Employer in the administration and supervision of the Contract arising from the granting of this permission.

47.2 **Reduction of Liquidated Damages**

There shall be no reduction in the amount of liquidated damages in the event that a part or a section of the Works within the Contract is certified as completed before the whole of the Works comprising that Contract. No bonus for early completion of the Works shall be paid to the Contractor by the Employer.

The sum stated in the Appendix to Form of Tender as liquidated damages shall be increased by a sum equivalent to any amount payable by the Employer to the Contractor under clause 70.1 in respect of an increase in costs in such period that would not have been incurred by the Contractor if the Works had been completed by the due date for completion prescribed by clause 43.

Defects Liability

49.2 Add at the end of this sub-clause the following sentence: -

Any work ordered to be executed under this clause shall be done at a time and in a manner as directed by the Engineer so as to interfere as little as possible with the operations of the Employer or of other contractors and no extension(s) of the defects liability period will be allowed for the execution of this Work.

Add the following sub-clause 49.5 to this Clause: -

52 **Variations**

52.1 Add the following final sentence to this sub clause: -

The agreement, fixing or determination of any rates or prices as aforesaid shall include any foreign currency and the proportion thereof.

52.4 **Day work**

Add the following at the end of this sub-clause:

The Work so ordered shall immediately become part of the Works under the Contract. The Contractor shall, as soon as practicable after receiving the Day work Order from the Engineer undertake the necessary steps for due execution of such Work. Prior to commencement of any work to be done on a Day work basis, the Contractor shall give a notice to the Engineer stating the exact time of such commencement.

54 **Plant, Temporary Works and Materials**

Delete Sub-Clauses 54.3 to 54.4 entirely.

For the purpose of these Clauses, the term “Equipment” shall be read as “Contractor’s Equipment” where the context so requires.

54.1 Line 5: - Add “written” between “the” and “consent”.

54.2 **Existing services**

The Contractor shall acquaint himself with the position of all existing services such as drains, telephone and electricity lines and poles, water mains and the like, before commencing any excavation or other which is likely to affect the existing services.

The Contractor will be held liable for all damage to roads, irrigation ditches, main pipes, electric cables, lines or services of any kind caused by him or his Sub-Contractors in the execution of the Works. The Contractor must make good any damage without delay and, if necessary, carry out any further work ordered by the Engineer's Representative.

The Contractor will be required to make all necessary arrangements with local authorities, corporations and owners before executing relocation of existing services. The Contractor shall pay the costs of such works on behalf of the Employer and shall be reimbursed thereafter by the Employer.

Quantities

- 55.1 Delete sub-clause 55.1 and substitute with the following;

The quality and quantity of the Work included in the Contract Price shall be deemed to be that which is set out in the Contract Bills. The Bills, unless otherwise expressly stated therein, shall be deemed to have been prepared in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement.

Any error in description or in quantity or any omission of items from the Contract Bills or Specifications shall not vitiate this Contract but shall be corrected and deemed to be a variation required by the Engineer. Subject to the foregoing, any error whether arithmetical or not in the computation of the Contract Price shall be deemed to have been accepted by the parties hereto.

The Contract Price shall not be adjusted or altered in any way whatsoever otherwise than in accordance with the express provisions of these Conditions.

- 55.2 Add as a new sub-clause:

“Items of Work described in the Bills of Quantities for which no rate or price has been entered in the Contract shall be considered as included in other rates and prices in the Contract and will not be paid for separately by the Employer.

Measurement

- 56.1 Delete sub clause 56.1 and replace with the following: -

The Contractor shall prepare and submit to the Engineer all necessary field notes and other records taken and computations made for the purpose of quantity measurements, of which the forms shall be approved by the Engineer, for the monthly progress payment under clause 60. The measurement of work quantities made by the Contractor shall be verified and certified by the Engineer based on the above-mentioned documents.

The Contractor shall furnish all personnel, equipment and materials to make such surveys and computations as necessary to determine the quantities of work performed. Unless otherwise prescribed in the specifications or the drawings, all measurements for payment shall be made by the dimensions, lines and grades as shown on the drawings or by direct survey of which the methods shall be approved by the Engineer.

The documents submitted for measurement and payment shall become the property of the Employer and shall be used to the extent necessary to determine the monthly progress payment to be made to the Contractor under the Contract. Direct survey, if done, shall be subject to checking and verification by the Engineer and all errors in the said survey work and related computations as found during such checking shall be immediately corrected by the Contractor.

- 57.1 Delete sub clause 57.1 and substitute with the following: -
The Works shall be measured net with deductions made in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement. All measurements shall be given in metric (SI) units.

Provisional Sums

- 58.4 **Prime Cost sum**

Wherever an item in the Bills of Quantities has been referred to as a “P.C. Sum” (Prime Cost Sum), that item shall be construed as a Provisional sum and the provisions of Sub-clauses 58.1 to 58.3 will apply.

- 59.5 Add the following paragraph at the end of sub clause 59.5:-

If the Engineer desires to secure final payment to any nominated sub-contractor before final payment is due to the Contractor and if such sub-contractor has satisfactorily indemnified the Contractor against any latent defects, the Engineer may, in an interim certificate, include an amount to cover the said final payment, and thereupon the Contractor shall pay to such nominated sub-contractor the amount so certified. Upon such final payment, the amount named in the Appendix to Form of Tender as Limit of Retention Money shall be reduced by the sum which bears the same ratio to the amount as does the subcontract and sub-contractor shall be discharged from all liability for the Work, materials or goods executed or supplied by such subcontractor under the Contract to which the payment relates.

Certificates and Payment

Delete Sub-clauses 60.1 to 60.10 entirely and substitute with the following: -

60.1 Advance Payment

In the event that an advance payment is granted, the following shall apply: -

- a) On signature of the Contract, the Contractor shall at his request, and without furnishing proof of expenditure, be entitled to an advance of 10% (ten percent) of the original amount of the Contract. The advance shall not be subject to retention money.
- b) No advance payment may be made before the Contractor has submitted proof of the establishment of deposit or of a directly liable guarantee satisfactory to the Employer in the amount of the advance payment. The guarantee shall be in the same currency as the advance.
- c) Reimbursement of the advance shall be effected by deductions from monthly interim payments.
- d) Reimbursement of the lump sum advance shall be made by deductions from the Interim payments and where applicable from the balance owing to the Contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original amount of the Contract. It shall have been completed by the time 80% of this amount is reached.

The amount to be repaid by way of successive deductions shall be calculated by means of the formula:

$$R = \frac{A (x^1 - x^{11})}{80 - 20}$$

Where:

R = the amount to be reimbursed

A = the amount of the advance which has been granted

x^1 = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This figure will exceed 20% but not exceed 80%.

x^{11} = the amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%.

- (e) With each reimbursement, the counterpart of the directly liable guarantee may be reduced accordingly.

60.2 Interim Payment Certificate

The Contractor shall submit to the Engineer, in the manner required by the Engineer after the end of each month a statement showing the estimated total value of permanent Work properly executed and materials or goods for permanent works brought to Site up to the end of the previous month (if the value shall justify the issue of an interim certificate) together with any adjustments under clause 70 and any outstanding claims and sums the Contractor considers may be due to him. The Contractor shall amend or correct his estimate as directed by the Engineer and the latter shall not accept it until he is satisfied that it is fair and reasonable. With respect to the said materials and goods, no payment for them shall be made unless; -

- (i) The materials are in accordance with the specifications for the Works;
- (ii) The materials have been delivered to Site and are properly stored and protected against loss, damage or deterioration;
- (iii) The Contractor's record of the requirements, orders, receipts and use of materials are kept in a form approved by the Engineer, and such records are available for inspection by the Engineer;
- (iv) The Contractor has submitted a statement of his cost of acquiring and delivering the materials and goods to the Site, together with such documents as may be required for the purpose of evidencing such cost;
- (v) The materials are to be used within a reasonable time.

The Contractor will be paid on the certificate of the Engineer the amount due to him on account of the estimated total value of the permanent Work executed up to the end of the previous month together with such amount (not exceeding 75% of the value) as the Engineer may consider proper on account of materials and goods for permanent Work delivered by the Contractor on Site and in addition, such amount as the Engineer may consider fair and reasonable for any Temporary Works for which separate amounts are provided in the Bill of Quantities, all of which shall be subject to a retention of the percentage named in the Appendix to Form of Tender until the amount retained (hereinafter and in all Contract documents called the "Retention Money") shall reach the "Limit of Retention Money" named in the said Appendix. Provided always that no interim certificate shall be issued for a sum [such sum always being the net amount thereof after all deductions for retention etc.) less than that named in the Appendix to Form of Tender as "Minimum Amount of Interim Certificate" at one time.

Within 14 days after receiving a statement from the Contractor as aforesaid, and subject to the Contractor having made such further amendments and corrections as the Engineer may require,

the Engineer shall issue a Certificate of Payment to the Employer showing the amount due, with a copy to the Contractor.

The Engineer shall not unreasonably withhold certifying an Interim Payment Certificate and where there is a dispute regarding an item for payment, the Engineer may delete this disputed item from the Interim Payment Certificate and certify the remainder for payment provided the said payment is in accordance with the preceding paragraph. In cases of difference in opinion as to the value of any item, the Engineer's view shall prevail.

60.3 Final Account and Final Payment Certificate

As soon as possible after the issue of Taking - Over Certificate or the termination of the Contract and not later than the time of issue of Defects Liability Certificate, the Contractor shall prepare and submit to the Engineer (with a copy to the Employer), a Statement of Final Account showing in detail the total value of work done in accordance with the Contract together with all sums paid in previous payments. Within thirty (30) after receipt of such further information as may be reasonably required from the Contractor for its verification, the Engineer shall check the said statement, prepare and submit a Final Payment Certificate to the Employer (with a copy to the Contractor).

The Final Payment Certificate shall state;

- (a) The (final) total value of all Work done in accordance with the Contract;
- (b) After giving credit to the Employer for all amounts previously paid to the Contractor, the balance, if any, due from the Employer to the Contractor or the Contractor to the Employer, as the case may be.

Unless the Contractor notifies the Engineer of his objection to the Final Payment Certificate within twenty eight [28] days of delivery thereof, he shall be deemed to have agreed that he accepts the total Contract Price as set out in the Final Payment Certificate as full settlement for all work done under the Contract including any claims, variations and omissions thereof.

However, a Final Certificate of Payment shall not be conclusive:

- a) to the extent that fraud or dishonesty relates to or affects any matter dealt with in the Certificate, or

- b) If any arbitration or court proceedings under the Contract have been commenced by either party before the expiry of 84 days after the issue of the Final Certificate of Payment.

60.4 Payment of Certificates

Payment upon each of the Engineer's Certificates for Interim Payments shall be made by the Employer within the time stated in the Appendix to Form of Tender from the date of issue of each Certificate of Payment.

Payment upon the Engineer's Final Payment Certificate shall be made by the Employer within the time stated in the Appendix to Form of Tender from the date of issue of the Final Certificate of Payment signed by the Engineer and countersigned by the Contractor or his authorized agent or representative.

Making of a payment by the Employer shall be considered to have been duly executed on the day that the Employer has issued a cheque.

60.5 Payment of Retention Money

One half of the retention money shall become due upon the issue of a Taking – Over Certificate and shall be paid to the Contractor when the Engineer shall certify in writing that the last section of the whole of the Works has been substantially completed and the other half shall be paid to the Contractor after the expiration of the Defects Liability Period and the issue of a Certificate under Clause 62. Provided always that if such time there shall remain to be executed by the Contractor any Works ordered during such period pursuant to Clauses 49 and 50 thereof, the Employer shall be entitled to withhold payment [until the completion of such Works] of so much of the second half of the Retention Money as shall in the opinion of the Engineer represent the Costs of the Works so remaining to be executed. Provided further that in the event of different Defects Liability Periods having become applicable to different parts of the Works pursuant to clause 48 hereof the expression “expiration of the Defect Liability Period” shall for the purpose of this Sub-clause be deemed to mean the expiration of the latest of such periods.

60.6 Currency of Payment

The Contract price shall be stated in Kenya Shillings. All payments to the Contractor shall be made in Kenya shillings and foreign currency(s) in the proportion indicated in the tender, or agreed prior to the execution of the Contract Agreement and indicated therein. The rate[s] of exchange for the calculation of the amount of foreign currency payment[s] shall be the rate of exchange indicated in the Tender. If the Contractor indicated foreign currencies for payment other than the currencies of the countries of origin of related goods and services, the Employer

reserves the right to pay the equivalent at the time of payment in the currencies of the countries of such goods and services. The Employer and the Engineer shall be notified promptly by the Contractor of any changes in the expected foreign currency requirements of the Contractor during the execution of the Works as indicated in the Statement of Foreign Currency Requirements and the foreign and local currency portions of the balance of the Contract Price shall then be amended by agreement between Employer and the Contractor in order to reflect appropriately such changes.

60.7 Overdue Payments

Unless otherwise stated in the appendix interest shall be paid on the overdue amounts and the interest to be paid shall be in accordance with prevailing commercial bank rates.

60.8 Correcting and With-holding

The Engineer may by any interim certificate or through the final account make any correction or modification to any previous certified sum and shall have authority, if any work or part thereof is not being carried out to his satisfaction, to omit or reduce the value of such work in any Interim Payment Certificate.

60.9 Completion by Sections.

If a Taking-Over Certificate shall be issued for any section or part of the Works separately, the payments herein provided for on or after issue of such a Certificate shall be made in respect of such section or part and references to the Contract Price shall mean such part of the Contract Price as shall in the absence of agreement be apportioned thereto by the Engineer.

60.10 Proportion of Foreign Currency

Subject to the provision of sub clause 60.5 the proportion of foreign currency in any amount due to the Contractor or Employer shall be determined in the following manner: -

- a) For all measured Work, the percentages of foreign currency for the appropriate section of the Bill of Quantities as stated in the schedule of foreign currency requirements shall be applied.
- b) Variations in the cost of imported materials shall be paid in foreign currency.
- c) Variations in the cost of locally purchased materials and those due to changes of legislation shall be paid in local currency.

- d) For Day works Labour and plant, the respective percentages of foreign currency stated in the schedule shall be applied.
- e) For Day works materials and materials on site, payment in foreign currency will only be made for imported materials.
- f) The provisions for the deduction and release of Retention Money and the payment of interest shall be applied similarly to both the local and foreign portions.
- g) The advance mobilization loan, its repayment thereof and liquidated damages shall all be apportioned on the basis of the ratio between local and foreign currency indicated in the Contract Price.
- h) In the event that the payment is for an item not covered in the foregoing paragraphs, the Engineer shall determine the proportion of foreign and local currency based on the information given in the Schedule of Foreign Currency Requirements, together with any additional information he may request the Contractor to provide.

60.11 Statement at Completion

Not later than 14 days after the issue of the Taking-Over Certificate in respect of the whole of the works, the Contractor shall submit to the Engineer a statement at completion showing in detail, in a form approved by the Engineer;

- (a) The final value of all work done in accordance with the Contract up to the date stated in such Taking-Over Certificate.
- (b) Any further sums which the Contractor considers to be due; and
- (c) An estimate of amounts, which the Contractor considers, will become due to him under the Contract.

Estimate amounts shall be shown separately in the Statement at Completion. The Contractor shall amend and correct the Statement as directed by the Engineer who shall issue a Certificate at Completion to be processed in accordance with sub-clause 60.4.

60.12 Final Statement

Not later than 56 days after the issue of the Defects Liability Certificate, the Contractor shall submit to the Engineer for consideration a draft final statement with supporting documents showing in detail, in the form approved by the Engineer;

- (a) The final value of all work done in accordance with the Contract;
- (b) Any further sums which the Contractor considers to be due to him.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonable require and shall make such changes in the draft as may be required.

60.13 Discharge

Upon submission of the Final Statement, the Contractor shall give to the Employer, with a copy to the Engineer, a written discharge confirming that the total of the Final Statement represents full and final settlement of all monies due to the Contractor arising out of or in respect of the Contract. Provided that such discharge shall become effective only after payment under the Final Payment Certificate issued pursuant to Sub-clause 60.14 has been made and the Performance Security referred to in Sub-clause 10.1 has been returned to the Contractor.

60.14 Final Payment Certificate

Upon acceptance of the Final Statement as given in Sub-clause 60.12, the Engineer shall prepare a Final Payment Certificate which shall be delivered to the Contractor's authorized agent or representative for his signature. The Final Payment Certificate shall state:

- (a) The final value of all work done in accordance with the Contract;
- (b) After giving credit to the Employer for all amounts previously paid by the Employer, the balance, if any, due from the Employer to the Contractor or the Contractor to the Employer as the case may be

Final Certificate shall be issued for any sum due to the Contractor even if such is less than the sum said named in the Appendix to the Form of Tender.

60.15 Cessation of Employer's Liability

Unless the Contractor notifies the Engineer of his objection to the Final Certificate within fourteen days of delivery thereof he shall be deemed to have agreed that he accepts the total Contract Price as set out in the Final Certificate as full settlement for all work done under the Contract including any variations and omissions thereof.

62.1 Defects Liability Certificate

Delete the last sentence of this Sub-Clause beginning “Provided that the issue.....in Sub-Clause 60.3”.

Remedies

63.4 Assignment of Benefit of Agreement

Add the following at the end of this sub-clause:-

“But on the terms that a supplier or sub-contractor shall be entitled to make any reasonable objection to any further assignment thereof by the Employer and the Employer may pay the supplier or sub-contractor for any such materials supplied or Works executed under such agreement, whether the same be assigned as aforesaid or not, before or after the said determination, the amount due by such arrangement in so far as it has not already been paid by the Contractor”.

65 Special Risks

Add sub clause 65.9 as follows:

(a) In the event of the Employer unilaterally ordering the final cessation of performance of the Contract for reasons not specified elsewhere in the Conditions of Contract the Contract shall be considered to be frustrated and the Contractor shall be indemnified as provided for under clause 65.1.

- (b) In the event of the Employer ordering the adjournment of the Contract before or after commencement of the Works for reasons not specified elsewhere in the Conditions of Contract, the Contractor shall be entitled to indemnity for any injury which he may have suffered as a consequence of such adjournment. The Engineer shall award the Contractor payment of such sum as in his opinion shall be reasonable giving regard to all material and relevant factors including the Contractor's on costs and overheads, and the nature of the instruction to adjourn the Contract.

Settlement of Disputes

67.3 Arbitration

For the purposes of this Clause, the Arbitrator shall be a person to be agreed between the parties or failing agreement, the Arbitrator shall be appointed by the appointer designated in the Appendix to the Form of Tender.

Add the following paragraph after the last paragraph of sub-clause 67.3:

Arbitration shall take place in Nairobi, Kenya. The language of all arbitration proceedings shall be in English. The cost of arbitration shall be apportioned by the Arbitrator according to his findings.

Notices

68.1 Add the following at the end of this sub clause: -

Notwithstanding the foregoing, the Contractor shall either maintain an address close to the Works or appoint an agent residing close to the Works for the purpose of receiving notices to be given to the Contractor under the terms of the Contract. This obligation shall be terminated upon the issue of the Certificate of Completion.

68.2 Delete the words "nominated for that purpose in Part II of these Conditions" in this sub-clause.

Default of Employer

69.1 Default of Employer

In paragraph (a) of this Sub-Clause, delete the words “within 28 days of expiry of the time stated in Sub-clause 60.10” and insert “within 56 days after the expiry of the time stated in Sub-Clause 60.4”.

69.4 Contractor’s Entitlement to Suspend Work

Delete the first four lines of this Sub-Clause and replace with the following: -

“Without prejudice to the Contractor’s entitlement to interest under Sub-clause 60.7 and to terminate his employment under Sub-Clause 69.1, the Contractor may, if the Employer fails to pay the Contractor the amount due under any certificate of the Engineer within 56 days after the expiry of the time stated in Sub-Clause 60.4.....”

Delete sub-clause 69.4 (b) and substitute with the following----“the amount of such cost, which shall be added to the Contract Price. However, the costs due to idle time for plant, equipment and Labour shall not be included in the said costs and shall be borne by the Contractor.

69.5 Resumption of Work

In line 3 of this Sub-Clause delete the Words “Sub-Clause 60.10” and replace with “Sub-Clause 60.7”

Changes in Cost and Legislation

70.1 Delete the sub-clause 70.1 in its entirety and substitute with the following: -

“The Contract Price shall be deemed to have been calculated in the matter set below and shall be subject to the adjustment in the event specified hereunder:

- (a) The rates contained in the priced Bill of Quantities are based upon the rates of wages and other emoluments and expenses applicable at the site and the date of tender pricing (as defined in sub-clause 70.4 hereinafter);
- (b) If the said rates of wages and other emoluments and expenses shall be increased or decreased by act, statute, decree, regulation and the like after the said date of tender pricing then the net amount of increase the emoluments and expenses shall, as the case may be, paid to or allowed by Contractor;
- (c) The rates contained in the price Bill of Quantities are based upon the rates of the Contractor's compulsory contributions payable at the date of tender under or by virtue of any Act, Statue, Regulations and the like applicable at the site;
- (d) If any of the said rates of contribution becomes payable after that date then the net amount of new statutory contribution becomes payable after that date then the net amount of increase or decrease of the emoluments and expenses shall, as the case may be, be paid to or allowed by the Contractor. Difference between what the Contractor actually pays in respect of work people engaged upon or in connection with the works and what he would have paid in respect of such person had any of the said rates not been increased or decreased or had a new contribution not become payable as aforesaid, shall as the case may be, be paid to or allowed by the Contractor. Provided always that the Engineer and the Contractor may agree a sum, which shall be deemed to be the net amount of the aforesaid difference, and such sum shall be deemed for the purpose of this Contract to be, that which is to be paid to or allowed by the Contractor by the virtue of this sub-paragraph;
- (e) If the market price or any materials or goods specified as aforesaid shall be increased or decreased after the said Date of Tender Pricing, then the net amount of difference between the basic price and the market price payable by the Contractor and current when any such goods and materials are bought shall, as the case may be, be paid to or allowed by the Contractor. Orders for materials and goods listed as aforesaid shall have been placed within a reasonable time after the date at which sufficient information is available for the placing of such orders, and the placing of orders at that time shall be a condition precedent to any payments being made to the Contractor in respect of increased market prices."

Substitute and add the following sub-clauses:

- 70.2 (a) If the Contractor shall decide subject to Clause 4 thereof to sub-let any portion of the work he shall incorporate in the sub-contract provisions to the like effect as those contained in sub-clause (1) of this Clause;
- (c) If the price payable under a sub-contract as aforesaid is increased above or decreased below the price in such sub-contract by reason of the operation of the incorporated provisions of sub-clause (1) of this clause then the net amount of such increase or decrease shall as the case may be, be paid to or allowed by the Contractor under this Contract.

70.3 The expression “the date of tender pricing” as used in this Clause means the date 28 days prior to the final date for submission of Tenders as determined by the Employer in the Tender documents.

70.4 For imported materials, the supplier’s/manufacturer’s Prime costs shall be C.I.F. cost at point of entry by the same means of transport as determined by the Contractor’s Basic Rate.

For locally produced materials, the supplier’s or manufacturer’s prime costs shall be at their nearest depot or the nearest railway station relevant to the works.

For materials, which are subject to Government Price Control, payments for price variations will be determined from the difference between the control price in force at a date 28 days prior to date for submission of Tenders and the price in force on the date of purchase.

70.5 The materials to which this Variation Clause applies are:

- ◆ All bitumen material
- ◆ Fuels, oils and lubricant
- ◆ Cement
- ◆ Lime
- ◆ Flex beam guardrail
- ◆ Explosives
- ◆ Gabion mesh
- ◆ Reinforcing steel

70.6 The Contractor shall not change the supplier or manufacturer during the Contract without the approval of the Engineer.

70.7 No payments will be made for price variation related to expenses incurred by the Contractor in his Head Office in Kenya, or overseas.

70.8 All payments made pursuant to Clause 70 shall be in Kenya Shillings.

70.9 No payments will be made for the cost of preparing V.O.P. claims.

70.10 Add the following at the end of this clause.

“Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited as aforesaid if the same shall already have been taken into account in accordance with the provisions of sub-clause 70.1”.

ADDITIONAL CLAUSES

Clause 73 Declaration against Waiver

The condoning by the Employer of any breach or breaches by the Contractor or any authorized sub-contractor of any of the stipulations and Conditions contained in the Contract shall in no way prejudice or affect or be construed as a waiver of the Employer's rights, powers and remedies under the Contract in respect of any breach or breaches as aforesaid.

Clause 74 Bribery and Collusion

The Employer shall be entitled to determine the Contract and recover from the Contractor the amount of any loss resulting from such determination if the Contractor shall have offered or given or agreed to give any person any gift or consideration of any kind as an inducement of regard for doing or fore bearing to do or for having done or fore borne to do any action in relation to obtaining or the execution of the Contract or any other contract with the Employer or if any of the like acts shall have been done by any person employed by the Contractor or acting on his behalf (whether with or without the knowledge of the Contractor) or if the Contractor shall have come to any agreement with another contractor or number of contractors whereby an agreed quotation or estimate shall be tendered to the Employer by one or more contractors.

Clause 75 Contract Confidential

The Contractor shall treat the Contract and everything in connection therewith as private and confidential. In particular, the Contractor shall not publish any information, drawings or photographs concerning the Works in any trade or technical paper etc., and shall not use the Site for the purpose of advertising except with the written consent of the Engineer and subject to such conditions as the Engineer may prescribe.

Clause 76 Employer's Officials etc., Not Personally Liable

No official of the Employer or the Engineer or the Engineer's Representative or anyone of their respective staffs or their employees shall be in any way personally bound or

liable for the acts or obligations of the Employer under the Contract or answerable for default or omission in the observance or performance of any of the acts, matters or things which are herein contained.

Clause 77 Taxes and Duties

- (1) The Contractor shall list in his tender the plant and vehicles which he intends to import for the execution of the Works. The Engineer will consider the list in the context of the program of the Works and will give his approval subject to any modifications that he may see fit to make. No appeal against the Engineer's decision shall be permitted.

The Contractor will be permitted to import approved plant and vehicles required for the execution of the Works on the basis of temporary admission into Kenya and re-export thereafter upon completion of the Contract without payment of customs duties and Value Added Tax for them. If the plant and equipment shall not be re-exported, duties and taxes shall then be paid based upon their residual value at the date of completion of the Contract, or the date of withdrawal from the Works, if earlier. Plant and vehicles so imported shall not be utilized on other works not associated with the Contract unless specifically authorized by the Engineer.

- (2) The Contractor will be permitted to import approved spare parts, tires and tubes without payment of customs duty and Value Added Tax for maintenance of any imported vehicles and plant as provided in sub-clause 77.1 above, within a financial limit indicated by himself. However, this limit will not exceed 15% of the Contract Price excluding Contingencies.
- (3) All materials approved by the Engineer to be incorporated into the Works or temporary works, and whose importation into Kenya is agreed to be essential shall be free of customs duties and Value Added Tax. The Contractor shall submit a list of such materials required with the tender. The Contractor shall be required to satisfy the Engineer that such materials have actually been incorporated into the Works.

Items produced in Kenya will not be permitted to be imported without payment of customs duty and Value Added Tax.

Items produced in Kenya shall mean commercially recognized goods or products that are either mined, grown, manufactured, processed or assembled (whether the components are imported or not) in Kenya.

- 78.1 If the Contractor is a joint venture, all partners of the joint venture shall be jointly and severally liable to the Employer for the execution of the entire Contract in accordance with its terms and Conditions.

SECTION V-SPECIFIC SPECIFICATIONS

Notes for preparing Specifications

1. 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 incorporated in the permanent Works be new, unused, of the most recent or current models and incorporating all recent improvements in design and materials unless provided otherwise in the Contract. Where the Contractor is responsible for the design of any part of the permanent Works, the extent of his obligations must be stated.
2. Specifications from previous similar projects are useful and it may not be necessary to re- write specifications for every works contract.
3. There are considerable advantages in standardizing **General Specifications** for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation and water supply. The General Specifications should cover all classes of workmanship, materials and equipment commonly involved in construction works, although not necessarily to be used in a particular works contract. Deletions or addenda should then adapt the General Specifications to the particular Works.
4. Care must be taken in drafting Specifications to ensure they are not restrictive. In the specifications 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.
5. The Employer should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in tender documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential tenderers.
 - a. The Employer should provide a description of the selected parts of the Works with appropriate reference to Drawings, Specifications, Bills of Quantities, and Design or Performance criteria, stating that the alternative solutions shall be at least structurally and functionally equivalent to the basic design parameters and Specifications.

- b. Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology and other relevant details. Technical alternatives permitted in this manner shall be considered by the Employer each on its own merits and independently of whether the tenderer has priced the item as described in the Employer's design included with the tender documents
 - c.
- 6. Health Care and Welfare

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the Laws of Kenya, the Contractor shall provide and maintain on Site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer/Nurse who shall offer the necessary medical advice on AIDS/HIV and related diseases to the Engineer's and Contractor's Site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

Notes for preparing Specifications

1. 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 incorporated in the permanent Works be new, unused, of the most recent or current models and incorporating all recent improvements in design and materials unless provided otherwise in the Contract. Where the Contractor is responsible for the design of any part of the permanent Works, the extent of his obligations must be stated.
2. Specifications from previous similar projects are useful and it may not be necessary to re- write specifications for every works contract.
3. There are considerable advantages in standardizing **General Specifications** for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation and water supply. The General Specifications should cover all classes of workmanship, materials and equipment commonly involved in construction works, although not necessarily to be used in a particular works contract. Deletions or addenda should then adapt the General Specifications to the particular Works.
4. Care must be taken in drafting Specifications to ensure they are not restrictive. In the specifications 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.
5. The Employer should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly)

alternatives are possible to the technical solutions indicated in tender documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential tenderers.

- a. The Employer should provide a description of the selected parts of the Works with appropriate reference to Drawings, Specifications, Bills of Quantities, and Design or Performance criteria, stating that the alternative solutions shall be at least structurally and functionally equivalent to the basic design parameters and Specifications.
- b. Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology and other relevant details. Technical alternatives permitted in this manner shall be considered by the Employer each on its own merits and independently of whether the tenderer has priced the item as described in the Employer's design included with the tender documents

6. Health Care and Welfare

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the Laws of Kenya, the Contractor shall provide and maintain on Site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer/Nurse who shall offer the necessary medical advice on AIDS/HIV and related diseases to the Engineer's and Contractor's Site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

STANDARD SPECIFICATIONS

The Standard Specifications referred to in this document is the Standard Specifications for Road and Bridge Construction, 1986 Edition published by the Ministry of Transport and Communications. This document shall form part of The Contract

Work shall be carried out in accordance with the Standard Specification except as supplemented or revised in the Special Specification.

SPECIAL SPECIFICATIONS

TABLE OF CONTENTS

1 - GENERAL.....	59
100 SPECIAL SPECIFICATIONS.....	59
101 LOCATION AND EXTENT OF THE CONTRACT.....	59
102 EXTENT OF CONTRACT.....	59
103 CONTRACT DRAWINGS.....	60
104 PROGRAMME OF EXECUTION OF THE WORKS.....	60
105 ORDER OF EXECUTION OF WORKS.....	61
107 TAKING OVER CERTIFICATE.....	61
109 NOTICE OF OPERATIONS.....	61
111 NATIONAL SPECIFICATIONS.....	61
117 HEALTH, SAFETY AND ACCIDENTS.....	62
121 DIVERSION OF SERVICES.....	63
123 LIAISON WITH GOVERNMENT AND POLICE OFFICIALS.....	63
124 LAND FOR ALL CAMPS SITES AND FOR THE CONTRACTOR'S OWN PURPOSES, INCLUDING TEMPORARY WORKS.....	63
126 MATERIALS AND MANUFACTURED GOODS.....	64
127 INFORMATION FROM EXPLORATORY BORINGS AND TEST PITS.....	64
127.1 FACTUAL MATERIALS REPORT.....	64
127.2 TRIAL SECTIONS.....	64
128 STORAGE OF MATERIALS.....	65
129 TEST CERTIFICATES.....	65
130 PROGRESS PHOTOGRAPHS.....	65
131 SIGNBOARDS.....	65
132 HOUSING ACCOMMODATION FOR THE RESIDENT ENGINEER AND HIS STAFF, OFFICE AND LABORATORY INCLUDING FURNITURE.....	65

132.1	HOUSING AND ACCOMMODATION FOR THE ENGINEER’S SENIOR STAFF	65
132.2	HOUSING ACCOMMODATION FOR ENGINEER’S JUNIOR STAFF.....	65
132.3	LIST OF FURNITURE FOR ENGINEER’S STAFF HOUSES.....	65
132.4	MAIN OFFICE.....	65
132.7	SURVEY EQUIPMENT.....	65
132.8	MOBILE PHONES FOR ENGINEER’S STAFF AND OFFICE.....	65
133	TIME FOR ERECTION OF THE ENGINEER’S STAFF HOUSES, OFFICE AND LABORATORY.....	65
134	INSURANCE AND OWNERSHIP OF THE ENGINEER’S STAFF HOUSES, OFFICES, LABORATORIES, FURNITURE AND EQUIPMENT.....	65
135	MAINTENANCE OF THE ENGINEER’S STAFF HOUSES, OFFICES LABORATORIES, FURNITURE AND EQUIPMENT.....	65
137	ATTENDANCE UPON THE ENGINEER AND HIS STAFF.....	65
138	VEHICLES AND DRIVERS FOR THE ENGINEER AND HIS STAFF AND METHOD OF PAYMENT.....	65
139	MISCELLANEOUS ACCOUNTS.....	66
140	PAYMENT OF OVERTIME FOR ENGINEER’S JUNIOR STAFF.....	66
141	MEASUREMENT AND PAYMENT.....	66
142	ENVIRONMENTAL PROTECTION.....	66

SECTION 2 - MATERIALS AND TESTING OF MATERIALS.....	69
---	----

202 TESTING BY THE CONTRACTOR.....	69
202.1 CONTRACTOR'S TESTING.....	69
204 SIEVES.....	69
204.1 SIEVE SIZES.....	69
205 SOILS AND GRAVEL.....	69
211 BITUMINOUS BINDERS.....	69
301 SETTING OUT.....	70
302 TOLERANCES.....	70
SECTION 4 - SITE CLEARANCE AND TOP SOIL STRIPPING.....	72
401 SITE CLEARANCE.....	72
402 REMOVAL OF TOPSOIL.....	72
403 REMOVAL OF STRUCTURES, FENCES AND OBSTRUCTIONS.....	72
SECTION 5 - EARTHWORKS.....	73
504 PREPARATION PRIOR TO FORMING EMBANKMENT.....	73
505 CONSTRUCTION OF EMBANKMENTS.....	74
509 MASS-HAUL DIAGRAM.....	75
511 BORROW PITS.....	75
515 SIDE DRAINS.....	75
517 MEASUREMENT AND PAYMENT.....	75
SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS	76
601 GENERAL.....	76
605 SAFETY AND PUBLIC HEALTH REQUIREMENT.....	76
607 SITE CLEARANCE AND REMOVAL OF TOPSOIL AND OVERBURDEN.....	76
SECTION 7 - EXCAVATION AND FILLING FOR STRUCTURES.....	77
703 EXCAVATION OF FOUNDATIONS FOR STRUCTURES.....	77
707 BACKFILLING FOR STRUCTURES.....	77
709 EXCAVATIONS FOR RIVER TRAINING AND NEW WATER COURSES.....	77
710 STONE PITCHING.....	77

711	GABIONS.....	78
712	RIP-RAP PROTECTION WORK.....	78
714	BACKFILL BELOW STRUCTURES.....	78
	SECTION 8 - CULVERTS AND DRAINAGE WORKS.....	79
804	EXCAVATION FOR CULVERTS AND DRAINAGE WORKS.....	79
805	EXCAVATION IN HARD MATERIAL.....	79
809	BEDDING AND LAYING OF PIPE CULVERTS.....	80
810	JOINTING CONCRETE PIPES.....	80
812	BACKFILLING OVER PIPE CULVERTS.....	80
813	PRECAST CONCRETE OPEN CHANNELS.....	81
813.1	HALF ROUND OPEN CHANNELS.....	81
813.2	INVERT BLOCK OPEN CHANNELS.....	81
814.1	SUBSOIL DRAINS.....	81
814.2	FILTER FABRIC TO SUBSOIL DRAINS.....	81
818	SCOUR CHECKS.....	82
	SECTION 9 - PASSAGE OF TRAFFIC.....	83
901	SCOPE OF THE SECTION.....	83
903	MAINTENANCE OF EXISTING ROAD.....	83
904	CONSTRUCTION OF DEVIATIONS.....	83
906	PASSAGE OF TRAFFIC THROUGH THE WORKS.....	84
907	SIGNS, BARRIERS AND LIGHTS.....	84
909	ASSISTANCE TO PUBLIC.....	85
912	MEASUREMENT AND PAYMENT.....	85
913	TRAFFIC MANAGEMENT PLAN.....	86
	SECTION 11 - SHOULDERS TO PAVEMENT.....	87
1101	GENERAL.....	88
	SECTION 12 - NATURAL MATERIAL SUBBASE AND BASE.....	88

1201 GENERAL.....	88
1203 MATERIAL REQUIREMENTS.....	88
1209 MEASUREMENT AND PAYMENT.....	88
SECTION 14 - CEMENT TREATED MATERIALS.....	89
1401 CEMENT TREATMENT.....	89
1409 PROTECTION AND CURING.....	89
SECTION 15 - BITUMINOUS SURFACE TREATMENTS.....	90
PART A - GENERAL.....	90
SECTION 15 - BITUMINOUS SURFACE TREATMENTS.....	90
PART A - GENERAL.....	90
1501A GENERAL.....	90
PART B - PRIME COAT.....	90
1502 MATERIALS FOR PRIME COAT AND TACK COAT.....	90
PART C - SURFACE DRESSING.....	91
1502C MATERIALS FOR SURFACE DRESSING.....	91
1503C SPRAY AND SPREAD RATES OF BITUMEN AND CHIPPINGS.....	91
1505C PRECOATED CHIPPINGS.....	92
1511C MEASUREMENT AND PAYMENT.....	105
SECTION 17 - CONCRETE WORKS.....	106
1703 BEDDING MATERIALS FOR CONCRETE.....	106
1703A LEVELLING CONCRETE (CLASS 15/20) FOR BOTTOM SLAB INCLUSIVE OF COST OF FORM WORKS.....	106
1703B REINFORCING BARS OF WALLS AND SLABS.....	107
1703C FORMWORK FOR CULVERT WALLS AND SLABS.....	109
1703D CONCRETE WORKS (CLASS 30/20) OF CULVERT WALLS AND SLABS.....	111
SECTION 20 - ROAD FURNITURE.....	115
2001 ROAD RESERVE BOUNDARY POSTS.....	115
2003 EDGE MARKER POSTS.....	115

2004	PERMANENT ROAD SIGNS.....	115
2004B	EXISTING ROAD SIGNS.....	115
2005	ROAD MARKING.....	115
2006	GUARDRAILS.....	115
2007	KERBS.....	116
2008	KILOMETRE MARKER POSTS.....	116
2011	BOLLARDS.....	116
2012	RETRO-REFLECTIVE ROAD STUDS.....	116
	SECTION 22-DAYWORKS.....	117
2202	MEASUREMENTS AND PAYMENT.....	117

SECTION 1 - GENERAL

100 INTRODUCTION

Special specification is supplementary to the Standard Specifications and the two must be read in conjunction. In any case where there appears to be conflict between the two then the Special Specifications will take precedence

When the term ‘Period of Maintenance’ has been used in the Standard Specifications, it shall be changed to ‘Defects Liability Period’.

101 LOCATION AND EXTENT OF THE CONTRACT.

The site of the works shall be the area within the road reserve and any other places as may be designated in the Contract. The works involve re-construction to bitumen standard of the project road including junctions, and installation of drainage facilities such as pipe culverts etc. all as per drawings and relevant documentation issued for the works. Any other works shall be as directed by the Engineer.

102 EXTENT OF CONTRACT.

The major works to be executed under the Contract comprise mainly of but are not limited to the following:

1. Site clearance and top soil removal.
2. Earthworks and laying of improved subgrade to receive the pavement layers as per the design and specifications.
3. Construction of a 175mm thick layer of natural material as subbase for the carriageway and shoulders.
4. Construction of a 150mm thick layer of cement improved natural material as base for the Carriageway and shoulders.
5. Apply a 40mm asphaltic concrete wearing course, and a double seal surface dressing on the shoulders comprising 0/20mm and 6/10mm chippings on the shoulders.
6. Construction of a cross culvert, standard pipe culverts, and other drainage works
7. Construction of junctions and busbays
8. Installation of road furniture including guardrails and road marking
9. Works auxiliary to the main works.
10. Maintenance of passage of traffic through and around the works.
11. Maintenance of the works during construction. The defects liability period shall be 6 months.

The road carriageway shall be 7m wide with shoulders of 1m width. The side ditch shall be both rectangular and trapezoidal with its invert level being at least 0.7m below the road formation level.

103 CONTRACT DRAWINGS

Contract drawings have been bound in a book of drawings accompanying these Contract Documents as a separate volume. Additional copies of these drawings that may be required by the Contractor can be obtained from the Engineer, in which case the Contractor will be required to reimburse the cost of producing such additional copies.

The Engineer may from time to time, in order to enable the satisfactory completion of the works, revise, amend or supersede any of these drawings. It shall be the Contractor's responsibility to construct all works in conformity with the latest revision, amendment or superseding drawings, provided that the Engineer has given to the Contractor in writing such reasonable prior notices of intention to revise, amend or supersede as the nature of the intended change requires, and the relevant drawings have been issued to the Contractor.

The changed drawings shall entitle the Contractor such reasonable additional payments as provided for in the Contract, including any abortive work carried out by the Contractor prior to notice of intent to undertake changes having been given. The Contractor may be required to demolish, alter and/or correctly rebuild at his own expense any part of the Works not in conformity with the current drawings issued to him within a reasonable prior notice.

Documents

The following manuals that are important and relevant to the contract, will not be issued with the tender documents but will be available for inspection during normal working hours at the offices of

the County Roads Engineer
Roads, Transport, Public Works & Utilities
County Government of Kakamega,
P.O Box 36-50100, Kakamega

Road Design Manual:
Part 1: Geometric Design of Rural Roads
Part 3: Materials and Pavement Design for New Roads

Manual for Traffic Signs:
Part 1: Road Markings
Part 2: Traffic Signs.

104 PROGRAMME OF EXECUTION OF THE WORKS

The contractor shall provide the works programme, required under clause 14 of the Conditions of Contract, within 14 days of receipt of the Engineer's Order to commence work.

The programme shall be coordinated with climatic and other conditions to provide for the completion of the works in the order and by the time specified.

The Contractor shall carry out the contract in accordance with the programme agreed with the Engineer, but he shall in no manner be relieved by the Engineer's approval of the programme, of his obligation to complete the works in the prescribed order and by the prescribed completion date and he shall from time to time review his progress and make such amendments to his rate of execution of the works as may be necessary to fulfil his obligations.

The Contractor shall allow in his programme for construction of trial sections and carrying out tests

upon them as directed by the Engineer in accordance with the provisions of Clause 129 of the Standard Specification. The time for completion of the Contract shall not be extended because of the time taken to carry out tests and evaluate trial sections.

105 ORDER OF EXECUTION OF WORKS

In addition to Clause 105 of the Standard Specification the Contractor shall carry out the Works such that a continuous and consecutive output of fully completed work is achieved.

107 TAKING OVER CERTIFICATE

The minimum length of the road for which a certificate will be issued is the whole length of the project road when substantially completed.

109 NOTICE OF OPERATIONS

Add the following sub- Clause.

Notification Terms

It shall be the Contractor's responsibility to notify the Engineer when any item of works scheduled are completed and ready for approval, and the contractor shall give sufficient notice to allow control test to be performed.

Explosive and Blasting

- a) The requirements of the Laws of Kenya governing explosives and other requirements and regulations of Government of Kenya and other authorities shall be complied with.
- b) No explosives of any kind shall be used without prior written consent of the Engineer.
- c) The Contractor shall be solely responsible for the provision, handling, storage and transporting of all explosives, ancillary materials and all other items of related kind whatsoever required for blasting.

111 NATIONAL SPECIFICATIONS

Add the following at the end of this clause

‘The Contractor shall provide all such specifications not more than 60 days after commencement of contract and at least 14 days before the execution of work to which the specification is applicable.’

116 PROTECTION FROM WATER

Except as otherwise specified, the contractor shall be responsible for dealing with water, whether from existing drainage systems, water courses, underground springs, precipitations or any other source or cause. In discharging and diverting water he shall avoid flooding or damaging other works or services, causing erosion and/ or polluting water courses. The contractor shall keep the whole of the Works free from water and shall provide all dams, cofferdams, pumping, piling, shoring, temporary drains, sumps etc, necessary for this purpose. Well in advance of commencing the permanent works, the contractor shall at his own expense cut drains and ditches and carry out any other measures necessary to effectively drain the original ground and/or shall so programme his works that the necessity of temporarily draining the original ground is partially or totally obviated by working in the dry season. The Contractor shall at his own expense take all necessary precautions to prevent damage due to erosion and siltation during construction. Precautions will include Temporary drainage berms, scour checks, riprap and the like. Spoil material shall be dumped so as not to interfere with streams, watercourses or any of the drainage works detailed by the Engineer.

On cessation of the works each day the surface of each complete layer shall be trimmed so that ponding and concentration of surface run-off does not occur. Should any water accumulate on any part of the works either during construction or after construction until the end of the period of maintenance, giving rise to soaking or eroding conditions, the Engineer may order the contractor to remove and replace at the contractor's expense any material or works that has been so affected. Any damage to the works or to adjacent properties resulting from the contractors' failure to take the necessary precautions shall be made good at the contractor's expense.

117 HEALTH, SAFETY AND ACCIDENTS

Add the following:

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the laws of Kenya, the contractor shall provide and maintain on site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer / Nurse who shall offer the necessary medical advice on HIV and related diseases to the Engineer's and Contractor's site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

120 PROTECTION OF EXISTING WORKS AND SERVICES

The contractor shall acquaint himself with the position of all existing services such as sewers, surface water drains, cables for electricity and telephone, telephone and lighting poles, water mains, and the like before commencing any excavation or other work likely to affect the existing services. Where work is to be carried out in the vicinity of the overhead power lines, the contractor shall ensure that all persons working in such areas are aware of the relatively large distance that high voltage electricity can "short" to earth when cranes, or other large masses of steel, are in the vicinity of power lines. The Contractor's attention is drawn to BS 162 which gives safe clearances for the various voltages. The contractor shall be held responsible for injury to existing works or services, and shall indemnify the Employer against any claims in this respect (including consequential damages). The contractor shall be responsible for the reinstatement of the services so affected. In all cases where such works or services are exposed, they shall be properly shored, hung up or otherwise protected. Special care must be exercised in filling and compacting the ground under mains, cables, etc, and to leave uncovered exposed water meters, stopcock boxes and similar items. Installations adjacent to the Works shall be kept securely in place until the work is completed and shall then be made as safe and permanent as before. Notwithstanding the foregoing requirements, and without reducing the contractor's responsibility, the contractor shall inform the Engineer immediately if any existing works or services are exposed, located or damaged. All costs which may be incurred by the contractor as a result of programming and co-coordinating work to enable any alterations to the services to be carried out and the cost of any safety precautions which shall be deemed necessary due to the proximity of the works to the power lines belonging to the Kenya Power & Lighting Co. Ltd shall be at the Contractor's expense.

121 DIVERSION OF SERVICES

The Contractor shall acquaint himself with the location of all existing services such as telephone lines, electricity cables, water pipes, sewers etc., before execution of any works that may affect the services. The cost of determining the location of the existing services together with making good or repairing of any damage caused all to the satisfaction of the Engineer shall be included in the BID rates.

Subject to the agreement with the Engineer, the Contractor shall be responsible for removal of alteration and relocation of existing services.

Such work will be reimbursed at Contractor's actual expenditure plus overhead and profit under a Prime Cost Sum in Bill 1.

The Contractor shall indemnify the Employer against claims originating from damage to existing services or works.

123 LIAISON WITH GOVERNMENT AND POLICE OFFICIALS

The Contractor shall keep in close touch with the Police and the other Government officials of

the area regarding their requirements in the control of traffic, or other matters, and shall provide all assistance or facilities, which may be required by such officials in the execution of their duties.

LAND FOR ALL CAMPS SITES AND FOR THE CONTRACTOR'S OWN PURPOSES, INCLUDING TEMPORARY WORKS.

Notwithstanding Clause 124 of the Standard Specification all requirements of land for temporary works and construction purposes shall be to the approval of the Engineer but the Contractor will make all necessary arrangements with the property owners concerned and pay all charges arising there from. On or before completion of the Contract, the Contractor shall remove all temporary works and shall restore all such land to the condition in which it was immediately prior to the occupation thereof as far as is reasonable and practicable. No separate payment will be made to the Contractor on account of these items and the Contractor must make due allowance for them in his rates.

Notwithstanding Clause 120 of the Standard Specifications, the Contractor shall be required to appoint competent surveyors who will liaise with the Engineer on matters related to the demarcation of the existing road reserve, site measurements, removal and reinstatement of existing services.

121 DIVERSION OF SERVICES

The contractor shall be responsible for arranging in liaison with the appropriate authority as soon as the requirement is known for the moving of or alterations to services such as power and telephone lines, water mains, sewers and surface water drains which are affected by the works. The arrangements for such moving or alteration shall be subject to the agreement and the appropriate authority

126 MATERIALS AND MANUFACTURED GOODS

Notwithstanding the provisions of Clause 126 of the Standard Specification, the Contractor's attention is drawn to his obligations with regard to quality and delivery schedule of materials and goods obtained from suppliers.

Should the Engineer at any time be dissatisfied with any goods and materials intended for use by the Contractor upon the Works, he shall be empowered to reject the goods and materials and shall order that others of acceptable quality replace them. Any more work that may consequently have to be redone and the costs of the new supplies shall be borne by the Contractor.

127 INFORMATION FROM EXPLORATORY BORINGS AND TEST PITS

Omit the content of Clause 127 and substitute the following Sub-Clauses: -

FACTUAL MATERIALS REPORT

The Factual Materials Report for this Contract does not form part of the Contract Documents. However, the Report will be made available for the Contractor's information only, and any conclusions on issues such as suitability of materials, location of borrow pits, material quantities etc., made by the Contractor on basis of the Factual Materials Report, will be at his own risk.

TRIAL SECTIONS

The Contractor shall allow in his programme for constructing trial sections and carrying out

tests upon them as directed by the Engineer. Trials would normally be required at the start of each pavement layer and if changes of materials, method or equipment deem it necessary as directed by the Engineer.

The time for completion of the Contract shall not be extended because of the time needed to construct trial sections and evaluate the tests on them.

At least fourteen days before the work of laying any pavement layer is commenced, the contractor shall construct trial sections of at least 100m in length and to the full construction width and the specified pavement layer thickness. For each trial section, the Contractor shall use the materials, mix proportions, mixing, laying, compaction plants and construction procedure that he proposes to use for the main work. The main work of laying the pavement layer shall not be commenced until this trial has been tested and approved by the Engineer.

No variation in the construction procedure, mix proportions, size, grading or source of any of the constituents shall be made without the agreement of the Engineer who may first require new trial sections to be carried out.

Trial sections, if found satisfactory, will be paid for under the rates in the Bill of Quantities for the appropriate items, as if the trial sections were part of the normal work. No separate payment will be made for trial sections and testing and the Contractor shall be deemed to have provided for this in his rates.

The Contractor shall make good, at his own expense, any trial sections that fail to meet the specified standards. The standards shall include, but not be limited to, material quality, layer thickness, levels and compaction.

128 STORAGE OF MATERIALS

All materials shall be stored on site in a manner approved by the Engineer and the Contractor shall carefully protect from the weather all work and materials which may be affected thereby.

129 TEST CERTIFICATES

When instructed by the Engineer the Contractor shall submit certificates of test from the suppliers of materials and goods required in connection with the works as the Engineer may require.

Such certificates shall certify that the materials or goods concerned have been tested in accordance with the requirements of the specifications and shall give the results of all the tests carried out. The Contractor shall provide adequate means of identifying the materials and goods delivered to the site with the corresponding certificates.

130 PROGRESS PHOTOGRAPHS

Notwithstanding the provision of Clause 130 of the Standard Specifications, the Contractor shall not be responsible for taking of progress photographs. Progress Photographs shall be taken by the Engineer's Representative and relevant costs charged to the Contractor who will be reimbursed under Miscellaneous Accounts

131 SIGNBOARDS

The Contractor shall provide and erect two (2) publicity signboards on the site as directed. The Engineer shall, as shown in the Drawings, direct the minimum dimensions of the boards. The boards shall be prepared, primed and painted cream and lettered in black. The boards shall be of stout construction, resistant to the effects of weather.

138 VEHICLES AND DRIVERS FOR THE ENGINEER AND HIS STAFF AND METHOD OF PAYMENT

The Contractor shall when instructed to do so provide and maintain in good working condition for the exclusive use of the Engineer and his staff throughout the contract, brand new vehicles, right hand drive, diesel powered and fitted with air-conditioner, CD/mp3 music player, Air bags and power steering as described below. The Engineer will approve the type of vehicle and confirm the number of each type to be provided.

2No. Type 2 - new Turbo diesel propelled Toyota Hilux 4WD Twin Cab Pick-up vehicle of minimum engine capacity 2500cc will be for Client's use on the project and will be maintained throughout the 6-month Defects Liability Period. Payment will be made as for the construction period.

The Contractor shall insure comprehensively the vehicles for any licensed drivers. Should any vehicle supplied not be in road worthy condition, the Contractor shall provide an acceptable equivalent replacement vehicle until such time as the original vehicle is repaired to the satisfaction of the Engineer and returned for use.

Payment for the vehicles (up to 4,000Km per veh. month), shall be by vehicle months. Payment for mileage above 4,000Km per vehicle month, shall be made at a rate per Kilometre. These payments shall be inclusive of all fuels, lubricants, servicing, insurance, maintenance, drivers and repairs. Payment shall be made under appropriate items in the Bills of Quantities. The vehicles shall revert to the Client at the end of the contract.

139 MISCELLANEOUS ACCOUNTS

The Contractor maybe instructed by the Engineer to make payments of general receipted accounts for such items as stationary, stores and equipment, or make payments for claims and allowances for the supervision personnel; or the Engineer may direct the Contractor to purchase or pay for the above. The Contractor will be paid on a prime cost basis plus a percentage for overheads and profits under appropriate items in the Bills of Quantities.

MEASUREMENT AND PAYMENT

Item: Preliminary Item

Delete the contents of Sub-Clause 141 (a) entirely and substitute with:-

'No Preliminary item has been included in this Contract. All Contractor's mobilisation and general costs shall therefore be included in relevant rates in the Bill of Quantities.'

Item: Progress Photographs

Delete this Sub-Clause

142 ENVIRONMENTAL PROTECTION

Further to the requirements of Clause 19.1 of the Conditions of Contract, the Contractor shall be responsible for the following measures to protect the environment:

1. Compliance with national and local statutes and regulations relating to protection of the environment. The Contractor will be responsible for familiarizing himself with all existing national and local legislation in this regard.
2. All construction activities shall be carried out using the best possible means to reduce environmental pollution such as noise, dust and smoke. All vehicles and plant shall be regularly

serviced in accordance with the manufacturer's recommendations to ensure that they operate efficiently and without excessive noxious emissions. The Engineer will have the authority to instruct the Contractor to temporarily cease operations and/or remove from the site vehicles or plant which do not comply with this requirement, until such time that he is satisfied that best practicable means to reduce environmental pollution to a minimum are being used.

3. The Contractor shall at all times maintain all sites under his control in a clean and tidy condition and shall provide appropriate and adequate facilities for the temporary storage of all waste prior to proper approved disposal.

4. The Contractor shall be responsible for the safe transportation and disposal of all waste generated as a result of his activities in such a manner as will not give rise to environmental pollution in any form, or hazard to human or animal health. In the event of any third party being employed to dispose of waste, the Contractor shall be considered to have discharged his responsibilities under this clause from the time at which waste leaves sites under his control, providing that he has satisfied himself that the proposed transportation and disposal arrangements are such as will not give rise to pollution or health hazard.

5. The Contractor shall be responsible for the provision of adequate sanitary facilities for his workforce, and that of his sub-contractors, at all construction and ancillary sites. The Contractor shall not allow the discharge of any untreated sanitary waste to groundwater or any surface watercourse.

Prior to the mobilization of the workforce the Contractor shall provide details of proposed sanitary arrangements to the Engineer for approval, such as will allow him to assess whether or not the proposed facilities are adequate and are unlikely to pollute water resources, and also that the facilities will be properly operated and maintained.

6. All concrete and asphalt plants shall be operated and maintained in accordance with the original manufacturer's specifications and manuals, and in such a manner as to minimize emissions of hydrocarbons and particulates. If, in the opinion of the Engineer, the operation of such plant is causing, or is likely to cause nuisance or health problems to site staff or the general public, the Contractor shall carry out such work as is necessary to reduce emissions to an acceptable level within a time-scale agreed with the Engineer.

7. The Contractor shall regularly douse with water all exposed dirt surfaces to reduce dust levels.

8. The Contractor shall take all reasonable measures, at all sites under his control, to prevent spillage and leakage of materials likely to cause pollution of water resources. Such measures shall include, but not be limited to the provision of bunds around fuel, oil and bitumen storage facilities, and provision of oil and grease traps for servicing and fuelling areas. Prior to construction of such facilities, the Contractor shall submit details of pollution prevention measures to the Engineer for his approval.

9. The Contractor shall be responsible for ensuring that exposed surfaces are re-vegetated as construction progresses, all to the satisfaction of the Engineer. The removal of trees shall be kept to the minimum necessary to accommodate the Permanent Works.

10. Prior to the removal of any trees the Contractor shall inform the Engineer of the intended operation and obtain the permission of the Engineer for the removal of the trees. If any tree is removed without permission the Contractor shall replant another approved tree at no additional

cost to the Employer.

11. The Contractor shall ensure that fires, except for controlled fires for burning rubbish, do not start within the Site or in the environs thereto as a result of the works or from the actions of his employees. The burning of waste, such as vehicle tyres causing noxious emissions is prohibited. The Contractor shall have available at all times trained fire-fighting personnel provided with adequate fire-fighting equipment to deal with all fires. The Contractor shall additionally at all times provide sufficient fire protection and fighting equipment local to parts of the Works which constitute particular fire hazards.

12. The contractor shall as instructed by the Engineer carry out off - road mitigation measures to the approval and satisfaction of the Engineer and to the required standards. The contractor shall obtain Environmental mitigation licence for the same and also comply with Environmental Management Coordination Act (EMCA) 1999, and Environmental Impact Assessment (EIA) and Environmental Audit (EA) Regulations 2003.

No separate payment shall be made in respect of this Clause 142 and the Contractor shall be deemed to have allowed in his general rates and prices for the cost of complying with the requirements of this Clauses.

RECTIFICATION OF TITLE DEEDS

Properties acquired during construction of the road will need to have their title deeds rectified with the Commissioner of Lands. The Contractor shall pay, on instruction from the Engineer, the cost of rectification of title deeds of the affected properties. Contractor will be reimbursed under the Prime Cost sum allowed for land acquisition in Bill 1.

Contractor's overhead shall cover his administration and liaison with the Commissioner of Lands.

Payment will be under appropriate items in the BoQ.

SECTION 2 - MATERIALS AND TESTING OF MATERIALS

All materials testing shall be in accordance with Section 2 of the Standard Specifications.

TESTING BY THE CONTRACTOR

Add the following: -

CONTRACTOR'S TESTING

The provision of the Engineer's laboratory and testing equipment, as specified in Section 1 of this Special Specification, does not relieve the Contractor of his obligation to provide laboratory and testing equipment and execute his own testing, in conformity with the specified requirements in the Standard Specification.

SIEVES

Add the following: -

SIEVE SIZES

A standard set of sieves for general use shall consist of the following sieve sizes mm: 100-63-50-37.5-25-20-14-10-6.3-5-4-2-1-0.6-0.5-0.425-0.300-0.150-0.075 mm. The sieves from 0.425 to 0.075 mm shall be suited for wet sieving.

SOILS AND GRAVEL

Whenever in the Contract Document a minimum California Bearing Ratio (CBR) is specified, the CBR of the material shall be determined at the specified state of compaction;

- a) After four days soaking in the case of neat materials and
- b) After seven days curing plus seven days soaking in the case of cement/lime improved materials

BITUMINOUS BINDERS

(c) Requirements

(i) Straight run bitumen

In addition to the requirements of the Standard Specification the ash content of penetration grade bitumen shall not exceed 5 % by weight

SECTION 3 - SETTING OUT & TOLERANCES

SETTING OUT

a) General

Add the following:

If the traverse points to be used for the setting out are close to the existing carriageway and interfere with construction works then the Contractor will have to relocate them to a location where they will not be disturbed. The co-ordinates and heights of all traverse points so located shall be listed and provided to the Engineer for checking and/or approval. Contractor shall also monument the new centreline every 200m along straight and all salient points along curves by a pin in the concrete beacon before commencement of any works.

The road reserve boundary posts shall have 12mm diameter steel pins embedded in concrete, 200mm long with 25mm exposed to the air, sticking out from its top surface. This pin shall be co-ordinated and heighted and result of the same shall be provided to the Engineer for approval. Cost of these works shall be included in the rates as no separate item has been provided. Commencement of the works shall not be permitted until this basic survey data has been provided and approved by the Engineer for at least 5 Kms of the road.

b) Detailed Setting Out

Add the following:

Reference pegs shall be 50mm by 50mm in section 600mm long driven 400mm firmly into ground and painted white above the ground. The offset from centre line shall be indicated by small nail 20mm to 25mm long with its head driven flush with the top of the peg. Chainages, offset and reference elevation shall be clearly indicated to the sides of the peg to the satisfaction of the Engineer.

After cutting of benches and prior to commencement of earthworks or subgrade works, Contractor shall take cross-sections again and submit the copy of the same to Engineer for agreement. These cross-sections shall then be used as basis of measurement for all subsequent layers, unless otherwise stated.

TOLERANCES

Add the following:

(j) Pavement Widths

For Pavement widths for subbase, base and wearing course, the allowable tolerances shall be 0 to +50 mm.

(k) Pipe Culverts

The maximum deviation from the specified line of a drainage pipe shall be: -

Horizontal - 25mm in 3.0 m

Vertical - 30 mm in 10.0 m

SECTION 4 - SITE CLEARANCE AND TOP SOIL STRIPPING

SITE CLEARANCE

Site Clearance shall be carried out as directed by the Engineer.

Add the following as the last paragraph in Sub-clause (a):

Site clearance is not required over the gravelled width of existing road and shoulders. No measurement and payment for site clearance will be made for this width. The remaining area within the road reserve including sides of existing embankments and cuttings shall be cleared as instructed by the Engineer. This operation shall also include the removal of all trees, except for some trees as directed by the Engineer. The Contractor shall provide paint and all the assistance the Engineer may require to mark the trees which should not be removed during site clearance. The Contractor shall take care not to uproot or damage trees which are within the road reserve but outside the construction width. After the Contractor has staked out the extent of the road, the Engineer, with the assistance of the Contractor, shall mark out the trees to be removed. After removal, the trunks and branches of these trees shall be cut up into pieces not more than 2.0m in length, transported and neatly stored at the nearest County Offices or otherwise in a position to be indicated by the Engineer. No additional payment shall be made for complying with this requirements and it is deemed the Contractor will have included its cost in the rates for site clearance.

REMOVAL OF TOPSOIL

Topsoil shall include up to 200mm depth of any unsuitable material encountered in existing or newly constructed drains, drainage channels, and accesses.

REMOVAL OF STRUCTURES, FENCES AND OBSTRUCTIONS

When instructed by the Engineer, the Contractor shall demolish or remove any structure and payment for this shall be made on day works basis.

SECTION 5 - EARTHWORKS

PREPARATION PRIOR TO FORMING EMBANKMENT

Add the following at the end:

Where benching is required for existing pavement or embankment slope to accommodate earthworks, subgrade or subbase for widening the road, the rate for compaction of existing ground shall be deemed to cover this activity.

Excavation in the existing road shall be kept dry. In the event of water penetrating the underlying layer, construction of the subsequent layers shall be postponed until the underlying layers are dry enough to accommodate the construction plant without deforming or otherwise showing distress.

Step construction shall be carried out per layer at the joint where excavating both vertically and perpendicular to the direction of the travel. The step shall be 500 mm perpendicular to the direction of the travel and 150 mm vertical unless otherwise instructed by the Engineer.

Special care shall be taken when compacting the new material at the joint ensuring that specified density is achieved.

In cuttings, the contractor shall excavate to a level that would accommodate the 300mm subgrade and the existing ground below this MUST be processed and compacted in accordance with clause 504 of the standard specifications.

CONSTRUCTION OF EMBANKMENTS

Only material approved by the Engineer shall be used for fill in embankments.

Material with high swelling characteristics or high organic matter content and any other undesirable material shall not be used, unless specifically directed by the Engineer. Unsuitable material shall include:

- (i) All material with CBR Values of less than 2%
- (ii) All material containing more than 5% by weight of organic matter (such as topsoil, material from swamps, mud, logs, stumps and other perishable material)
- (iii) All material with a swell of more than 3% (such as black cotton soil)
- (iv) All clay of plasticity index exceeding 50.
- (v) All material having moisture content greater than 105% of optimum moisture content (Standard Compaction)

Subgrade

Improved Subgrade layer, 300mm thick shall be required below the formation layer and shall be formed as below;

- (i) Existing pavement layers shall be scarified and spread to required width, extra material added from approved borrow sites as necessary, and the whole layer processed and compacted as specified to a thickness of 300mm.
- (ii) The material forming the improved subgrade shall be of Soil Class S4 minimum with CBR of not less than 10% and a swell of less than 1% measured after a 4-day soak. The full layer of 300mm shall be compacted to a 100% MDD (AASHTO T99).

Payment for laying the improved subgrade as per requirements in (i) and (ii) above shall be done under item 5.05 of BOQ. No extra payment will be made for haulage of supplementary subgrade material from borrow pits and all costs shall be deemed to have been factored in the rate entered against item 5.05.

Where the insitu material shall be deemed substandard or weak due to say wet spots, the

Engineer may instruct that the material forming the existing pavement first be removed to stockpile and the resultant exposed surface be scarified, re-processed and re-compacted as specified under Clause 504 before laying the improved subgrade material.

Where the Engineer shall deem it necessary to protect the pavement layer from water seepage, subsoil drains in form of rockfill wrapped in filter fabric shall be installed at suitable depths below the pavement as instructed (refer to Clause 814 of the Special Specifications). The rockfill and the filter fabric shall be measured in terms of cubic metres and by square metres respectively and payments made under appropriate items of the BOQ.

Embankment repair

Where directed by the Engineer, any localized filling in soft or hard material shall be executed in accordance with Clause 505.

COMPACTION OF EARTHWORKS

At pipe culverts, all fill above ground level around the culverts shall be compacted to density of 100% MDD (AASHTO T.99) up to the level of the top of the pipes or top of the surround(s), if any and for a width equal to the internal diameter of the pipe on either side of the pipe(s) or surround(s) as applicable.

At locations adjacent to structures (up to 100m away from structure), all fill above ground level upto the underside of the subgrade shall be compacted to density of 105% MDD (AASHTO T.99). In case of fill around box culverts this should be carried out for the full width of the fill and for a length bounded by the vertical plane passing through the ends of the wingwalls.

Notwithstanding the provision of clause 503 of the standard Specification, Compaction of subgrade material (i.e. material immediately below formation) in cut areas shall not be carried out by the contractor in areas where the formation is formed in hard material, unless specific instructions to the contrary are issued by the Engineer.

Where improved sub-grade material shall be required, the material shall have a CBR greater than 14% and this shall be compacted and finished to the same standards and tolerances as those required for normal subgrade and clauses in the specifications applying to normal subgrade shall also apply.

MASS-HAUL DIAGRAM

Delete Clause 509 entirely and substitute No Mass-Haul diagram has been provided with the Documents. The Contractor shall be responsible for locating suitable materials for constructing earthworks along the alignment and elsewhere and shall include in his rates for fill, spoil and for the cost of haulage’.

BORROW PITS

The first part of the Standard Specification is amended as follows: -

Fill material which is required in addition to that provided by excavation shall be obtained from borrow pits to be located and provided by the Contractor but to the approval of the Engineer contrary to what has been stated.

SIDE DRAINS

Whenever excavation works in side drains constitutes a separate operation from the bulk earthworks, such excavation shall be classified as catchwater drains under Section 8 of the Specifications

MEASUREMENT AND PAYMENT

Notwithstanding the provisions of clause 517 of the standard specifications, the rate for compaction of fill in soft material shall allow for the requirements of clause 508 of the special specification and no extra payment shall be made for compaction around pipe culverts (100% MDD AASHTO T.99).

(h) Delete the text and replace: -

Item: Fill in soft material for improved subgrade

Unit: m³

The rate shall include;

- Provision of additional subgrade material meeting the specified quality - where required - from approved borrow sites
- Trimming, shaping and compaction of the improved subgrade to 100% MDD (AASHTO T99) in two layers as to achieve the total thickness of 300mm.

SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS

GENERAL

Notwithstanding any indications to the contrary in the Standard specification the Engineer will not make available to the Contractor any land for quarries, borrow pits, stockpiles and spoil areas, except for those areas in road reserves specifically approved by him.

The contractor will be entirely responsible for locating suitable sources of materials complying with the Standard and Special Specifications, and for the procurement, Winning, haulage to site of these materials and all costs involved therein. Similarly, the contractor will be responsible for the provision and costs involved in providing suitable areas for stockpiling materials and spoil dumps. Should there be suitable sites for spoil dumps or stockpiles within the road reserve forming the site of the works the Contractor may utilize these subject to the approval of the Engineer.

No additional payment will be made to the Contractor to cover costs arising from the requirements for this Clause and the Contractor must include these costs in the rates inserted into the Bills of Quantities.

SAFETY AND PUBLIC HEALTH REQUIREMENT

Add the following to Clause 605:

When working the material sites, the Contractor shall time and arrange his works in such a way that at no times the public safety is endangered in any way.

SITE CLEARANCE AND REMOVAL OF TOPSOIL AND OVERBURDEN

Add the following to Clause 607:

Faces of quarries or borrow pits being higher than 4 metres shall be shaped and stepped with benches 1.5 m wide, sloping 1:10 out of the face at an interval of 4 metres height. All quarries and borrow pits shall be permanently fenced with 5-strand barbed wire which shall be located 5 metres off the edge of the face.

SECTION 7 - EXCAVATION AND FILLING FOR STRUCTURES

EXCAVATION OF FOUNDATIONS FOR STRUCTURES

Unless otherwise instructed by the Engineer, all excavated surfaces in material other than hard material, on which foundations for structures shall be placed, shall be compacted to 100% MDD (AASHTO T.99) immediately before structures are constructed.

Paragraph 4, last line: - Replace "95%" with "100%".

BACKFILLING FOR STRUCTURES

Unless otherwise instructed by the Engineer, all backfilling material shall be compacted to a minimum of 100% MDD (AASHTO T.99).

EXCAVATIONS FOR RIVER TRAINING AND NEW WATER COURSES

Payments for river training and establishment of new watercourses shall only be made where such work constitutes permanent works. Works done for road deviation or other temporary works shall not qualify for payment.

STONE PITCHING

Stone pitching to drains, inlets and outlets of culverts to embankments and around structure shall consist of sound unweathered rock approved by the Engineer. The stone as dressed shall be roughly cubical in shape with minimum dimensions of 150 x 150mm for normal thickness of stone pitching. Cement mortar Grouting will be done for all stone pitching areas and the top line of the stone pitching should be grouted/sealed with concrete class 15/20. The cement shall be mixed with sand in the ratio of 1:3 by volume to form the grout.

The surface to receive the pitching shall be compacted and trimmed to slope and the stone laid, interlocked and rammed into the material to give an even finished surface. Soil erosion is rampant along the project location and this can be minimized by ensuring that proper protection works is carried out along the drains using stone pitching. Most of the sections shall be stone pitched especially areas where we have steep slopes to minimize undermining of the road by rain water or as may be instructed by the Engineer.

In areas where stone pitching has been damaged, the Contractor shall identify such areas and notify the Engineer for his agreement of the extent of the Works required and his approval and instructions to proceed with the Works. Stone Pitching Repair and reconstruction shall be carried out in accordance with Clause 710 of the Standard Specifications.

GABIONS

Where instructed by the Engineer the Contractor will install gabions as protection works to washout areas or bridge Piers and or Abutments. Gabions shall be constructed in accordance with Clause 711 of the Standard Specification.

In cases where existing gabions have been damaged, the Contractor shall identify them and notify the Engineer for his agreement of the extent of the Work required and his approval and instructions to proceed with the Works.

The Works shall involve removal of the damaged gabions / rocks, excavation to the correct levels and grades as directed by the Engineer, and in accordance with Clause 711 of the Standard Specifications and reconstruction with new gabions and other necessary materials as necessary. The damaged gabions shall be recovered and transported to the County Government of Kakamega yard.

RIP-RAP PROTECTION WORK

Quarry waste or similar approved material shall be used to backfill scoured and eroded side, outfall and cut-off drain. The material shall be compacted to form a flat or curved surface preparatory to stone pitching of drainage channels, existing and new scour checks as directed by the Engineer.

The surface to receive the pitching shall be compacted and trimmed to slope and the stone hand laid, interlocked and rammed into the material to give an even finished surface. The interstices of the Pitching shall be rammed with insitu material. The insitu material immediately behind the pitching shall be compacted to minimum density of 100% MDD compaction (AASHTO T.99)

BACKFILL BELOW STRUCTURES

Where instructed this shall be carried out in compliance with the requirements of Clause 507 and 804 of the Standard Specification.

SECTION 8 - CULVERTS AND DRAINAGE WORKS

EXCAVATION FOR CULVERTS AND DRAINAGE WORKS

In the Standard Specifications, make the following amendments: -

- (a) In paragraph 6, line 3, and in paragraph 7, line 5 and in paragraph 11, line 6, delete "95%" and insert "100%".
- (b) Removal of Existing Pipe Culverts

Where instructed by the Engineer, the Contractor shall excavate and remove all existing blocked or collapsed culvert pipes of 450mm, 600mm and 900mm diameter including concrete surround, bedding, inlet and outlet structures.

The void left after removal of culvert pipes shall be widened as necessary to accommodate new concrete bedding, pipe and haunching in order to accommodate replacement 600mm or 900mm

diameter pipe culverts as shall be directed by the Engineer. The payment of this work shall be per linear metre of pipes removed.

(c) Removal of Other Existing Drainage Structures

Where instructed by the Engineer, the Contractor shall demolish or remove any other structure and payment for this shall be made on day work basis.

(d) Excavation for Culverts and Drainage Works

The Contractor shall carry out all excavations for new culverts and drainage works to the lines, levels, inclinations, and dimensions shown on the drawings or as instructed by the Engineer.

EXCAVATION IN HARD MATERIAL

In the Standard Specifications, Sub-clauses 805(a) and 805 (b) delete "95%" and insert "100%". In sub-clause 809(a), paragraph 1, line 1, substitute "95%" with "100%". In sub-clause 809(c), paragraph 2, line 4, between the words "compacted" and "and shaped" insert the words "to 100% MDD (AASHTO T.99)".

Hard material is material that can be excavated only after blasting with explosives or boring and wedging or the use of a mechanical breaker fitted with a rock point in good condition and operated correctly. Boulders of more than 0.2m occurring in soft material shall be classified as hard material.

BEDDING AND LAYING OF PIPE CULVERTS

Concrete pipes shall be laid on a 150mm thick concrete bed of class 15/40 and the pipes shall be bedded on 1:3 cement: sand mortar at least 50mm thick, 150mm wide and extending the full length of the barrel.

The rates inserted shall allow for compaction of the bottom of excavation to 100% MDD (AASHTO T.99).

In addition to the requirements of the Standard Specification, where inflatable balloon method of casting culverts in-situ is used, it is essential that thorough pre-construction trials are carried out and necessary adjustments made to ensure that: -

- i. All concrete used for surround and bedding shall be Class 25/20.
- ii. The inner concrete barrel surface immediately in contact with the inflated balloon form during placing shall achieve Class F3 finish.

Payments for the bedding, pipe culvert and surround shall be made as specified in the standard specifications. No additional payments shall be made for complying with this requirements where the balloon method is adopted.

JOINTING CONCRETE PIPES

The concrete pipes for the culverts shall have ogee joints and will be jointed by 1:2 cement: sand mortar and provided with fillets on the outside as described in clause 810 of the Standard Specification.

BACKFILLING OVER PIPE CULVERTS

In the Standard Specifications, clause 812

- i. Delete paragraph 6 'for pipe culverts.....depth of 150mm', entirely.
- ii. Wherever the expression "dry density of 95% MDD (AASHTO T. 99)" occurs delete and replace with "dry density of 100% MDD (AASHTO T.99)".

The rates entered for laying of pipe culverts shall allow for backfilling to pipe culverts and compacting to 100% MDD (AASHTO T.99) and these works shall not be measured and paid for separately.

PRECAST CONCRETE OPEN CHANNELS

Add the following to the standard specification clause 813: -

HALF ROUND OPEN CHANNELS

These shall be provided as directed by the Engineer and in compliance with sections 813 and 820 of the standard specifications.

INVERT BLOCK OPEN CHANNELS

These shall be provided as directed by the Engineer and in compliance with sections 813 and 820 of the standard specifications.

Where instructed, the Contractor shall excavate, compact the excavated bed to 100% MDD AASHTO (T.99), backfill as necessary with selected material compacted to 100% MDD AASHTO (T.99) and remove surplus material to spoil, provide, lay and joint invert block drains of 300mm diameter with two side slabs

Precast concrete invert block side drains shall comply with the requirements of BS 340, and shall be laid in accordance with the drawings.

Precast concrete invert block drains and side slabs shall be formed of concrete of the class specified and to the dimensions shown on the drawing. Drains shall not normally be laid to a radius of a curvature less than 10 times the bed width or a diameter of the drain.

Invert block drains shall be constructed in the positions and to the levels and dimensions shown on the drawings or as directed by the Engineer. The earth sides to such channels shall be neatly finished to a slope of 1: 1 or such other slope as the Engineer may direct. Invert block drains and side slabs shall be neatly jointed with mortar consisting of 1:3 cement: sand by volume.

Payment for laying invert block drains of 300 mm dia. inclusive of two side slabs shall be by linear metre laid as instructed. The rate shall be inclusive of provision and transport of all materials, excavation, bed compaction and preparation, laying, jointing and disposal of spoil.

SUBSOIL DRAINS

In the event of excavation for repairs exposing local seepage, springs or unacceptably high water table, the Engineer may instruct the provision of counter fort or French drains.

These drains shall consist of a trench excavated to the alignment, width, depth and gradient instructed by the Engineer, and backfilled with approved compacted clean hard crushed rock material as specified in clause 815 of the standard specification. Where these drains lie within the carriageway the carriageway shall be constructed only after the subsoil drain has been completed and approved by the Engineer

FILTER FABRIC TO SUBSOIL DRAINS

A filter fabric shall be placed under, around and over rock fill of the subsoil drains. The provisions and placing of the fabric shall be in accordance with manufacturer's instructions and complying with Clause 804 and 814 of the Standard Specification. Payment shall be in metre square of the fabric used.

SCOUR CHECKS

Scour checks are to be constructed in mass concrete in accordance with clause 818 of the standard Specifications and the drawings as shall be provided.

SECTION 9 - PASSAGE OF TRAFFIC

SCOPE OF THE SECTION

The Contractor shall so arrange his work to ensure the safe passage of the Traffic at all times and if necessary construct and maintain an adequate diversion for traffic complete with all the necessary road traffic signs.

The contractor shall provide to the satisfaction of the Engineer adequate warning signs, temporary restriction signs, advance warning signs, barriers, temporary bumps and any other device and personnel equipped with two way radios to ensure the safe passage of traffic through the works.

When carrying out the Works the Contractor shall have full regard for the safety of all road users.

The Contractor shall also provide sign posts and maintain to the satisfaction of the Engineer all deviations necessary to complete the works. The contractor should allow for the costs of complying with the requirements of this clause in his rates.

The contractor will be deemed to have inspected the site and satisfied himself as to the adequacy of his bid for these works and no additional payments will be made to the contractor for any expenditure on traffic control or the provision of deviations. The employer shall not be liable for inadequate prior investigations of this nature by the contractor.

MAINTENANCE OF EXISTING ROAD

The Employer shall hand-over the existing road to the Contractor at the commencement of the Contract. The Contractor shall be responsible for all repairs and maintenance during the duration of the Contract. The existing road is gravel and the Contractor shall maintain it with suitable approved gravel of minimum CBR 20%. The Contractor shall regularly inspect the road and carry out such repairs and maintenance to the satisfaction of the Engineer. If at any time, the Engineer draws the Contractor's attention to a road section which requires maintenance, the Contractor shall promptly repair the section. The Contractor shall be legally responsible for any accident or damage attributable to his failure to maintain the road.

CONSTRUCTION OF DEVIATIONS

a) General

In addition to requirement of this clause, the maximum length of deviation road shall be restricted to 5 Kms at any given time unless otherwise instructed. The Contractor shall construct and complete deviations to the satisfaction of the Engineer before commencing any permanent work on the existing road. Also during these works the contractor is supposed to provide a detour of adequate pipe culverts for pedestrian and traffic crossing where there is bridge works. Contractor will be allowed to open further 5 Km of the deviation road only when 80% of the permanent work has been completed on first one and he will not be allowed to open further 5 Km till he has completed first 10 Km of the road and has it opened to traffic. Where there is an existing side road near the main road, the Contractor shall use this road as deviation road.

b) Geometry

The carriageway width of the deviations shall not be less than 6m wide and suitable for 2-way lorry traffic unless otherwise specified.

c) Construction

Unless otherwise instructed gravel wearing course for the deviation shall be 100 mm compacted thicknesses complying with section 10 of the Standard Specification.

The Contractor shall allow in his rate for removal of any unsuitable material before placing of gravel wearing course, as this will not be paid for separately.

The Contractor shall be responsible for locating and obtaining suitable gravel for the construction of deviations. He shall be fully responsible for all payments necessary to enable him to purchase, excavate, stockpile, transport, lay and compact the gravel.

These costs shall include but not limited to the following

- site clearance,
- stripping and removal of topsoil and any overburden,
- construction and maintenance of haul roads,
- reinstatement of borrow areas after they become disused.

All works shall be executed in accordance with Clauses 604, 605, 606, 607 and 608 of Section 6 of the Specification. Contrary to provisions of Clause 610, no reimbursement for land acquisition shall be done.

In addition to provisions of this clause, Contractor is required to sprinkle water at least 4 times a day at the rate of 1 - 1.4 litres/m in regular interval to minimize the effects of dust. Latest sprinkling time shall be one hour before the sunset.

PASSAGE OF TRAFFIC THROUGH THE WORKS

The Contractor shall arrange for passage of traffic through the works during construction whenever it is not practicable to make deviations. The contractor shall be reimbursed in accordance with the standard specifications.

Any damage caused by passing traffic through the works shall be made good at the contractor's own cost.

SIGNS, BARRIERS AND LIGHTS

Contractor shall provide signs, barriers and lights as shown in the drawings at the locations where the traffic is being carried off the existing road to the deviation and back again to existing road. The Contractor shall provide ramps and carry out any other measures as instructed by the Engineer to safely carry traffic from the road to deviation.

Contrary to what has been specified in this clause the road signs provided shall be fully reflectorised and in conformity with clause 9.1 of the "Manual for Traffic Signs in Kenya Part II".

ASSISTANCE TO PUBLIC

In addition to provision of clause 909, Contractor shall maintain close liaison with the relevant authorities to clear any broken down or accident vehicles from the deviations and the main road, in order to maintain smooth and safe flow of the traffic.

MEASUREMENT AND PAYMENT

(a) Maintenance of existing road

The Contractor will be paid by the cubic metre of compacted gravel used to maintain existing road.

(b) Construct Deviation

The Contractor shall be paid only 50% of the rate for this when he completes deviation road to the satisfaction of the Engineer. The balance shall be paid in equal monthly instalments over the contract period, as he satisfactorily maintains the deviation (as per clause 904 and 905 above) when it is in operation.

The rate shall include for the construction of any drainage requirement found necessary.

(d) Passage of traffic through the works

Payment shall be made on Lump Sum basis.

(e) Add the following:

Source of gravel material shall be provided by the Contractor and is subject to approval by the Engineer.

(f) Delete this Sub-Clause.

There will be no payment for overhaul.

(i) Assistance to Public

The Contractor will be deemed to have included cost of this item in other items and no separate payment shall be made.

TRAFFIC MANAGEMENT PLAN

Separately with the program for the Execution for the Works, the Contractor shall submit a traffic management plan prepared at a suitable scale showing his proposals for the management and control of traffic during the period of construction.

The plan shall indicate the overall time sequence of construction for the project roads such that disruptions to traffic are minimized. The plan shall show the proposed deviations or where it is necessary to pass traffic through the works, the sequence of operations along the length of the road such that hindrance to traffic is kept to an absolute minimum. Modifications may be made to the plan as necessary with the prior approval of the Engineer. No operations shall commence until such time that the Engineer has approved in writing the traffic management plan.

SECTION 11 - SHOULDERS TO PAVEMENT

GENERAL

Shoulders shall be constructed to a width of 1m, to the same standard as the carriageway with the pavement layers being constructed concurrently. Thus sections 12, 14 and 15 of the specifications apply as appropriate.

SECTION 12 - NATURAL MATERIAL SUBBASE AND BASE

GENERAL

Natural Material for subbase and base shall be sourced from approved gravel sites.

MATERIAL REQUIREMENTS

Natural materials for base and subbase shall conform to the specifications given in Section 12 of the Standard Specifications for cement improved base and subbase.

MEASUREMENT AND PAYMENT

- a) Natural material for subbase and base

Natural material for subbase and base shall be measured by the cubic metre placed and compacted upon the road calculated as the product of the compacted sectional area laid and the length. Notwithstanding the provisions of the Standard Specifications as regards the different methods of measurement, the applicable method here shall be 'method – A' irrespective of whether the source of material shall be available at the time of tender or not. The responsibility

of locating suitable gravel sources meeting the requirements of Clause 1203 shall lie with the Contractor.

No extra payment will be made for haulage of gravel material as the overhaul costs shall be deemed to have been factored in the rates inserted in the Bills of Quantities.

b) Overhaul

No extra payment will be made for haulage of gravel material as the overhaul costs shall be deemed to have been factored in the rates inserted in the Bills of Quantities.

SECTION 14 - CEMENT TREATED MATERIALS

CEMENT TREATMENT

a) Cement for Treatment

Cement for stabilization will be Ordinary Portland Cement complying with clause 207 of the Standard Specifications. The cement content of the treated material shall be as indicated by the Engineer and will normally be about 2-4%. The Engineer shall exercise his discretion to any variation in the rate of application of the cement, which he may see fit to order from time to time.

b) Moisture content

The moisture content of the treated material shall be as directed by the Engineer but nevertheless within the range of 95% to 105% of the Optimum Moisture Content (AASHTO T180).

c) Mixing and Placing

The material to be treated and the cement shall be mixed by an approved mixing plant (i.e a mix-in place pulvimixer or a stationary plant).

PROTECTION AND CURING

Protection and curing shall be carried out in accordance with the provisions of Clause 1409(i) of the Standard Specification but provision shall be made to wet the surface from time to time as directed by the Engineer.

MEASUREMENT AND PAYMENT

Stabilizer

The provision of the stabilizer shall be measured by the tonne calculated as the specific weight of stabilizer added to the material.

Mix-in stabilizer

Mixing stabilizer into the material shall be measured by the cubic metre of treated material calculated as the product of the compacted sectional area treated and the length.

SECTION 15 - BITUMINOUS SURFACE TREATMENTS

PART A - GENERAL

1501A GENERAL

Details of the bitumen spray rates and the chipping spread rates will be directed by the engineer but the rates given below can be used for general guidance purposes.

(a) Chippings

14/20mm size precoated chippings at a spread rate of 60-70 square metres per cubic metre.

10/14mm precoated chippings at a spread tare of 70-90 square metres per cubic metre.

10/14mm precoated chippings at a spread tare of 70-90 square metres per cubic metre.

(b) Bitumen Spray Rates

1.0-1.4l/m² for the first seal

0.8-1.0l/m² for the second seal

0.6-0.8/m² for the third seal

PART B - PRIME COAT

1502 MATERIALS FOR PRIME COAT AND TACK COAT.

For prime coat, the binder shall be a medium-curing cut-back MC30 for Cement Stabilised Base unless otherwise directed by the Engineer. The spray rate shall be 1.0-1.2 l/m

The rate of spray of bituminous prime coat refers to the gross volume of the cut-back bitumen, that is the volume of the bitumen plus dilutant.

Prime Coat shall be applied to areas which are to receive single seal surface dressing, double seal surface dressing or bituminous mixes as directed by the Engineer.

The tack coat shall consist of K1-60 unless directed by the Engineer

The spray rates of the binder shall be as instructed by the Engineer and shall generally be within the range 0.3-1.04l/m

PART C - SURFACE DRESSING

1502C MATERIALS FOR SURFACE DRESSING.

In addition to the requirements of the standard specifications, details of the bitumen spray rates and the chipping spread rates will be directed by the Engineer but the rates given below can be used for general guidance purposes.

(a) Binder

The bituminous binder shall be 80/100 penetration grade bitumen. cut-back with Kerosene fuel in accordance with the prevailing road temperature and conforming to clause 211 of the standard specification.

(b) Chippings

Chippings shall be of Class I material and shall comply in all respects with clause 1502C of the Standard Specification. The Contractor's attention is drawn to Clause 1501C of the Standard Specification with regard to cleanliness and dust content of the chippings for surface dressing. Should it prove necessary in the Engineer's opinion to wash the chippings, no extra payment will be made to the Contractor for this operation.

1503C SPRAY AND SPREAD RATES OF BITUMEN AND CHIPPINGS.

Spray and Spread rates cannot be calculated until samples of the chippings to be used are available for the test.

After submission of samples and completion of Laboratory tests on chippings and binder, the contractor shall in the presence of the Engineer or his representative, lay trial sections of seal at various rates of spray and spread as directed by the Engineer and in accordance with clause 1503C of the Standard Specifications.

Should any change occur in the source of chippings or bitumen, the Contractor shall advise the engineer accordingly who will then decide if any revisions are required to the spray and spread rates

If any changes are required, the Contractor shall carry out further trials as instructed by the Engineer.

Payment for binder and chippings will be based on the instructed spray and spread rates used which may not necessarily those specified. The Engineer will specify the spray rates of bitumen as residual bitumen per square metre.

Actual bitumen spray and chippings spread rates shall be instructed by the Engineer, following site trials. Actual spray rates used by the Contractor must be adjusted to compensate for any cutback added.

1505C PRECOATED CHIPPINGS

Chippings used for surface dressing work shall be precoated in accordance with clause 1501C of the cutback bitumen emulsion.

The amount of bituminous binder used to precoat chippings will be instructed by the Engineer and will normally be between 0.4% and 1.0 % residual bitumen as percentage of the dry weight. Prior to laying any precoated chippings, the contractor shall prepare trial mixes of bitumen and chippings in the presence of the Engineer. After completion of trial mixes, the Engineer shall issue written instructions to the Contractor indicating the amount of binder to be added in precoated chippings. The Contractor shall maintain this proportion unless the surface or nature of the chippings changes when the Contractor shall repeat the trials and the Engineer will issue revised instruction.

1511C MEASUREMENT AND PAYMENT

Payment for surface dressing shall be in accordance with direction 15 of the directions for measurement and pricing. The rates inserted by the Contractor for precoated chippings in the Bills of Quantities shall include provision of chippings, spreading and rolling the precoated chippings on the carriageway.

The rate inserted for bleeding 80/100 penetration grade bitumen with kerosene shall be the amount of cutter in litres used for the cut-back.

SECTION 16 - BITUMINOUS MIX BASES, BINDER COURSES AND WEARING COURSES

This section covers different types of bituminous mixes for surfacing (wearing and binder courses) and is divided into the following parts:-

PART A: GENERAL

PART B: ASPHALT CONCRETE FOR SURFACING

PART A - GENERAL 1601A SCOPE OF PART A

Part A comprises all the general requirements for bituminous mixes which apply to Part B as well.

1602A REQUIREMENTS FROM OTHER SECTIONS

The following sections of this Specification apply to Part B of this section and shall be read in conjunction therewith:-

Section 2 Materials and Testing of Materials

Section 3 Setting Out and Tolerances

Section 6 Quarries, Borrow Pits, Stockpile and Spoil Areas

Section 15 Bituminous Surface Treatments and Surface Dressing

1603A CONSTRUCTION PLANT

a) General

The Contractor shall submit to the Engineer in accordance with Section 1 of its Specification, full details of the construction plant he proposes to use and the procedures he proposes to adopt for carrying out the permanent Works.

The Engineer shall have access at all times to construction plant for the purposes of inspection. The Contractor shall carry out regular calibration checks in the presence of the Engineer and shall correct forthwith any faults which are found.

All construction plant used in the mixing, laying and compacting of bituminous mixes shall be of adequate rated capacity, in good working condition, and shall be acceptable to the Engineer.

Obsolete or worn-out plant will not be allowed on the work.

a) Mixing Plant

Bituminous materials shall be mixed in a plant complying with ASTM Designation D995 and shall be located on the Site unless otherwise agreed by the Engineer. It shall be equipped with at least three bins for the storage of heated aggregates and a separate bin for filler. All bins shall be covered to prevent the ingress of moisture.

The plant may be either the batch-mix type or the continuous-mix type and shall be capable of regulating the composition of the mixture to within the tolerances specified in Clause 1614A of this Specification.

The bitumen tank shall be capable of maintaining its contents at the specified temperature within a tolerance of 5°C and a fixed thermometer easily read from outside the tank. Any bitumen which has been heated above 180°C or has suffered carbonization from prolonged heating shall be removed from the plant and disposed of.

c) Laying Plant

Bituminous materials shall be laid by a self-propelled spreader finisher equipped with a hopper, delivery augers and a heated adjustable vibrating screed. It shall be capable of laying bituminous materials with no segregation, dragging, burning or other defects and within the specified level and surface regularity tolerance. Delivery augers shall terminate not more than 200mm from the edge plates.

d) Compaction Plant

The Contractor shall provide sufficient rollers of adequate size and weight to achieve the specified compaction. Prior to commencing the laying of bituminous mixes in the permanent Works the Contractor shall carry out site trials in accordance with Section 2 of this Specification to demonstrate the adequacy of his plant and to determine the optimum method of use and sequence of operation of the rollers.

It is important to achieve as high a density as possible at the time of construction and it is expected that vibrating rollers will be required to produce the best results. However, it is essential that thorough pre-construction trials are carried out to ensure that: -

- (a) The roller is set up to have the optimum amplitude and frequency of vibration for the particular material being laid
- (b) That the roller does not cause breakdown of the aggregate particles.
- (c) That the optimum compaction temperatures are established which allow compaction without causing ripple effects or other distortions of the surfacing.

1604A PREPARATION OF SURFACE

Immediately before placing the bituminous mix in the pavement, the existing surface shall be cleaned of all material and foreign matter with mechanical brooms or by other approved methods. The debris shall be deposited well clear of the surface to be covered.

Any defect of the surface shall be made good and no bituminous mix shall be laid until the surface has been approved by the Engineer.

If instructed by the Engineer a tack coat shall be applied in accordance with Section 15 of this Specification. If the Engineer considers a tack coat is required prior to laying the bituminous mix or between layers of the bituminous mix, due solely to the Contractor's method of working, then such tack coat shall be at the Contractor's expense.

1605A DESIGN AND WORKING MIXES

At least two months prior to commencing work using a bituminous mix, the Contractor shall have demonstrated that he can produce aggregates meeting the grading requirements of the Specification, submit samples of each constituent of the mix to the Engineer. The Engineer will then carry out laboratory tests in order to decide upon the proportion of each constituent of the initial design mix or mixes to be used for site trials to be carried out in accordance with Clause 1606A of this Specification.

Should the Engineer conclude from the site trials that the mix proportion or aggregate grading are to be changed, the Contractor shall submit further samples of the constituents and carry out further site trials all as directed by the Engineer.

The Engineer may instruct the alteration of the composition of the -75 micron fraction of the aggregates by the addition or substitution of mineral filler. The Engineer may also instruct the alteration of all or part of the -6.3mm fraction of the aggregates by the addition or substitution of natural sand.

The Contractor shall make the necessary adjustments to his plant to enable the revised mix to be produced.

Following laboratory and site trials the Engineer will determine the proportions of the working mix and the Contractor shall maintain this composition within the tolerances given in Clause 1614A.

Should any changes occur in the nature or source of the constituent materials, the Contractor shall advise the Engineer accordingly. The procedure set out above shall be followed in establishing the new mix design.

1606A SITE TRIALS

Full scale laying and compaction site trials shall be carried out by the Contractor on all asphalt pavement materials proposed for the Works using the construction plant and methods proposed by the Contractor for constructing the Works. The trials shall be carried out with the agreement, and in the presence of the Engineer, at a location approved by the Engineer.

The trials shall be carried out to:-

- a) Test materials, designed in the laboratory, so that a workable mix that satisfies the specification requirements can be selected.
- b) To enable the Contractor to demonstrate the suitability of his mixing and compaction equipment to provide and compact the material to the specified density and to confirm that the other specified requirements of the completed asphalt pavement layer can be achieved.

Each trial area shall be at least 100 metres long and to the full construction width and depth for the material. It may form part of the Works provided it complies with this Specification. Any areas that do not comply with this Specification shall be removed.

The Contractor shall allow in his program for conducting site trials and for carrying out the appropriate tests on them. The trial on any pavement layer shall be undertaken at least 21 days ahead of the Contractor proposing to commence full-scale work on that layer.

The Contractor shall compact each section of trial over the range of compactive effort the Contractor is proposing and the following data shall be recorded for each level of compactive effort at each site trial:-

- i. The composition and grading of the material including the bitumen content and type and grade of bitumen used.
- ii. The moisture content of aggregate in the asphalt plant hot bins.
- iii. The temperature of the bitumen and aggregate immediately prior to entering the mixer, the

temperature of the mix on discharge from the mixer and the temperature of the mix on commencement of laying, on commencement of compaction and on completion of compaction. The temperature of the mixture is to be measured in accordance with BS 598. Part 3, Appendix A.

- b. The type, size, mass, width of roll, number of wheels, wheel load, tyre pressures, frequency of vibration and the number of passes of the compaction equipment, as appropriate for the type of roller.

- i. The target voids and other target properties of the mix together with the results of the laboratory tests on the mix.
- ii. The density and voids achieved.
- iii. The compacted thickness of the layer.

Any other relevant information as directed by the Engineer.

At least eight sets of tests shall be made by the Contractor and the Engineer on each 100 metres of trial for each level of compactive effort and provided all eight sets of results over the range of compactive effort proposed by the Contractor meet the specified requirements for the material then the site trial shall be deemed successful. The above data recorded in the trial shall become the agreed basis on which the particular material shall be provided and processed to achieve the specified requirements.

1607A MIXING OF AGGREGATES AND BITUMEN

The bitumen shall be heated so that it can be distributed uniformly and care shall be taken not to overheat it. The temperature shall never exceed 170°C for 80/100 or 60/70 bitumen,

The aggregates shall be dried and heated so that they are mixed at the following temperatures: 125-165°C when 80/100 bitumen is used

The dried aggregates shall be combined in the mixer in the amount of each fraction instructed by the Engineer and the bitumen shall then be introduced into the mixer in the amount specified.

The materials shall then be mixed until a complete and uniform coating of the aggregate is obtained.

The mixing time shall be the shortest required to obtain a uniform mix and thorough coating. The wet mixing time shall be determined by the Contractor and agreed by the Engineer for each plant and for each type of aggregate used. It shall normally not exceed 60 seconds.

1608A TRANSPORTING THE MIXTURE

The bituminous mix shall be kept free of contamination and segregation during transportation. Each load shall be covered with canvas or similar covering to protect it from the weather and dust.

1609A LAYING THE MIXTURE

Immediately after the surface has been prepared and approved, the mixture shall be spread to line and level by the laying plant without segregation and dragging.

The mixture shall be placed in widths of one traffic lane at a time, unless otherwise agreed by the Engineer. The compacted thickness of any layer shall be at least 2.5 times the maximum size of the aggregate for wearing course and at least 2 times for binder course. The minimum thickness shall be 25mm.

Only on areas where irregularities or unavoidable obstacles make the use of mechanical laying impracticable, may the mixture be spread and compacted by hand.

1610A COMPACTION

Immediately after the bituminous mixture has been spread, it shall be thoroughly and uniformly compacted by rolling. The layer shall be rolled when the mixture is in such a condition that rolling does not cause undue displacement or shoving.

The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition. The sequence of rolling operations shall be as agreed with the Engineer and proved during site trials. Initial rolling with steel tandem or three-wheeled roller shall follow the laying plant as closely as possible. The rollers shall be operated with the drive roll nearest the laying plant, at a slow and uniform speed (not exceeding 5 Km/Hr).

Rolling shall normally commence from the outer edge and proceed longitudinally parallel to the centerline, each trip overlapping one half of the roller width. On super elevated curves, rolling shall begin at the low side and progress to the high side. Where laying is carried out in lanes care must be taken to prevent water entrapment.

Intermediate rolling with a pneumatic tyred or vibratory roller shall follow immediately. Final rolling with a steel-wheeled roller shall be used to eliminate marks from previous rolling.

To prevent adhesion of the mixture to the rollers, the wheels shall be kept lightly moistened with water.

In areas too small for the roller, a vibrating plate compactor or a hand tamper shall be used to achieve the specified compaction.

1611A FINISHING, JOINTS AND EDGES

Any mixture that becomes loose and broken, mixed with dirt or foreign matter or is in any way defective, shall be removed and replaced with fresh hot mixture, which shall be compacted to conform to the surrounding area.

Spreading of the mixture shall be as continuous as possible. Transverse joints shall be formed by cutting neatly in a straight line across the previous run to expose the full depth of the course. The vertical face so formed shall be painted lightly with hot 80/100 penetration grade bitumen just before the additional mixture is placed against it.

Longitudinal joints shall be rolled directly behind the paving operation. The first lane shall be placed true to line and level and have an approximately vertical face. The mixture placed in the abutting lane shall then be tightly crowded against the face of the previously placed lane. The paver shall be positioned to spread material overlapping the joint face by 20-30mm. Before rolling, the excess mixture shall be raked off and discarded.

When the abutting lane is not placed in the same day, or the joint is destroyed by traffic, the edge of the lane shall be cut back as necessary, trimmed to line and painted lightly with hot 80/100 penetration grade bitumen just before the abutting lane is placed.

Any fresh mixture spread accidentally on the existing work at a joint shall be carefully removed by brooming it back on to uncompacted work, so as to avoid formation of irregularities at the joint. The finish at joints shall comply with the surface requirements and shall present the same uniformity of finish, texture and density as other sections of the work.

The edges of the course shall be rolled concurrently with or immediately after the longitudinal joint. In rolling the edges, roller wheels shall extend 50 to 100mm beyond the edge.

1612A SAMPLING AND TESTING OF BITUMINOUS MIXTURES

The sampling of bituminous mixtures shall be carried out in accordance with AASHTO T168 (ASTM Designation D979).

1613A QUALITY CONTROL TESTING

During mixing and laying of bituminous mixtures, control tests on the constituents and on the mixed material shall be carried out in accordance with Clause 1612A and Section 2 of this Specification

If the results of any tests show that any of the constituent materials fail to comply with this Specification, the Contractor shall carry out whatever changes may be necessary to the materials or the source of supply to ensure compliance.

If the results of more than one test in ten on the mixed material show that the material fails to comply with this Specification, laying shall forthwith cease until the reason for the failure has been found and corrected. The Contractor shall remove any faulty material laid and replace it with material complying with this Specification all at his own expense,

1614A TOLERANCES

Surfacing courses and base shall be constructed within the geometric tolerances specified in Section 3 of this Specification. The Contractor shall maintain the composition of the mixture as determined from the laboratory and site trials within the following tolerances, per single test: - Bitumen Content: $\pm 0.3\%$ (by total weight of total mix) Passing 10mm sieve and

larger sieves: $\pm 6\%$ (by total weight of dry aggregate including mineral filler)

Passing sieves

between 10mm and 1.0mm sieves: $\pm 4\%$ (by total weight of dry aggregate including mineral filler)

Passing sieves

between 1.0mm and 0.075mm sieve: $\pm 3\%$ (by total weight of dry aggregate including mineral filler)

Passing 0.075mm sieve: $\pm 2\%$ (by total weight of dry aggregate including mineral filler)

The average amount of bitumen in any length of any layer, calculated as the product of the bitumen contents obtained from single tests and the weight of mixture represented by each test, shall not be less than the amount ordered.

The average amount of bitumen for each day's production calculated from the checked weights of mixes shall not be less than the amount ordered.

The average amount of bitumen in any length of any layer, calculated as the product of the bitumen contents obtained from single tests and the weight of mixture represented by each test, shall not be less than the amount ordered.

The final average overall width of the upper surface of a bituminous mix layer measured at six equidistant points over a length of 100m shall be at least equal to the width specified. At no point shall the distance between the centerline of the road and the edge of the upper surface of a bituminous mix layer be narrower than that specified by more than 13mm.

1615A MEASUREMENT AND PAYMENT

No separate measurement and payment shall be made for complying with the requirements of Clauses 1601A to 1614A inclusive and the Contractor shall be deemed to have allowed in his rates in Part B of Section 16 of this Specification for the costs of complying with the requirements of Part A of Section 16 of this Specification.

PART B - ASPHALT CONCRETE FOR SURFACING

DEFINITION

Asphalt concrete means a thoroughly controlled, hot-mixed, hot-laid, plant mixture of well graded dried aggregate and penetration grade bitumen, which, when compacted forms a dense material.

A distinction is drawn between asphalt concrete Type I (High Stability) and asphalt concrete Type II (Flexible). The asphalt concrete type will be Type I.

MATERIALS FOR ASPHALT CONCRETE

a) Type of bituminous material

The type of material to be used on severe sites will be of the continuously graded type similar to Asphaltic Concrete or Close Graded Macadam. It is essential that these materials are sealed with a single or double surface dressing or a Cape seal.

b) Penetration Grade Bitumen

Bitumen shall be 80/100 penetration grade.

c) Aggregate

Coarse aggregate (retained on a 6.3mm sieve) shall consist of crushed stone free from clay, silt, organic-matter and other deleterious substances. The aggregate class will be specified in the Special Specification and it shall comply with the requirements given in Table 16B-

l(b):-

The coarse aggregate shall be entirely crushed rock from a source which is known to give high values of stability (> 9kN) in the Marshall test. Crushed river gravel should not be used.

TABLE 16B-l(b) - REQUIREMENTS FOR COARSE AGGREGATE

Coarse (Retained on a 6.3mm Sieve) Maximum

Aggregate Test	Value
LAA	30
ACV	25
SSS	12
FI	20

Fine aggregate (passing a 6.3mm sieve) shall be free from clay, silt, organic and other deleterious matter and shall be non-plastic. Unless otherwise specified in the Special Specification it shall consist of entirely crushed rock produced from Los Angeles Abrasion of not more than 40. The Sand Equivalent of the fine aggregate shall not be less than 40 and the SSS not more than 12.

d) Mineral Filler

Mineral Filler shall consist of Ordinary Portland Cement

1603B GRADING REQUIREMENTS

The grading of the mixture of coarse and fine aggregate shall be within and approximately parallel to the grading envelopes given in Table 16B-l(a), for 0/20mm as specified for binder course, as described below.

To arrive at a suitable design it is necessary to investigate a number of gradings so that a workable mix which also retains a minimum of 3 % voids at refusal density is identified. The recommendations given in the SHRP SUPERPAVE system are provided in Tables 16B-l(c) and 16B-l(d) as guidance towards identifying a suitable grading.

TABLE 16B-l(c) - SUPERPAVE AGGREGATE GRADING CONTROL POINT

Nominal	Sieve Size (mm)	Control Point (% Passing)	
Maximum		Minimum	Maximum

37.5	0.075		0	6
	2.36		15	41
	25.0			90
	37.5	-	90	100
	50.0		100	-
25.0	0.075		1	7
	2.36		19	45
	19.0			90
		-		
	25.0		90	100
	37.5		100	-
19.0	0.075		2	8
	2.36		23	49
	12.5			90
		-		
	19.0		90	100
	25.0		100	-
12.5	0.075		2	10
	2.36		28	58
	9.5			90
		-		
	12.5		90	100
	19.0		100	-

TABLE 16B-l(d) - SUPERPAVE BOUNDARIES OF AGGREGATE RESTRICTED ZONE

Sieve size Minimum and Maximum boundaries of sieve size for nominal maximum aggregate size

within 37.5 25.0 19.0 12.5

4.75	34.7-34.7	39.5-39.5	-	-
2,35	23.3-27.3	26.8-30.8	34.6-34.6	39.1-39.1
1,18	15.5-21.5	18.1-24.1	22.3-28.3	25.6-31.6
0.6	11.7-15.7	13.6-17.6	16.7-20,7	19.1-23.1
0.3	10.0-10.0	11.4-11.4	13.7-13.7	15.5-15.5

The SUPERPAVE definition of Nominal Maximum Size of Aggregate is one sieve size larger than the first sieve to retain more than ten per cent of the aggregate. The largest particle size used should not be more than 25mm so that the requirements of the Marshall test method can be complied with.

Although the complete range of nominal maximum particle sizes is shown in the Tables, the total thickness of material laid should not be less than 75mm.

1604B REQUIREMENTS FOR ASPHALT CONCRETE

The mixture shall comply with the requirements given in Table 16B-2 as specified in the Specification. In addition, minimum Marshall Stability for 2 * 75 blows shall be 9 kN and maximum 18 kN and at compaction to refusal shall have 3% VIM.

The proportion, by weight of total mixture, of bitumen shall be 6%. This shall be termed the nominal binder content. The binder content of the working mix will be instructed by the Engineer following laboratory and site trials.

In order to determine the suitability of a coarse aggregate source a Marshall test program shall be carried out. It will be advantageous to use a crushed rock which is known from past experience to give good results in this test procedure. A grading conforming to the Type I Binder Course detailed in Table 16B-1(a) 0/20 of this Specification should be tested (but with 100% passing the 25mm sieve) and it shall meet the requirements of Table 16B-2 of this Specification.

Having established the suitability of the aggregate source several grading shall be tested in the laboratory, including that used for the Marshall test, to establish relationships between - bitumen content and VIM at refusal density. For each mix, samples will be made up to a range of bitumen contents and compacted to refusal using a gyratory compactor and a vibratory hammer in accordance with the procedure described in BS 598 (Part 104 : 1989), with one revision.

It should first be confirmed that compaction on one face of the sample gives the same refusal density as when the same compaction cycle is applied to both faces of the same sample. The procedure which gives the highest density must be used.

From the bitumen content-VIM relationship it will be possible to identify a bitumen content which corresponds to a VIM of 3%. If it is considered that the workability of the mix may be difficult then compaction trials should be undertaken. It is advisable to establish two or more gradings for compaction trials.

The mixes identified for compaction trials should be manufactured to the laboratory design bitumen content and to two other bitumen contents of +0.5% and +1% additional bitumen. Cores will be cut to determine the density of the compacted material, having completed this the core will then be reheated to $145 \pm 5^\circ\text{C}$ in the appropriate mould and compacted to refusal in the vibrating hammer test. To be acceptable the cores cut from the compaction trial must have a density equivalent to at least 95% of refusal density.

The compaction trials will identify a workable mix which can be made to a bitumen content which gives 3% VIM at refusal density.

1605B MIXING AND LAYING HEAVY DUTY ASPHALT

The temperature of the bitumen and aggregates when mixed shall be $110 \pm 3^\circ\text{C}$ above the softening point (R&B) of the bitumen.

Compaction should commence as soon as the mix can support the roller without undue displacement of material and completed before the temperature of the mix falls below 90°C . The minimum thickness of individual layers should be as follows:-

- a) For the 37.5mm mix 65mm
- b) For the 25.0mm mix 60mm
- c) For the 19.0mm mix 50mm
- d) For the 12.5mm mix 40mm

1606B COMPACTION

Rolling shall be continued until the voids measured in the completed layer are in accordance with the requirement for a minimum density of 98% of Marshall optimum, or, a minimum mean value of 95% of refusal density (no value less than 93%) as appropriate.

1607B MEASUREMENT AND PAYMENT

Item : Asphalt Concrete

Unit : m^3

Asphalt concrete shall be measured by the cubic metre compacted on the road calculated as the product of the length instructed to be laid and the compacted cross-sectional area shown on the Drawings or instructed by the Engineer

The rate for asphalt concrete shall include for the cost of providing, transporting, laying and compacting the mix with the nominal binder content and complying with the requirements of Parts A and B of Section 16 of this Specification.

SECTION 17 - CONCRETE WORKS

1703 BEDDING MATERIALS FOR CONCRETE

This work shall consist of placing selected approved material of 250 mm minimum diameter on the foundation put after excavation to receive levelling concrete in accordance with these specifications and in conformity with the lines, grades and cross sections shown on the Drawings as directed by the Engineer.

(a) Materials

Selected rock: The selected rock boulders to be placed for this work shall be hard, sound, durable quarry stones as approved by the Engineer. Samples of the stone to be used shall be submitted to and approved by the Engineer before any stone is placed. The maximum size of the stone boulders shall be 300 mm.

(b) Construction Method

After completion of the structural excavation the surface of the loose soil shall be levelled and compacted. Then the stone of the above sizes shall be placed in one layer of 250 mm over the compacted bed where the bottom slab will rest. Coarse sand shall be spread to fill up the voids in the stone boulders and compaction with vibratory compactors should be performed to make this layer dense whereon a concrete of levelling course shall be placed.

(c) Measurement and payment

Measurement for the bedding materials shall be made in cubic metres for the completed and accepted work, measured from the dimension shown on the Drawings, unless otherwise directed

by the Engineer.

Payment for the bedding materials for Levelling Concrete Works shall be full compensation for furnishing and placing all materials, all labour equipment, tools and all other items necessary for proper completion of the work in accordance with the Drawings and Specifications and as directed by the Engineer.

1703A LEVELLING CONCRETE (CLASS 15/20) FOR BOTTOM SLAB INCLUSIVE OF COST OF FORM WORKS

This work shall consist of placing and levelling lean concrete class 15/20 over the prepared bed of stone boulders in the foundation for bottom slab and wing walls in accordance with these specifications and with conformity with the lines, grades, thickness and typical cross-sections shown on the drawings unless otherwise directed by the Engineer.

(a) Materials for Levelling Concrete

Requirement for the concrete class 15/20 is specified as follows: -

Design compressive strength (28) days : 15N/mm

Maximum size of coarse aggregate : 20 mm

Maximum cement content : 300 kg/m .

Maximum water/cement ration of 50% with slump of 80 mm.

(b) Construction Method

The bed of stone boulders upon which the levelling concrete will be placed shall be smooth, compacted and true to the grades and cross-section and shall be set to the required lines and grades.

(c) Measurement and payment

Item : Levelling Concrete

Unit : m³

Measurement for levelling concrete (class 15/20) shall be made in cubic metres of completed and accepted levelling concrete work measured in place, which is done in accordance with the Drawings and the Specifications.

Payment for this work shall be the full compensation for furnishing and placing all materials, labour, equipment and tools and other incidentals including any formworks to Specifications and as directed by the Engineer.

1703B REINFORCING BARS OF WALLS AND SLABS

This work shall consist of furnishing, fabricating and placing in the concrete of the bottom slab, top slab, median wall, sidewalls, wing walls and aprons, reinforcing bars of the quality, type and size in accordance with these Specifications and in conformity with the requirements shown on the Drawings.

(a) Material

Deformed reinforcing bars shall meet the requirements of British standard BS 4461, mild steel bars to BS 4449 and fabric reinforcement to BS 4483 unless otherwise called for in the drawings or approved by the Engineer.

No reinforcing bar shall be delivered without a certificate guaranteeing the yield stress. The reinforcing bars shall be kept off the ground, free from dirt, oil, grease, or avoidable rust and stored within a building or provided with suitable covers.

If it is necessary for the Engineer to ascertain the quality of the reinforcing bars, the Contractor shall test the reinforcing bars, at his own expense, by means as directed by the Engineer.

(b) Construction Method

(i) Bar bending Schedule

The Engineer shall provide the Contractor with bending schedule showing the location, types, sizes, bending dimensions and cut lengths of the reinforcing bars required to be fixed in the works.

(ii) Cutting and Bending

Qualified men shall be employed for the cutting and bending and proper application shall be provided for such work.

Bars shall be cut and bent cold to the dimensions indicated and with equipment and methods approved by the Engineer.

Stirrups and tie bars shall be bent around a pin having a diameter not less than 15 times the minimum diameter of the bar. Bends of other bars, where full tension in the bar may occur, shall be made around a pin having a diameter not less than 7.5 times the bar diameter as shown on the Drawings.

Reinforcing bars shall be accurately formed to the shapes and dimensions indicated on the Drawings, and shall be fabricated in a manner that will not injure the materials.

(c) Placing

Reinforcing bars shall be accurately placed in proper positions such that they are firmly held during placing of concrete.

Bars shall be tied at all intersections by using annealed iron wire 0.9 mm or larger diameter, or suitable clips.

Distances from the forms shall be maintained, corrected by means of metal hangers, metal blocks, metal supports or other supports approved by the Engineer.

The Engineer shall inspect reinforcing bars after placing. When a long time has elapsed after placing reinforcing bars, they shall be cleaned and inspected again by the Engineer before placing concrete.

(d) Splicing and Joints

When it is necessary to splice reinforcing bars at points, position and methods of splicing shall be determined based on strength calculations and approved by the Engineer.

In lapped splices, the bars shall be lapped by the required length and wired together at several points by using annealed iron wire larger than 0.9 mm.

Exposed reinforcing bars intended for bonding with future extensions shall be effectively protected from injury and corrosion.

Oxyacetylene welding joint of reinforcing steel shall be done only if authorised by the Engineer in writing.

(e) Measurement and Payment

Bending and installation of reinforcing bar of walls and slabs shall be measured in terms of tons. The length of steel bar of each size will be shown on the drawings in which the bar length for splicing is excluded. In computing the weight to be measured, the theoretical weights of bars of the cross-section shown on the Drawings or authorised shall be used.

These weights are given in the following table: -

Bar type and length of bars	the crosssection in millimetre	Weight of Bar in Kilogram per 12m
Y10	7.40	
Y12	10.66	
Y16	18.95	
Y20	29.60	
Y25	46.30	

1703C FORMWORK FOR CULVERT WALLS AND SLABS

This work shall consist of all temporary moulds for forming the concrete for culvert walls and slabs together with all temporary construction required for their support. Unless otherwise directed by the Engineer, all formworks shall be removed on completion of the walls and slabs.

(a) Materials

Forms shall be made of wood or metal and shall conform to the shape, lines and dimensions shown on the Drawings.

All timber shall be free from holes, loose material, knots, and cracks, splits and warps or other defects affecting the strength or appearance of the finished structure.

Release Agents - Release agents shall be either neat oils containing a surface activating agent, cream emulsions, or chemical agents to be approved by the Engineer.

(b) Construction Method

(i) Formworks

Formworks shall be designed to carry the maximum loads, which may be imposed, and so be rigidly constructed as to prevent deformation due to load, drying and wetting, vibration and other

causes. After forms have been set in correct location, they shall be inspected and approved by the Engineer before the concrete is placed.

If requested, the contractor shall submit to the Engineer working drawings of the forms and also, if requested, calculations to certify the rigidity of the forms.

Unless otherwise described in the Contract, all form joints for exposed surfaces of concrete shall form a regular pattern with horizontal and vertical lines continuous throughout each structure and all construction joints shall coincide with these horizontal and vertical lines. PVC pipes of 50 mm diameter for weep holes shall be arranged as shown on the Drawings.

Unless otherwise specified, formwork shall be designed to form chamfers at all external corners whether or not such chamfers are shown on the Drawings to prevent cracks and other damage from arising.

The inside surface of forms shall be cleaned and coated with a releasing agent to prevent adhesion of the concrete. Release agents shall be applied strictly in accordance with the manufacturer's detailed instructions. The release agent shall be applied to the formwork prior to erection. Release agent must not come into contact with reinforcement. Immediately before concrete is placed, the forms shall be thoroughly cleaned and freed from sawdust, shavings, dust, mud or other debris by hosing with water. Temporary openings shall be provided in the forms to drain away the water and rubbish.

(ii) Scaffolding

All scaffolding required to support the forms should be designed and constructed to provide necessary rigidity and support the loads without appreciable deflection or deformation. Details, plans and structural and flexural calculations for scaffolding shall be submitted to the Engineer for approval, but in no case shall the Contractor be relieved of his responsibility for the results obtained by use of these plans, etc.

(iii) Removal of Formwork

The time at which the formwork is struck shall be the Contractor's responsibility and the forms shall not be removed until the concrete strength has reached 20 N/mm².

(a) Measurement and Payment

(b)

Formwork shall be measured as the net area, in square metres, in contact with the finished concrete surface of the walls and slabs. No measurement shall be allowed for formwork of temporary construction joints.

Payment for the formworks shall be full compensation for furnishing, erecting, jointing all the forms for the concrete including furnishing and applying release agent, and construction of the required scaffolding to support the forms, all conforming to the shape, lines, grade and dimensions of the structure as shown on the Drawings, all in accordance with the Drawings and as directed by the Engineer.

1703D CONCRETE WORKS (CLASS 30/20) OF CULVERT WALLS AND SLABS

This work shall consist of furnishing, mixing, delivering and placing of the concrete for the construction of culvert walls and slabs, in accordance with these Specifications and in conformity with the requirements shown on the Drawings.

Concrete class 30/20 shall be used for culvert walls and slabs.

Concrete Materials

A. Cement

Cement shall be of ordinary Portland cement complying with KS 1725:2001 CEM 1 42.5N or equivalent subject to Engineer's approval.

The Contractor shall select only one type or brand of cement or other. Changing of type or brand of cement will not be permitted without a new mix design approved by the Engineer. All cement is subject to the Engineer's approval, however, approval of cement by the Engineer shall not relieve the Contractor of the responsibility to furnish concrete of the specified compressive strength.

Conveyance of cement by jute bags shall not be permitted. Storage in the Contractor's silo or storehouse shall not exceed more than two (2) months and age of cement after manufacture at mill shall not exceed more than four (4) months. The Contractor shall submit to the Engineer for his approval the results of quality certification tests undertaken by the manufacturer.

Whenever it is found out that cement has been stored for too long, moist, or caked, the cement shall be rejected and removed from the project.

B. Aggregates

Fine and coarse aggregates must be clean, hard, strong and durable, and free from absorbed chemicals, clay coating, or materials in amounts that could affect hydration, bonding, strength and durability of concrete.

Grading of aggregates shall conform to the following requirements:

(i) Grading of Fine Aggregates

Sieve Size Percentage by Weight Passing

10 mm	100
5 mm	89-100
2.5 mm	60-100
1.2 mm	30-100
0.6 mm	15 -54
0.3 mm	5 - 40
0.15 mm	0 - 15

(ii) Grading of Coarse Aggregates

Size of Amounts finer than each standard sieve percentage by weight

Coarse 40 30 25 20 15 10 5 2.5

Aggregate 100 - - 90-100 - 30-69 0-10 -

Other requirements for aggregates are as follows:

(iii) Fine Aggregates

2.3 - 3.1

Max. 10% loss

Max 1% by weight

Min. 75

(iv) Coarse Aggregate

Fitness Modulus, AASHTO M-6

Sodium Sulphate Soundness, AASHTO T104

Content of Friable Particles AASHTO 112

Sand Equivalent, AASHTO T176

Abrasion, AASHTO T96

Max. 405 loss

Soft Fragment and shale, AASHTO M80 : Max. 5% by weight

Thin and elongated Pieces, AASHTO M80 : Max. 15%

C. Water

The Engineer shall approve all sources of water to be used with cement. Water shall be free from injurious quantities of oil, alkali, vegetable matter and salt as determined by the Engineer.

D. Admixture

Only admixture, which have been tested and approved in the site laboratory through trial mixing for design proportion shall be used.

Before selection of admixture, the Contractor shall submit to the Engineer the specific information or guarantees prepared by the admixture supplier.

The contractor shall not exclude the admixture from concrete proportions.

Concrete class 25/20

Concrete class 25/20 shall be used for culvert walls and slabs. The requirements of Concrete class 25/20 are provided as follows unless otherwise the Engineer designates any alteration.

Design compressive strength (28 days) : 25N/mm

Maximum size of coarse aggregates : 20 mm

Maximum water/cement ratio of 50% with slump of 100 mm

(a) Proportioning Concrete

The Contractor shall consult with the Engineer as to mix proportions at least thirty (30) days prior to beginning the concrete work. The actual mix proportions of cement, aggregates, water and admixture shall be determined by the Contractor under supervision of the Engineer in the site laboratory.

The Contractor shall prepare the design proportions, which has 120% of the strength requirement, specified for the designated class of concrete.

No class of concrete shall be prepared or placed until the Engineer has approved its job-mix proportions.

(b) Concrete Work

(i) Batching

Batching shall be done by weight with accuracy of:

Cement : 54 percent

Aggregate : 4 percent

Water and Admixture : 1 percent.

Equipment should be capable of measuring quantities within these tolerances for the smartest batch regularly used, as well as for larger batches.

The accuracy of batching equipment should be checked every month in the presence of the Engineer and adjusted when necessary.

(ii) Mixing and delivery

Slump of mixed concrete shall be checked and approved at an accuracy of +25mm against designated slump in these specifications.

(iii) Concrete in hot weather

No concrete shall be placed when the ambient air temperature is expected to exceed thirty-three degrees Celsius (33 c) during placement operations).

(iv) Concreting at night

No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate approved artificial lighting system is operated; such night work is subject to approval by the engineer.

(v) Placing

In preparation of the placing of concrete, the interior space of forms shall be cleaned and approved by the engineer prior to placing concrete. All temporary members except tie bars to

support forms shall be removed entirely from the forms and not buried in the concrete. The use of open and vertical chute shall not be permitted unless otherwise directed by the engineer.

The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms.

(c) **Measurement and Payment**

Measurements for the concrete works Class 25/20 of culvert walls and slabs shall be made in cubic metres for the walls and slabs actually constructed, measured from their dimensions shown on the Drawings. Payment for the concrete works (Class 25/20) of culvert walls and slabs shall be the full compensation for furnishing all materials of the concrete mixing, delivering, placing and curing the concrete, equipment and tools, labour and other incidental necessary for the completion of the work in accordance with the Drawings and these Specifications and as directed by the Engineer.

SECTION 20 - ROAD FURNITURE

ROAD RESERVE BOUNDARY POSTS

Road reserve boundary posts shall be provided as directed by the Engineer and in compliance with Standard Specification clause 2001. They shall be placed at 100m intervals along the boundary of the road reserve.

EDGE MARKER POSTS

Edge marker posts shall be Verge Master MK 111 plastic posts manufactured by Glasdon Ltd. of Blackpool UK. They shall be provided as directed by the Engineer and in compliance with the requirements of Standard Specification clause 2003

PERMANENT ROAD SIGNS

Permanent Road Signs shall be provided as directed by the Engineer and in compliance with the requirements of the "Manual for Traffic Signs in Kenya" Part II and standard Specification clause 2004.

The posts for the signs shall be cylindrical galvanized wrought iron tubes of minimum 75mm diameter and vandal-proofed by in-filling with concrete class 15/20.

The sign plates shall be made from approved metal or plastic sheet 3mm thick and vandal-proofed by the drilling of 3mm diameter holes at 100mm centres

The rate inserted for the signs shall include for all the costs of complying with this clause.

EXISTING ROAD SIGNS

Where directed by the Engineer, the Contractor shall take down road signs including all posts, nuts, bolts and fittings, and remove and dispose of the concrete foundation and backfill the post holes. The signs shall be stored as directed by the Engineer.

Measurement and payment for taking down road signs shall be made by the number of signs of any type and size taken down, cleaned and stored as directed.

ROAD MARKING

Paint for road marking shall be internally reflectorized hot applied thermoplastic material in accordance with Clause 219 of the Standard Specification.

The rates inserted in the Bills of Quantities for road marking shall include for prior application of approved tack coat.

GUARDRAILS

Guardrail posts shall be concrete 210 x 210 mm set vertically at least 1.2m into the shoulder as per the drawings and as directed by the Engineer.

Beams for guardrails shall be "Armco Flexbeam" or similar obtained from a manufacturer approved by the Engineer.

'Swareflex' ART 3240 or similar approved guardrail reflectors two way reflective one side red and another white shall be installed on the flex beams every 4m.

The rate inserted shall include for provision of the flex beams, posts, swarflex reflectors, flex beam end bits and installation in accordance with the standard specifications and drawings.

KERBS

(a) Vertical Joints

Vertical joints between adjacent kerbs shall not be greater than 5 mm in width and shall mortar consisting of 1:3 cement: sand by volume.

(b) Transition between flush and raised kerbs

The transition between flush and raised kerbs (e.g. at bus bays) shall be termed as ramped kerbs and shall occur within a length of 2.0m

KILOMETRE MARKER POSTS

Kilometre marker posts shall be provided as directed by the Engineer and in compliance with Standard Specification Clause 2008.

BOLLARDS

Where directed by the Engineer, the contractor shall provide and install class 20/20 200mm diameter reinforced concrete bollards concreted 300mm into the ground.

RETRO-REFLECTIVE ROAD STUDS 'cat eyes'

All retro-reflective road studs shall comply with BS 873: Part 4. The contractor shall provide details and the manufacturer's certificate of the studs he proposes to use in the works to the Engineer for approval. The studs shall be installed at locations shown on drawings or instructed by Engineer.

SECTION 22-DAYWORKS

2202 MEASUREMENTS AND PAYMENT

(a) Plant

Where items of major plant listed in the schedule of Dayworks are specified by type (e.g. Concrete mixer etc.) the power rating of such items of plant provided by the Contractor shall not be lower than the power ratings of such plant manufactured within the last two years prior to the date of BID. Any item of major plant employed upon Dayworks that has a power rating lower than specified above shall be paid for at rates lower than those in the schedule of Dayworks. The reduction in the rate payable shall be in proportion to the reduction in power rating below that specified above.

SECTION VI-DRAWINGS

Note

- i. A list of Contract drawings should be inserted here
- ii. The actual Contract drawings including Site plans should be annexed in a separate booklet.

SECTION VII – BILLS OF QUANTITIES

Notes for preparing Bills of Quantities

1.0 Preamble To Bill of Quantities

- a) The Bill of Quantities shall form part of the Contract Documents and is to be read in conjunction with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications and Drawings.
- b) The brief description of the items in the Bill of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the conditions of Contract and Specifications for the full direction and description of work and materials.
- c) The Quantities set forth in the Bill of Quantities are estimated and provisional, representing substantially the work to be carried out, and are given to provide a common basis for tendering and comparing of Tenders. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities. The basis of payment shall be the Contractor's rates and the quantities of work actually done in fulfillment of his obligation under the Contract.
- d) The prices and rates inserted in the Bills of Quantities will be used for valuing work executed, and the Engineer will measure the whole of the works executed in accordance with this Contract.
- e) A price or rate shall be entered in ink against every item in the Bill of Quantities with the exception of items, which already have provisional sums, affixed thereto. The Tenderers are reminded that no "nil" or "included" rates or "lump-sum" discounts will be accepted. The rates for various items should include discounts if any. Tenderers who fail to comply will be disqualified.
- f) Provisional sums (including Day works) in the Bill of Quantities shall be expended in whole or in part at the discretion of the Engineer in accordance with Sub-clause 52.4 and Clause 58 of part of the Conditions of Contract.
- g) The price and rates entered in the Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional plant to be used, labour, insurance, supervision, compliance, testing, materials, erection, maintenance or works, overheads and profits, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the Contract by the Engineer and his staff.

- h) Errors will be corrected by the Employer for any arithmetic errors in computation or summation as follows:
 - (a) Where there is a discrepancy between amount in words and figures, the amount in words will govern; and
 - (b) Where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in the unit price, in which event the total amount as quoted will govern and the unit rate will be corrected.
 - (c) If a Tenderer does not accept the correction of errors as outlined above, his Tender will be rejected.
- i) The Bills of Quantities, unless otherwise expressly stated therein, shall be deemed to have been prepared in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement (CESMM).
- j) “Authorised” “Directed” or “Approved” shall mean the authority, direction or approval of the Engineer.
- k) Unless otherwise stated, all measurements shall be net taken on the finished work carried out in accordance with the details shown on the drawings or instructed, with no allowance for extra cuts or fills, waste or additional thickness necessary to obtain the minimum finished thickness or dimensions required in this Contract. Any work performed in excess of the requirements of the plans and specifications will not be paid for, unless ordered in writing by the Engineer.
- l)
 - (a) Hard material, in this Contract, shall be defined as the material which, in the opinion of the Engineer, require blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a dozer tractor of at least 150 brake horse power (112 kilowatt) with a single, rear-mounted, hydraulic ripper. Boulders of more than 0.2m³ occurring in soft material shall be classified as hard material.
 - (b) Soft material shall be all material other than hard material.

2.0 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 Bills of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bills 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 Bills of Quantities should be as simple and brief as possible.

3.0 The Bills of Quantities should be divided generally into the following sections:

(a) Preliminaries.

The preliminaries should indicate the inclusiveness of the unit prices, and should state the methods of measurement which have been adopted in the preparation of the Bills of Quantities and which are to be used for the measurement of any part of the Works.

The number of preliminary items to be priced by the tenderer should be limited to tangible items such as site office and other temporary works, otherwise items such as security for the Works which are primarily part of the Contractor's obligations should be included in the Contractor's rates.

(b) Work Items

- (i) The items in the Bills of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing or any other special characteristics may give rise to different methods of construction or phasing of the Works or considerations of cost. General items common to all parts of the Works may be grouped as a separate section in the Bills of Quantities.
- (ii) The brief description of the items in the Bill of Quantities should in no way modify or supersede the detailed descriptions given in the Contract drawings, Conditions of Contract and Specifications.
- (iii) Quantities should be computed net from the Drawings, unless directed otherwise in the Contract, and no allowance should be made for bulking, shrinkage or waste. Quantities should be rounded up or down where appropriate.
- (iv) The following units of measurement and abbreviations are recommended for use.

<i>Unit</i>	<i>Abbreviation</i>	<i>Unit</i>	<i>Abbreviation</i>
cubic meter	m ³ or cu m	millimeter	mm
hectare	ha	month	mon

hour	h	number	nr
kilogram	kg	square meter	m ² or sq m
lump sum	sum	square millimeter	mm ² or sq mm
meter	m	week	wk
metric ton (1,000 kg)	t		

- (v) The commencing surface should be identified in the description of each item for Work involving excavation, boring or drilling, for which the commencing surface is not also the original surface. The excavated surface should be identified in the description of each item for Work involving excavation for which the excavated surface is not also the final surface. The depths of Work should be measured from the commencing surface to the excavated surface, as defined.

(c) Daywork Schedule

A Daywork Schedule should be included if the probability of unforeseen work, outside the items included in the Bills of Quantities is relatively high. To facilitate checking by the Employer of the realism of rates quoted by the tenderers, the Daywork Schedule should normally comprise:

- (i) a list of the various classes of labour, and materials for which basic Daywork rates or prices are to be inserted by the tenderer, together with a statement of the conditions under which the Contractor will be paid for Work executed on a Daywork basis; and
- (ii) a percentage to be entered by the tenderer against each basic Daywork Subtotal amount for labour, materials and plant representing the Contractor's profit, overheads, supervision and other charges.

(d) Provisional Quantities and Provisional Sums

(i) Provision for quantity contingencies in any particular item or class of Work with a high expectation of quantity overrun should be made by entering specific "Provisional Quantities" or "Provisional Items" in the Bills of Quantities, and *not* by increasing the quantities for that item or class of Work beyond those of the Work normally expected to be required. To the extent not covered above, a general provision for physical contingencies (quantity overruns) should be made by including a "Provisional Sum" in the Summary of the Bills of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a "Provisional Sum" in the Summary of the Bills of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises.

- (ii) Provisional Sums to cover specialized works normally carried out by Nominated Sub Contractors should be avoided and instead Bills of Quantities of the specialised Works should be included as a section of the main Bill of Quantities to be priced by the Main Contractor. The Main Contractor should be required to indicate the name (s) of the specialised firms he

proposes to engage to carry out the specialized Works as his approved domestic sub-contractors. Only Provisional Sums to cover specialized Works by statutory authorities should be included in the Bills of Quantities.

- (iii) Unless otherwise provided in the Contract, the Provisional Sums included in the Bills of Quantities should always be expended in whole or in part at the discretion of the Engineer after full consultation with the Employer.

(e) Summary

The Summary should contain a tabulation of the separate parts of the Bills of Quantities carried forward, with Provisional Sums for Dayworks, physical (quantity) contingencies, and price contingencies (upward price adjustment) where applicable.

SECTION VIII – STANDARD FORMS

*LIST OF
STANDARD FORMS*

- (i) Form of Invitation for Tenders
- (ii) Form of Tender
- (iii) Appendix to Form of Tender
- (iv) Letter of Acceptance
- (v) Form of Agreement
- (vi) Form of Tender Security
- (vii) Performance Bank
Guarantee(unconditional)
- (viii) Bank Guarantee for Advance Payment
- (ix) Tender Questionnaire
- (xi) Confidential Business Questionnaire
- (x) Statement of Foreign Currency
Requirement

- (xi) Schedule of Materials;- Basic Prices
- (xii) Schedule of Labour;- Basic Prices
- (xiii) Schedule of Plant and Equipment
- (xv) Details of Sub-Contractors

- (xvi) Certificate of Tenderer's Site visit

- (xvii) Form of Written Power of Attorney
- (xviii) Key Personnel
- (xix) Completed Civil Works
- (xx) Schedule of Ongoing Projects
- (xxi) Other Supplementary Information
- (xxii) Declaration Form
- (xxiii) Request for Review

FORM OF INVITATION FOR TENDERS

_____ [date]

To: _____ [name of Contractor]

_____ [address]

Dear Sirs:

Reference: _____ [Contract Name]

You have been prequalified to tender for the above project.

We hereby invite you and other prequalified tenderers to submit a tender for the execution and completion of the above Contract.

A complete set of tender documents may be purchased by you from _____

[mailing address, cable/telex/facsimile numbers].

Upon payment of a non-refundable fee of Kshs _____

All tenders must be accompanied by _____ number of copies of the same and a security in the form and amount specified in the tendering documents, and must be delivered to

[address and location]

at or before _____ (time and date). Tenders will be opened immediately thereafter, in the presence of tenderers' representatives who choose to attend.

Please confirm receipt of this letter immediately in writing by cable/facsimile or telex.

Yours faithfully,

_____ *Authorised Signature*

_____ *Name and Title*

FORM OF TENDER

TO: _____ [Name of Employer) _____ [Date]

_____ [Name of Contract]

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 _____ [Amount in words]
2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the 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], and it shall remain binding upon us and may be accepted at any time before that date.
4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____ day of _____ 20_____

Signature _____ in the capacity of _____

duly authorized to sign tenders for and on behalf of

_____ [Name of Employer]
of _____ [Address of Employer]

Witness; Name_____

Address_____

Signature_____

Date_____

APPENDIX TO FORM OF TENDER
(This appendix forms part of the tender)

CONDITIONS OF CONTRACT	CLAUSE	AMOUNT
Minimum National Construction	2.1	NCA 8
Tender Security (Bank or insurance)		Ksh 120,000.00
Amount of Performance Security (Unconditional Bank Guarantee)	10.1	5 %percent of Tender Sum in the form of Unconditional Bank Guarantee
Program to be submitted	14.1	Not later than 14 days after issuance of Order to Commence
Cashflow estimate to be submitted	14.3	Not later than __14_ days after issuance of Order to Commence
Minimum amount of Third Party Insurance	23.2	Kshs. 100000.00
Period for commencement, from the Engineer's order to commence	41.1	14 days
Time for completion	43.1	6 Months
Amount of liquidated damages	47.1	Kshs. 50,000 per day
Limit of liquidated damages	47.1	5% of Contract Value
Defect Liability period	49.1	6 Months
Percentage of Retention	60.5	10% of Interim Payment

		Certificate
Limit of Retention Money	60.5	20 % of Contract Price
Minimum amount of interim certificates	60.2	20% Contract value/Time for completion in months
Time within which payment to be made after Interim Payment Certificate signed by Engineer	60.8	28 days
Time within which payment to be made after Final Payment Certificate signed by Engineer	60.8	28 days
Appointer of Arbitrator	67(3)	Chief Justice of The Republic of Kenya
Notice to Employer and Engineer	68.2	The Employers address is: As indicated on cover page The Engineer's address is: Chief officer (T,I & PW), Ministry Of Roads Infrastructure,public works & EnergyP.O.Box36 <u>kakamega</u>

Signature of Tender..... Date.....

LETTER OF ACCEPTANCE

[letterhead 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

FORM OF AGREEMENT

THIS AGREEMENT, made the _____ day of _____ 20 _____
between _____ of [or whose registered office is
situated at] _____

(hereinafter called “the Employer”) of the one part AND

_____ of [or whose registered office is
situated at] _____

(hereinafter called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

(*name and identification number of Contract*) (hereinafter called “the Works”) located
at _____ [*Place/location of the Works*] and the Employer has accepted the
tender submitted by the Contractor for the execution and completion of such Works and the remedying of
any defects therein for the Contract Price of Kshs _____ [*Amount in
figures*], Kenya Shillings _____ [*Amount in words*].

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e.
 - (i) Letter of Acceptance
 - (ii) Form of Tender
 - (iii) Conditions of Contract Part I
 - (iv) Conditions of Contract Part II and Appendix to Conditions of Contract
 - (v) Specifications
 - (vi) Drawings

(vii) Priced Bills of Quantities

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

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

The common Seal of _____

Was hereunto affixed in the presence of _____

Signed Sealed, and Delivered by the said _____

Binding Signature of Employer _____

Binding Signature of Contractor _____

In the presence of (i) Name _____

Address _____

Signature _____

[ii] Name _____

Address_____

Signature_____

FORM OF TENDER SECURITY

WHEREAS(hereinafter called “the Tenderer”) has submitted his tender dated for the construction of
..... (name of Contract)

KNOW ALL PEOPLE by these presents that WE having our registered office at(hereinafter called “the Bank”), are bound unto(hereinafter called “the Employer”) in the sum of Kshs..... for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors and assigns by these presents sealed with the Common Seal of the said Bank this Day of20.....

THE CONDITIONS of this obligation are:

1. If after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers
Or
2. If the tenderer, having been notified of the acceptance of his tender by the Employer during the period of tender validity:
 - (a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, if required; or
 - (b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Tenderers;
 - (c) Rejects a correction or an arithmetic error in the tender.

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of tender validity, and any demand in respect thereof should reach the Bank not later than the said date.

[date]

[signature of the Bank]

[witness]

[seal]

(Amend accordingly if provided by the Insurance Company)

PERFORMANCE BANK GUARANTEE (UNCONDITIONAL)

To: _____(Name of Employer) _____(Date)
_____(Address of Employer)

Dear Sir,

WHEREAS _____(hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ (hereinafter called “the Works”);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognised bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Kshs. _____ (amount of Guarantee in figures) Kenya Shillings _____ (amount of Guarantee in words), and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of Kenya Shillings _____ (amount of Guarantee in words) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change, addition or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any change, addition, or modification.

This guarantee shall be valid until the date of issue of the Certificate of Completion.

SIGNATURE AND SEAL OF THE GUARANTOR _____

Name of Bank _____

Address _____

Date _____

(Amend accordingly if provided by Insurance Company)

BANK GUARANTEE FOR ADVANCE PAYMENT

To: _____ *[name of Employer]* _____ *(Date)*
_____ *[address of Employer]*

Gentlemen,

Ref: _____ *[name of Contract]*

In accordance with the provisions of the Conditions of Contract of the above-mentioned Contract, We, _____ *[name and Address of Contractor]* (hereinafter called "the Contractor") shall deposit with _____ *[name of Employer]* a bank guarantee to guarantee his proper and faithful performance under the said Contract in an amount of Kshs. _____ *[amount of Guarantee in figures]* Kenya Shillings _____ *[amount of Guarantee in words]*.

We, _____ *[bank or financial institution]*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to _____ *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding Kshs _____ *[amount of Guarantee in figures]* Kenya Shillings _____ *[amount of Guarantee in words]*, such amount to be reduced periodically by the amounts recovered by you from the proceeds of the Contract.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between _____ *[name of Employer]* and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

No drawing may be made by you under this guarantee until we have received notice in writing from you that an advance payment of the amount listed above has been paid to the Contractor pursuant to the Contract.

This guarantee shall remain valid and in full effect from the date of the
advance payment under the Contract until

_____ *(name of Employer)* receives full payment of the
same amount from the Contract.

Yours faithfully,

Signature and Seal _____

Name of the Bank or financial institution _____

Address _____

Date _____

Witness: Name: _____

Address: _____

Signature: _____

Date: _____

1. TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of tenderer

.....

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

.....

3. Telephone number (s) of tenderer

.....

4. Telex address of tenderer

.....

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

.....

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

.....

Signature of Tenderer

Make copy and deliver to : _____(*Name of Employer*)

CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2 (b) or 2 (c) and 2 (d) 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; Country/Town.....

Plot No..... Street/Road

Postal Address..... Tel No.....

Nature of Business.....

Current Trade Licence No..... Expiring date.....

Maximum value of business which you can handle at any time: K. pound.....

Name of your bankers.....

Branch.....

Part 2 (a) – Sole Proprietor

Your name in full..... Age.....

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

*Citizenship details

Part 2 (b) – Partnership

Give details of partners as follows:

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details</i>	<i>Shares</i>
1.				
2.				
3.				

Part 2(c) – Registered Company:

Private or public.....

State the nominal and issued capital of the Company-

Nominal Kshs.....

Issued Kshs.....

Give details of all directors as follows:

Name in full . Nationality. Citizenship Details*. Shares.

1.

.....

2.

.....

3.

.....

4.

.....

Part 2(d) – Interest in the Firm:

Is there any person / persons in(Name of Employer) who has interest in this firm? Yes/No.....(Delete as necessary)

I certify that the information given above is correct.

.....

(Title)

(Signature)

(Date)

* Attach proof of citizenship

STATEMENT OF FOREIGN CURRENCY REQUIREMENTS

(See Clause 60[5] of the Conditions of Contract)

In the event of our Tender for the execution of _____
_____ (*name of Contract*) being accepted, we
would require in accordance with Clause 21 of the Conditions of Contract,
which is attached hereto, the following percentage:

(Figures).....

(Words).....

of the Contract Sum, (Less Fluctuations) to be paid in foreign currency.

Currency in which foreign exchange element is required:

.....
.....

Date: The Day of 20.....

Enter 0% (zero percent) if no payment will be made in foreign currency.

Maximum foreign currency requirement shall be _____ (percent)
of the Contract Sum, less Fluctuations.

(Signature of Tenderer)

SCHEDULE OF MATERIALS;-BASIC PRICES
(Ref: Clause 70 of Conditions of Contract)

MATERIAL	UNIT	ORIGIN AND PRICE			TRANSPORTATION COST FROM SOURCE OF ORIGIN	
		COUNTRY OF ORIGIN	SUPPLIER	PRICE	MODE	PRICE (KSHS)
Cement	Mg					
Lime	Mg					
Sand	Mg					
Aggregate	Mg					
Diesel	L					
Regular Petrol	L					
Super Petrol	L					
Kerosene	L					
Structural steel	Mg					
Gabion Mesh	M2					
Reinforcement Steel	Mg					
Explosives	Kg					
Oil and Lubricants	L					
Bitumen Emulsion A3	L					
Bitumen Emulsion A4	L					
Bitumen Emulsion K1	L					
Bitumen Emulsion K3	L					
Bitumen 80/100	Kg					
Bitumen MC 30	ML					
Bitumen MC 70	L					
Bitumen MC 3000	L					
Ammonium nitrate for blasting	Kg					

I certify that the above information is correct.

.....
 (Title)

.....
 (Signature)

.....
 (Date)

The prices inserted above shall be those prevailing 30 days before the submission of Tenders and shall be quoted in Kenya Shillings using the exchange rates specified in the Appendix to Form of Tender.

Prices of imported materials to be quoted CIF Mombasa or Nairobi as appropriate depending on whether materials are imported by the tenderer directly or through a local agent.

Transportation costs for imported materials to be quoted from Mombasa or Nairobi as appropriate to _____ (Contract Site) depending on whether materials are imported directly by the tenderer or through a local agent.

SCHEDULE OF LABOUR: - BASIC RATES
(Reference: Clause 70 of Conditions of Contract)

LABOUR CATEGORY	UNIT (MONTH/SHIFT/HOUR)	RATES

Categories to be generally in accordance with those used by the Kenya Building Construction and Engineering and Allied Trades Workers' Union.

DETAILS OF SUB-CONTRACTORS

If the Tenderer wishes to sublet any portions of the Works under any heading, he must give below details of the sub-contractors he intends to employ for each portion.

Failure to comply with this requirement may invalidate the tender.

(1) Portion of Works to be sublet:

.....

[i] Full name of Sub-contractor
and address of head office:

.....

(ii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
Contract value:

.....

.....

.....

(2) Portion of Works to sublet:

(i) Full name of sub-contractor
and address of head office:

.....

.....

(ii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
contract value:

.....

[Signature of Tenderer)

Date

CERTIFICATE OF TENDERER'S VISIT TO SITE

This is to certify that

[Name/s]

.....

Being the authorized representative/Agent of [Name of Tenderer]

.....

.....

participated in the organized inspection visit of the site of the works for the **(Name of Contract:**
.....)

..... day of.....20.....

Signed.....

(Employer's Representative)

.....

NOTE: This form is to be completed whether the site visit is made at the time of the organized site or privately organized.

FORM OF WRITTEN POWER-OF-ATTORNEY

The Tenderer consisting of a joint venture shall state here below the name and address of his representative who is authorized to receive on his behalf correspondence in connection with the Tender.

.....
(Name of Tenderer's Representative in block letters)

.....
(Address of Tenderer's Representative)

.....
(Signature of Tenderer's Representative)

KEY PERSONNEL

DESIGNATION	NAME	NATIONALITY	SUMMARY OF QUALIFICATIONS AND EXPERIENCE
Headquarters: 1. Director 2. 3. 4. 5. etc.			
Site Office: 1. Site Agent 2. Surveyor 3. Earthwork foreman 4. Concrete works foreman 5. Asphalt foreman etc.			

I certify that the above information is correct.

.....

(Title)

.....

(Signature)

.....

(Date)

**SCHEDULE OF COMPLETED CIVIL WORKS CARRIED OUT BY THE TENDERER
IN THE LAST EIGHT YEARS**

DESCRIPTION OF WORKS AND CLIENT	TOTAL VALUE OF WORKS (KSHS)	CONTRACT PERIOD (YEARS)	YEAR COMPLETED

--	--	--	--

I certify that the above Civil Works were successfully carried out and completed by ourselves.

.....

(Title)

.....

(Signature)

.....

(Date)

*Value in Kshs using Central Bank of Kenya mean exchange rate at a reference date 30 days before date of tender opening.

SCHEDULE OF ONGOING PROJECTS

DESCRIPTION OF WORK AND CLIENT	CONTRACT PERIOD	DATE OF COMMEN- CEMENT	DATE OF COMPLETION	TOTAL VALUE OF WORKS (KSHS.)	PERCENTAGE COMPLETED TO DATE

I certify that the above Civil Works are being carried out by ourselves and that the above information is correct.

.....

(Title)

.....

(Signature)

.....

(Date)

OTHER SUPPLEMENTARY INFORMATION

1. Financial reports for the last five years, balance sheets, profit and loss statements, auditors' reports etc. List them below and attach copies.

.....
.....
.....

2. Evidence of access to financial resources to meet the qualification requirements. Cash in hand, lines of credit etc. List below and attach copies of supporting documents

.....
.....
.....

3. Name, address , telephone, telex, fax numbers of the Tenderer's Bankers who may provide reference if contacted by the Employer.

.....
.....
.....

4. Information on current litigation in which the Tenderer is involved.

OTHER PARTY (IES)	CAUSE OF DISPUTE	AMOUNT INVOLVED (KSHS)

I certify that the above information is correct.

.....
.....

Title

Signature

Date

DECLARATION FORM

Date _____

To _____

The tenderer i.e. (name and address) _____

_____ declare the following:

- a) Has not been debarred from participating in public procurement.
- b) Has not been involved in and will not be involved in corrupt and fraudulent practices regarding public procurement.

Title

Signature

Date

(To be signed by authorized representative and officially stamped)

LETTER OF NOTIFICATION OF AWARD

Address of County Government of Kakamega

To: _____

RE: Tender No. _____

Tender Name _____

This is to notify that the contract/s stated below under the above-mentioned tender have been awarded to you.

1. Please acknowledge receipt of this letter of notification signifying your acceptance.
2. The contract/contracts shall be signed by the parties within 30 days of the date of this letter but not earlier than 14 days from the date of the letter.
3. You may contact the officer(s) whose particulars appear below on the subject matter of this letter of notification of award.

(FULL PARTICULARS) _____

SIGNED FOR INTERIM COUNTY SECRETARY CGK

REPUBLIC OF KENYA

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

.....APPLICANT

AND

.....RESPONDENT (*County Government of Kakamega*)

Request for review of the decision of the..... (*Name of the County Government of Kakamega*) of
.....dated the...day of20.....in the matter of Tender No.....of
.....20...

REQUEST FOR REVIEW

I/We.....,the above named Applicant(s), of address: Physical
address.....Fax No.....Tel. No.....Email, hereby request the Public Procurement
Administrative Review Board to review the whole/part of the above mentioned decision on the following
grounds , namely:-

1.

2.

etc.

By this memorandum, the Applicant requests the Board for an order/orders that: -

1.

2.

etc

SIGNED(Applicant)

Dated on.....day of/...20...

FOR OFFICIAL USE ONLY

Lodged with the Secretary Public Procurement Administrative Review Board on day of
.....20.....

SIGNED

Board Secretary

REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KAKAMEGA

DEPARTMENT OF ROADS, PUBLIC WORKS AND ENERGY

RMLF

CONTRACT NO:

**PROJECT NAME: PROPOSED ROUTINE MAINTANANCE AND
IMPROVEMENT OF LOT 4 ROADS IN MALAVA SUB – COUNTY**

SUBMISSION DATE LINE: 11TH November 2019

Kindly note that manual submissions will not be accepted.

*SITE VISIT: 1st November 2019. (Department of Roads, Public Works and
Energy, Kakamega at 10:00 a.m).*

Telephone: 056-31850/1852/31853

Email: roads@kakamega.go.ke

Website: www.kakamega.go.ke

The chief Officer's Office

P.O. Box 36 – 50100

KAKAMEGA

OCTOBER, 2019

TABLE OF CONTENTS

SECTION I - INVITATION TO TENDERERS'	170
SECTION II - INSTRUCTIONS TO TENDERERS	173
SECTION IV-CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION).....	194
SECTION V-SPECIFIC SPECIFICATIONS.....	226
SECTION VI-DRAWINGS	287
SECTION VII – BILLS OF QUANTITIES	290
SECTION VIII – STANDARD FORMS.....	294

SECTION I - INVITATION TO TENDERERS

DATE: 25th October 2019

Tender reference No.

**PROJECT NAME: PROPOSED ROUTINE MAINTANANCE AND IMPROVEMENT
OF LOT 4 ROADS IN MALAVA SUB – COUNTY**

Tender Name: **PROPOSED ROUTINE MAINTANANCE AND IMPROVEMENT OF LOT
4 ROADS IN MALAVA SUB – COUNTY**

The *County Government of Kakamega* invites interested eligible candidates for : **PROPOSED
ROUTINE MAINTANANCE AND IMPROVEMENT OF LOT 4 ROADS IN MALAVA
SUB – COUNTY**

Details of the required information can be downloaded **FREE OF CHARGE** from the County Website:
www.kakamega.go.ke or from Public Procurement Information Portal www.tenders.go.ke

Prices quoted should be net inclusive of all taxes, expressed in Kenya shillings and shall remain valid for a period of **120 days** from the closing date.

Tenders must be accompanied by a Tender Security of **Ksh. 120,000.00** in form of a guarantee from a reputable bank or an insurance company approved by Public Procurement Regulatory Authority (PPRA).

Completed tender documents **MUST** be submitted online through suppliers' portal by use of the respective negotiation numbers so as to be received on or before Monday 11th November 2019 by 11:00AM.

Kindly note that manual submissions will not be accepted.

County Head of Supply Chain Management.

FOR: ACCOUNTING OFFICER.

ROADS, PUBLIC WORKS AND ENERGY

FORM OF INVITATION FOR TENDERS

Date 25th October 2019

To: _____

Dear Sir/ Madam,

Tender reference No

Tender Name: **PROPOSED ROUTINE MAINTANANCE AND IMPROVEMENT OF LOT
4 ROADS IN MALAVA SUB – COUNTY**

We hereby invite tenderers to submit a tender for the execution and completion of the above Contract.

A complete set of tender documents may be downloaded from the County Website at no cost.

All tenders must be submitted on – line through the supplier portal and a security in the form and amount specified in the tendering documents, on or before **11th November 2019 at 11:00am.**

Yours faithfully,

County Head of Supply Chain Management.

FOR: ACCOUNTING OFFICER.

SECTION II - INSTRUCTIONS TO TENDERERS

TABLE OF CLAUSES

<u>CLAUSE NUMBERS</u>	<u>DESCRIPTION</u>
<u>PAGE</u>	

GENERAL

31.	Definitions.....	6
32.	Eligibility and Qualification Requirements	6
33.	Cost of Tendering	7
34.	Site Visit	8

TENDER DOCUMENT

35.	Tender Documents	8
36.	Clarification of Tender Documents	9
37.	Amendments of Tender Documents	9

PREPARATION OF TENDER

38.	Language of Tender	10
39.	Documents Comprising the Tender	10
40.	Tender Prices	10
41.	Currencies of Tender and Payment	11
42.	Tender Validity	12
43.	Tender Surety	12
44.	No Alternative Offers	13
45.	Pre-tender meeting	13
46.	Format and Signing of Tenders	14

SUBMISSION OF TENDERS

47.	Sealing and Marking of Tenders	14
48.	Deadline and Submission of Tenders	15
49.	Modification and Withdrawal of Tenders	15

TENDER OPENING AND EVALUATION

50.	Tender Opening	16
51.	Process to be Confidential	16
52.	Clarification of Tenders	16

53.	Determination of Responsiveness	17
54.	Correction of Errors	17
55.	Conversion to Single Currency	18
56.	Evaluation and Comparison of Tenders	19
<u>AWARD OF CONTRACT</u>		
57.	Award Criteria	20
58.	Notification of Award	20
59.	Performance Guarantee	21
60.	Advance Payment	21
Appendix to Instructions to Tenderness		22

INSTRUCTION TO TENDERERS

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

GENERAL

1. Definitions

- (e) “Tenderer” means any persons, partnership firm or company submitting a sum or sums in the Bills of Quantities in accordance with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications, Drawings and Bills of Quantities for the work contemplated, acting directly or through a legally appointed representative.
- (f) “Approved tenderer” means the tenderer who is approved by the Employer
- (g) Any noun or adjective derived from the word “tender” shall be read and construed to mean the corresponding form of the noun or adjective “bid”. Any conjugation of the verb “tender” shall be read and construed to mean the corresponding form of the verb “bid.”
- (h) “Employer” means a Central Government Ministry, County Government, State Corporation or any other Public Institution.

2. Eligibility and Qualification Requirements

2.4 Eligibility requirements

This invitation to tender is open to all tenderers who are qualified as stated in the appendix.

2.5 Qualification Requirements

To be qualified for award of Contract, the tenderer shall provide evidence satisfactory to the Employer of their eligibility under Sub clause 2.1. above and of their capability and adequacy of resources to effectively carry out the subject Contract. To this end, the tenderer shall be required to update the following information already submitted during prequalification: -

- (g) Details of experience and past performance of the tenderer on the works of a similar nature and details of current work on hand and other contractual commitments.
- (h) The qualifications and experience of key personnel proposed for administration and execution of the contract, both on and off site.
- (i) Major items of construction plant and equipment proposed for use in carrying out the Contract. Only reliable plant in good working order and suitable for the work required of it shall be shown on this schedule. The tenderer will also indicate on this schedule when each item will be available on the Works. Included also should be a schedule of plant,

equipment and material to be imported for the purpose of the Contract, giving details of make, type, origin and CIF value as appropriate.

- (j) Details of sub-contractors to whom it is proposed to sublet any portion of the Contract and for whom authority will be requested for such subletting in accordance with clause 4 of the Condition of Contract.
- (k) A draft Program of Works in the form of a bar chart and Schedule of Payment which shall form part of the Contract if the tender is accepted. Any change in the Program or Schedule shall be subjected to the approval of the Engineer.
- (l) Details of any current litigation or arbitration proceedings in which the tenderer is involved as one of the parties.

2.6 Joint Ventures

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

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

3. Cost of Tendering

- 3.4 The Tenderer shall bear all costs associated with the preparation and submission of his tender and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.
- 3.5 The price to be charged for the tender document shall be NIL (no charge will be requested for this particular tender).
- 3.6 The County Government of Kakamega shall allow the tenderer to view the tender document free of charge.

4. Site Visit

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

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

TENDER DOCUMENTS

5 Tender Documents

- 5.4 The Tender documents comprise the documents listed here below and should be read together with any Addenda issued in accordance with Clause 7 of these instructions to tenderers.
- p. Form of Invitation for Tenders
 - q. Instructions to Tenderers
 - r. Form of Tender
 - s. Appendix to Form of Tender
 - t. Form of Tender Surety
 - u. Statement of Foreign Currency Requirements (Where applicable)
 - v. Tender and Confidential Business Questionnaires
 - w. Details of Sub contractors
 - x. Schedules of Supplementary Information
 - y. General Conditions of Contract – Part I
 - z. Conditions of Particular Application – Part II
 - aa. Specifications
 - bb. Bills of Quantities
 - cc. Drawings
 - dd. Declaration Form
- 5.5 The tenderer is expected to examine carefully all instructions, conditions, forms, terms, specifications and drawings in the tender documents. Failure to comply with the requirements for tender submission will be at the tenderer's own risk. Pursuant to clause 22 of Instructions to Tenderers, tenders which are not substantially responsive to the requirements of the tender documents will be rejected.
- 5.6 All recipients of the documents for the proposed Contract for the purpose of submitting a tender (whether they submit a tender or not) shall treat the details of the documents as "private and confidential".

7 Inquiries by tenderers

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

7. Amendment of Tender Documents

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

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

In order to allow prospective tenderers reasonable time in which to take the Addendum into account in preparing their tenders, the Employer may, at his discretion, extend the deadline for the submission of tenders.

PREPARATION OF TENDERS

8. Language of Tender

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

9. Documents Comprising the Tender

The tender to be prepared by the tenderer shall comprise:

- vi. the Form of Tender and Appendix thereto,
- vii. a Tender Security as prescribed
- viii. the Priced Bills of Quantities and Schedules
- ix. the information on eligibility and qualification
- x. any other materials required to be completed and submitted in accordance with the Instructions to Tenderers.

The Forms, Bills of Quantities and Schedules provided in the tender documents shall be used without exception (subject to extensions of the schedules in the same format and to the provisions of clause 13.2 regarding the alternative forms of Tender Surety).

10. Tender Prices

All the insertions made by the tenderer shall be made in INK and the tenderer shall clearly form the figures. The relevant space in the Form of Tender and Bills of Quantities shall be completed accordingly without interlineations or erasures except those necessary to correct errors made by the tenderer in which case the erasures and interlineations shall be initialed by the person or persons signing the tender.

A price or rate shall be inserted by the tenderer for every item in the Bills of Quantities whether the quantities are stated or not. Items against which no rate or price is entered by the tenderer will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bills of Quantities.

The prices and unit rates in the Bills of Quantities are to be the full [all-inclusive] value of the Work described under the items, including all costs and expenses which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause prior to the deadline for submission of tenders, shall be included in the rates and prices and the total Tender Price submitted by the tenderer.

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

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

Unless otherwise specified the tenderer must enter the amounts representing 7.5% of the sub-total of the summary of the Bills of Quantities for Contingencies and Variation of Prices [V.O.P.] payments in the summary sheet and add them to the sub-total to arrive at the tender amount.

The tenderer shall furnish with his tender written confirmation from his suppliers or manufacturers of basic unit rates for the supply of items listed in the Conditions of Contract clause 70 where appropriate. The Employer may require the tenderer to justify such rates so obtained from the suppliers or manufacturers.

The rates and prices quoted by the tenderer are subject to adjustment during the performance of the Contract only in accordance with the Provisions of the Conditions of Contract. The tenderer shall complete the schedule of basic rates and shall submit with his tender such other supporting information as required under clause 70 of the Conditions of Contract Part II.

Contract price variations shall not be allowed within the first 12 months of the contract.

Where quantity contract variation is allowed, the variation shall not exceed 15% of the original contract quantity.

Price variation requests shall be processed by the County Government of Kakamega within 30 days of receiving the request.

14. Currencies of Tender and Payment

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

15. Tender Validity

- a. The tender shall remain valid and open for acceptance for a period of sixty (60) days from the specified date of tender opening or from the extended date of tender opening (in accordance with clause 7.4 here above) whichever is the later.
- b. In exceptional circumstances prior to expiry of the original tender validity period, the Employer may request the tenderer for a specified extension of the period of validity. The request and the responses thereto shall be made in writing or by cable, telex or facsimile. A tenderer may refuse the request without forfeiting his Tender Surety. A tenderer agreeing to the request will not be required nor permitted to modify his tender, but will be required to extend the validity of his Tender Surety correspondingly.

16. Tender Security

- a. The tenderer shall furnish as part of his tender, a Tender Security in the amount and form stated in the Appendix to Instructions to Tenderers.
- b. The tender security shall not exceed 2 percent of the tender price.

13.3 The Tender Security shall be valid at least thirty (30) days beyond the tender validity period.

13.7 Any tender not accompanied by an acceptable Tender Surety will be rejected by the Employer as non-responsive.

13.8 The Tender Sureties of unsuccessful tenderers will be returned as promptly as possible but not later than twenty eight (28) days after expiration of the tender validity period. The Tender Surety of the successful tenderer will be returned upon the tenderer executing the Contract and furnishing the required Performance Security.

- 13.9 The Tender Surety may be forfeited:
- d) if a tenderer withdraws his tender during the period of tender validity; or
 - e) in the case of a successful tenderer, if he fails, within the specified time limit
 - i. to sign the Agreement, or
 - ii. to furnish the necessary Performance Security
 - f) if a tenderer does not accept the correction of his tender price pursuant to clause 23.

15 No Alternative Offers

22.3 The tenderer shall submit an offer which complies fully with the requirements of the tender documents unless otherwise provided for in the appendix.

Only one tender may be submitted by each tenderer either by himself or as partner in a joint venture. A tenderer who submits or participates in more than one tender will be disqualified.

22.4 The tenderer shall not attach any conditions of his own to his tender. The tender price must be based on the tender documents. The tenderer is not required to present alternative construction options and he shall use without exception, the Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price. Any tenderer who fails to comply with this clause will be disqualified.

23 Pre-tender Meeting

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

24 Format and Signing of Tenders

- 24.1 The copy of the tender and Bills of Quantities shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer. All pages of the tender where amendments have been made shall be initialed by the person or persons signing the tender.
- 24.2 The complete tender shall be without alterations, interlineations or erasures, except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person or persons signing the tender.

SUBMISSION OF TENDERS

25 Deadline for Submission of Tenders

- 25.1 Tenders must be received by the Employer at the address specified in clause 17.2 and on the date and time specified in the Letter of Invitation, subject to the provisions of clause 7.4, 18.2 and 18.3.
- 25.2 The Employer may, at his discretion, extend the deadline for the submission of tenders through the issue of an Addendum in accordance with clause 7, in which case all rights and

obligations of the Employer and the tenderers previously subject to the original deadline shall thereafter be subject to the new deadline as extended.

- 25.3 Any tender received by the Employer after the prescribed deadline for submission of tender will be returned unopened to the tenderer.

26 Modification and Withdrawal of Tenders

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

27 Determination of Responsiveness

- 27.1 Prior to the detailed evaluation of tenders, the Employer will determine whether each tender is substantially responsive to the requirements of the tender documents.
- 27.2 For the purpose of this clause, a substantially responsive tender is one which conforms to all the terms, conditions and specifications of the tender documents without material deviation or reservation. A material deviation or reservation is one which affects in any

substantial way the scope, quality, completion timing or administration of the Works to be undertaken by the tenderer under the Contract, or which limits in any substantial way, inconsistent with the tender documents, the Employer's rights or the tenderers obligations under the Contract and the rectification of which would affect unfairly the competitive position of other tenderers who have presented substantially responsive tenders.

- 27.3 Each price or unit rate inserted in the Bills of Quantities shall be a realistic estimate of the cost of completing the works described under the particular item including allowance for overheads, profits and the like. Should a tender be seriously unbalanced in relation to the Employer's estimate of the works to be performed under any item or groups of items, the tender shall be deemed not responsive.
- 27.4 A tender determined to be not substantially responsive will be rejected by the Employer and may not subsequently be made responsive by the tenderer by correction of the non-conforming deviation or reservation.

28 Conversion to Single Currency

- 28.1 For compensation of tenders, the tender price shall first be broken down into the respective amounts payable in various currencies by using the selling rate or rates of the Central Bank of Kenya ruling on the date twenty one (21) days before the final date for the submission of tenders.
- 28.2 The Employer will convert the amounts in various currencies in which the tender is payable (excluding provisional sums but including Day works where priced competitively) to Kenya Shillings at the selling rates stated in clause 25.1.

29 Evaluation and Comparison of Tenders

- 29.1 The Employer will evaluate only tenders determined to be substantially responsive to the requirements of the tender documents in accordance with clause 23.
- 29.2 In evaluating tenders, the Employer will determine for each tender the evaluated tender price by adjusting the tender price as follows:
- (c) Making any correction for errors pursuant to clause 24.
 - (d) Excluding Provisional Sums and provision, if any, for Contingencies in the Bills of Quantities, but including Day works where priced competitively.
- 29.3 The Employer reserves the right to accept any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the

requirements of the tender documents or otherwise result in the accrual of unsolicited benefits to the Employer, shall not be taken into account in tender evaluation.

- 29.4 Price adjustment provisions in the Conditions of Contract applied over the period of execution of the Contract shall not be taken into account in tender evaluation.
- 29.5 If the lowest evaluated tender is seriously unbalanced or front loaded in relation to the Employer's estimate of the items of work to be performed under the Contract, the Employer may require the tenderer to produce detailed price analyses for any or all items of the Bills of Quantities, to demonstrate the relationship between those prices, proposed construction methods and schedules. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in clause 29 be increased at the expense of the successful tenderer to a level sufficient to protect the Employer against financial loss in the event of subsequent default of the successful tenderer under the Contract.
- 29.6 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding provisional sums to a non-indigenous sub-contractor.
- 29.7 Preference where allowed in the evaluation of tenders shall not exceed 15%. Preference of 15% will be adjusted for youth, women and persons with disabilities on evaluated bidders.
- In other cases where the difference in price is negligible (margin of 5%, Kakamega residents may be preferred.
- 29.8 The County Government of Kakamega may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.
- 29.9 The County Government of Kakamega 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.
- 29.10 A tenderer who gives false information in the tender document about its qualification or who refuses to enter into a contract after notification of contract award shall be considered for debarment from participating in future public procurement.
- 29.11 Poor past performance shall not be used as an evaluation criteria unless specifically provided for in the appendix.

TENDER EVALUATION CRITERIA

Tenders will be evaluated in 3 stages:

- d) Preliminary Examination
- e) Technical Examination
- f) Financial Evaluation.

PRELIMINARY EXAMINATION (MANDATORY REQUIREMENTS)

- 11. Copy of Valid Tax Compliance Certificate.
- 12. Copy of Certificate of Incorporation/ Registration.
- 13. Dully filled and signed Form of Tender.
- 14. Bid security of Ksh 120,000.00
- 15. Dully filled and signed Confidential Business Questionnaire.
- 16. Dully filled and signed Bill of Quantities.
- 17. Copy of CR12 to confirm company Directors.
- 18. Copy of valid registration certificate from the National Construction Authority (NCA 8 and above) in road/civil engineering works.
- 19. Duly filled and signed site visit certificate
- 20. Duly filled and Signed declaration form

The tenderers who do not satisfy any of the above requirements shall be considered Non-Responsive and their tenders will not proceed for technical.

TECHNICAL EVALUATION

The award of points in this section shall be as shown below:

ITEM	DESCRIPTION	SCORES	MAX-POINTS

1	Experience as main contractor in works of a similar nature and size completed over the last five years(similar works completed in the last five(5)years (Attach a completion certificates.) 5 Projects and above successfully completed 4 Projects successfully completed 3 Projects successfully completed 2 Projects successfully completed 1 Projects successfully completed None or no relevant project	20 16 12 8 4 0	20
2	Names and address of client who may be contacted for further information on the completed projects (Name, firm, postal address, email address, Tel/Mobile. No. etc 4 Clients and above 3 Clients and above 2 Clients and above 1 Clients and above None	4 3 2 1 0	4
3	Major items of construction equipment proposed to carry out the contract(owned, leased or hired) and undertaking that they will be available for the contract ie schedule of contractor's equipment but not limited to the listed items below: Attach log books for vehicles, purchase receipts for equipment or lease agreements) Earthworks machines(at least 5) Transportation equipment Any other relevant construction equipment	20	20

4	Qualifications and experience of key site management and technical personnel proposed for the contract and an undertaking that they shall be available for the contract ie qualifications and experience of key personnel. (Attach signed CV'S)	20	20
5	Financial Capabilities <u>Annual Turnover</u> Provide audited reports for last 3 Assessment of adequate current bank statement for the last 6 months <u>Credit worthiness</u> Letter of credit to show assess credit	10 6	16
7	Submit <u>Detailed</u> work schedule (indicate project duration)	10	10
8	Authority to seek references from the tenderers bankers with details of Name, address, and telephone numbers and account numbers.	2	2
9	Litigation and arbitration history. Information regarding any litigation , current or during the last five years, in which the tenderer is involved , the parties concerned and disputed amount(Provide affidavit)	3	3
10	Schedule of Rates (Materials & Labour)	5	5
	TOTAL SCORE (Pass Mark 75%)		100

FINANCIAL EVALUATION

The lowest evaluated bidder will be recommended for award, based on tender sum comparison.

AWARD OF CONTRACT

31 Award Criteria

- 31.1 Subject to Sub-clause 27.2, the Employer will award the Contract to the tenderer whose tender is determined to be substantially responsive to the tender documents and who has offered the lowest evaluated tender price subject to possessing the capability and resources to effectively carry out the Contract Works as required in Sub-clause 2.1 and 2.2 hereabove.
- 31.2 The Employer reserves the right to accept or reject any tender, and to annul the tendering process and reject all tenders, at any time prior to award of Contract, without thereby incurring any liability to the affected tenderers or any obligation to inform the affected tenderers of the grounds for the Employer's action.

32 Notification of Award

- 32.1 Prior to the expiration of the period of tender validity prescribed by the Employer, the Employer will notify the successful tenderer by cable, telefax or telex and confirmed in writing by a letter that his tender has been accepted. This letter (hereinafter and in all Contract documents called "Letter of Acceptance") shall name the sum (hereinafter and in all Contract documents called "the Contract Price") which the Employer will pay to the Contractor in consideration of the execution and completion of the Works as prescribed by the Contract.
- 32.2 At the same time that the Employer notifies the successful tenderer that his tender has been accepted, the Employer shall notify the other tenderers that the tenders have been unsuccessful.
- 32.3 Within fourteen [14] days of receipt of the Form of Contract Agreement from the Employer, the successful tenderer shall sign the form and return it to the Employer together with the required Performance Security.
- 32.4 The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.

33 Performance Guarantee

- 33.1 Within twenty eight [28] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with a Performance Security in the amount stated in the Appendix to Instructions to Tenderers and in the format stipulated in the Conditions of Contract.
- 33.2 The Performance Security to be provided by the successful tenderer shall be an unconditional Bank Guarantee issued at the tenderer's option by a reputable Bank approved by the Employer and located in the Republic of Kenya and shall be divided into two elements namely, a performance security payable in foreign currencies (based upon the exchange rates determined in accordance with clause 60(5) of the Conditions of Contract) and a performance security payable in Kenya Shillings. The value of the two securities shall be in the same proportions of foreign and local currencies as requested in the form of foreign currency requirements.
- 33.3 Failure of the successful tenderer to lodge the required Performance Security shall constitute a breach of Contract and sufficient grounds for the annulment of the award and forfeiture of the Tender Security and any other remedy under the Contract. The Employer may award the Contract to the next ranked tenderer.

34 Advance Payment

An advance payment, if approved by the Employer, shall be made under the Contract, if requested by the Contractor, in accordance with clause 60(1) of the Conditions of Contract. The Advance Payment Guarantee shall be denominated in the proportion and currencies named in the form of foreign currency requirements. For each currency, a separate guarantee shall be issued. The guarantee shall be issued by a Bank located in the Republic of Kenya, or a foreign Bank through a correspondent Bank located in the Republic of Kenya, in either case subject to the approval of the Employer.

30 Corrupt or fraudulent practices

- 30.1 The County Government of Kakamega requires that tenderers observe the highest standard of ethics during the procurement process and execution of contracts. A tenderer shall sign a declaration that he has not and will not be involved in corrupt or fraudulent practices.

CLAUSE

13 Tender Security

Amount of Tender Security is as stipulated in the tender document.

- 16 (i) The name and address of the Employer for the purposes of submission of tenders is as indicated on the cover page.
- (ii) The name of the proposed Works and where available the Contract Number is as per cover page.
- (iii) The tender opening date and time remains as indicated above.

28 Performance Guarantee

The amount of Performance Security is Ksh 10%. A bank guarantee of ten (10) percent of the Contract Price is acceptable.

- 30.2 past performances will be considered before making final decision on recommendation to award.

Close 26.7 See the preference guidelines on Youth, Women and Persons with disabilities and Kakamega Residents

CONDITIONS OF CONTRACT, PART I – GENERAL CONDITIONS

The Conditions of Contract, Part I – General Conditions, shall be those forming Part I of the “Conditions of Contract for works of Civil Engineering Construction, First Edition 1999, prepared by the Federation Internationale des Ingenieurs – conseils (FIDIC). The Conditions are subject to variations and additions set out in Part II hereof entitled “Conditions of Contract, Part II - Conditions of Particular Application”.

Note

- iv. The standard text of the General Conditions of Contract must be retained intact to facilitate its reading and interpretation by tenderers. Any amendments and additions to the General Conditions, specific to a given Contract, should be introduced in the Conditions of Particular Application or in the Appendix to Form of Tender.
- v. The Conditions of Particular Application take precedence over the General Conditions of Contract.
- vi. Copies of the FIDIC Conditions of Contract can be obtained from:

FIDIC Secretariat

P.O. Box 86

1000 Lausanne 12

Switzerland

Fax: 41 21 653 5432

Telephone: 41 21 653 5003

SECTION IV-CONDITIONS OF CONTRACT PART II
(PARTICULAR APPLICATION)

(CONDITIONS OF

TABLE OF CLAUSES

CLAUSE NUMBERS	DESCRIPTION	PAGE
1.	Definitions and interpretation.....	25
2.	Engineer's Duties and Authority.....	25
4.	Assignment and sub-contracting.....	25
5.	Contract Document	26
10	Performance security	27
11	Inspection of Site	27
14	Programme to be submitted	28
15	Contractor's superintendence	28
16	Engineers at liberty to object.....	29
19	Safety, security and profession of the environment	29
21	Insurance of works and contractors equipment.....	30
23	Third Party Insurance	30
25	Insurance notices	31
26	Compliance with statutes and regulations	31
28	Royalties.....	31
29	Interference with traffic and Adjoining properties.....	31
34	Labour.....	32
41	Commencement and delays.....	34
42	Possession of site.....	34
45	Working hours.....	35
47	Liquidated damage.....	35
49	Defects liability.....	35
52	Variations.....	35

54	Plant, Temporary works and materials.....	36
55	Quantities.....	36
56	Measurements	36
58	Provisional sums.....	37
60	Certificate and payments.....	37
63	Remedies.....	43
65	Special Risks.....	44
67	Settlement of Disputes.....	44
68	Notices.....	44
69	Default of Employer.....	45
70	Changes in cost and legalization.....	45
73	Declaration Against waiver.....	47
74	Bribery and collusion	47
75	Contract Confidential	48
76	Employer's officers.....	48
77	Taxes and duties.....	48
78	Joint Ventures	49

CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION)

GENERAL

The Conditions of Contract Part II – Conditions of Particular Application, modify and compliment like-numbered clauses in the Conditions of Contract Part I – General Conditions. Both Parts shall be read together, with the Conditions of Particular Application prevailing in case of conflict or discrepancy. Clauses of the General Conditions not specifically modified and supplemented shall remain in effect.

Clause No.

Definitions and Interpretation

1.1 (a)(i) The said “Employer” shall be the County Government of Kakamega represented by the department and authority indicated on the cover page.

(v) The said “Engineer” shall be _____ (*Name of the Engineer*) or any other competent person appointed by the Employer, and notified to the Contractor, to act in replacement of the Engineer.

(b)(i) Insert in line 2 after “the Bills of Quantities”, the following, “the rates entered by the Contractor (whether or not such rate be employed in computation of the Contract Price)”.

Add the following sub-clause;

Engineer’s Duties and Authority

2.1 (b) The Engineer shall obtain specific approval of the Employer before taking any of the following actions specified in Part I:

(vi) Consenting to the sub-letting of any part of the Works under clause 4.

(vii) Certifying additional cost determined under Clause 12

(viii) Determining an extension of time under Clause 44

(ix) Issuing a variation under Clause 51 except in an emergency situation as reasonably determined by the Engineer.

(x) Fixing rates or prices under clause 52

4 Assignment and Subcontracting

4.2 Delete the second and third sentence and substitute:

No single subcontract may be for more than 20 percent of the Contract Price nor shall the sum of all subcontracts exceed 25 percent of the Contract price. No one subcontractor may be awarded subcontracts to a total value greater than 10 percent of the Contract Price. All subcontracts greater than 2 percent of the Contract Price are to have the prior consent of the Engineer. The Contractor shall however, not required such consent for purchases of materials or to place contracts for minor details or for any part of the Works of which the manufacturer of supplier is named in the Contract. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any subcontractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.

5 **Contract Documents**

5.1 (a) The language governing this Contract shall be English.

The “Ruling Language” which shall be used to interpret this Contract shall be English. Communication between the Contractor and Engineer or Engineer’s representative shall be in English.

(c) The law applicable to this Contract shall be the laws of the Republic of Kenya. Except to the extent otherwise provided by the Contract, the Kenyan courts shall have exclusive jurisdiction to hear and to determine all actions and proceedings in connection with and arising out of the Contract, and the Contractor shall submit to the jurisdiction of Kenyan courts for the purpose of any such actions and proceedings.

5.3 Delete the documents listed 1-6 and substitute:

- (3) The Contract Agreement;
- (4) The Notification of Award;
- (12) Tender and Appendix to Form of Tender;
- (13) The Conditions of Contract Part II;
- (14) The Conditions of Contract Part I (FIDIC);
- (15) The Special Specifications;
- (16) The Standard Specifications for Road and Bridge Construction, MOTC – 1986;
- (17) Clarifications and rectifications accepted by the Employer; and
- (18) The Drawings;
- (19) The priced Bills of Quantities; and
- (20) Schedules and other documents forming part of the Contract.

8.2 Add to sub clause 8.1 the following:

- (c) Within 28 days after receipt of the Engineer's order to commence the Works, the Contractor shall establish an office at the Site duly equipped for the Contractor's representative and his supervisory personnel.

The Contractor shall maintain this office throughout the Contract period. The said office shall be the legal domicile of the Contractor, and all correspondence sent to this office shall be deemed to have been sent to the Contractor's head office.

- (d) A foreign Contractor or a Kenya-foreign joint venture, if not registered in Kenya under the applicable laws of Kenya, shall undertake registration upon receipt of the letter of acceptance and prior to signing of the Contract.

10.4 Performance Security

In lines 1, 2 and 3 delete the words "If the Contract... within 28 days" and substitute "The Contractor shall obtain a Performance Security within 28 days"

Add the following at the end of this Sub-Clause: -

The Performance Security shall be issued by a Bank incorporated in Kenya. The amount of guarantee shall be as stated in the Appendix to Form of Tender.

The bank guarantee, shall be issued either (a) by an established and reputable bank approved by the Employer and located in Kenya or a foreign bank through a correspondent established and reputable bank located in Kenya and approved by the Employer or (b) directly by a foreign bank acceptable to the Employer. The performance security shall normally be in the currency or currencies requested for payment by the Contractor and in the same proportions as those requested for payment in the Contract.

The performance security may, subject to the approval of

The Engineer, be adjusted at the end of each period of 12 months to reflect the residual value of the Contract Works.

10.5

The performance guarantee shall be valid until a date 28 Days after the date of issue of the Taking-Over Certificate.

The security shall be returned to the Contractor within 28

Days of the expiration.

10.6 Delete sub-clause 10.3

11.1 Inspection of Site

Add the words “and the Contractor shall be deemed to have based his tender on all the aforementioned” after the words “affect his tender”.

Delete the last paragraph completely and replace with the following:

“The Employer in no way guarantees completeness nor accuracy of the soil, materials, subsurface and hydrological information made available to the Contractor at the time of tendering or at any other time during the period of the Contract, and the Contractor shall be responsible for ascertaining for himself all information as aforesaid for the execution of Works and his tender shall be deemed to have been priced accordingly.

15.3 Programme to be Submitted

The time within which the Programme shall be submitted shall be fourteen (14) days. This detailed Programme shall be based upon the Programme submitted by the Contractor as part of his tender and shall, in no material manner, deviate from the said Programme.

The program shall be in the form of a Critical Path Method Network (CPM Network) showing the order of procedure and a description of the construction methods and arrangements by which the Contractor proposes to carry out the works .It should also be supplemented by a time -bar chart of the same program. The program shall be coordinated with climatic, groundwater and other conditions to provide for completion of the works in the order and by the time specified. The program shall be revised at three-month intervals and should include a chart of the principle quantities of work forecast for execution monthly.

During the execution of the works, the Contractor shall submit to the Engineer full and detailed particulars of any proposed amendments to the arrangements and methods submitted in accordance with the foregoing.

If details of the Contractors proposals for Temporary Works are required by the Engineer for his own information the Contractor shall submit such details within fourteen days of being requested to do so.

The Contractor shall allow in his Programme for the following public holidays per calendar year in Kenya upon which the Contractor shall not be permitted to work

New Year's Day (1st January)

Good Friday

Easter Monday

Labour Day (1st May)

Madaraka Day (1st June)

Idd-Ul-Fitr

Mashujaa Day (20th October)

Jamhuri Day (12th December)

Christmas Day (25th December)

Boxing Day (26th December)

The Contractor should also allow per calendar year for a further 2 unspecified public holidays which may be announced by the Government of Kenya with no prior notification, and upon which he shall not be permitted to work.

15.4

Add the following at the end of this sub clause:-

The Employer shall have the right to withhold payment at any time if the Contractor fails to submit the contractual construction programmes in accordance with sub clause 14.1 above or revise construction programmes due to his negligence, failure or omission.

15.5

Cash Flow Estimate to be Submitted

The time limit within which a detailed cash flow estimate is to be submitted shall be fourteen (14) days.

In preparing the estimates, the Contractor shall make provision for Advance payment, repayment of advance, retention, payment for services provided by the Employer and timing implications of sub clause 60 – Certificates and Payments.

16 Contractor's Superintendence

Add the following at the end of the first paragraph of sub-clause 15.1:

- 16.1 The Contractor shall, within seven (7) days of receipt of the Engineer's order to commence the Works, inform the Engineer in writing, the name of the Contractor's representative and the anticipated date of his arrival on Site.

Add the following sub-clause 15.2:

- 16.2 The Contractor's agent or representative on the Site shall be an Engineer registered by the Engineer's Registration Board of Kenya in accordance with the Laws of Kenya cap. 530 or have equivalent status approved by the Engineer and shall be able to read, write and speak English fluently.

16.4 Engineer at Liberty to object

At the end of this clause add "by a competent substitute approved by the Engineer at the Contractor's own expense".

The Contractor is encouraged to the extent practicable and reasonable, to employ staff and Labour with appropriate qualifications who are Kenyan citizens.

16.5 Employment of local personnel

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience who are Kenya citizens.

Safety, Security and Protection of the Environment

- 19.2 Add at the end of sub clause 19.1 the following: -

The formulation and enforcement of an adequate safety program shall be the obligation of the Contractor with respect to all the Works under this Contract, regardless of whether performed by the Contractor or his subcontractors. The Contractor shall, within 14 days after commencement of the Works, meet the Engineer to present and discuss his plan for the establishment of such safety measures as may be necessary to provide against accidents, unsafe acts and so forth. Within 28 days after commencement of the Works, the Contractor shall submit a written safety program to the Engineer covering the overall Works and based on the laws and regulations of Kenya. In addition, he shall prepare special safety programs for blasting and handling of explosives as stipulated in the General and Special Specifications.

Notwithstanding the foregoing, the Contractor shall observe the following measures with a view to reducing or eliminating adverse environmental effects by the Site Works:

- (vii) All queries and borrow pits shall be filled and landscaped to their original state after extraction of construction material
- (viii) Soil erosion due to surface runoff or water from culverts or other drainage structures should be avoided by putting in place proper erosion control measures that shall include, but not limited to grassing, planting of trees, gabions etc.
- (ix) Long traffic diversion roads shall be avoided so as to minimize the effect of dust on the surrounding environment. In any case, all diversions shall be kept damp and dust free at the Contractor's expense.
- (x) Spillage of oils, fuels and lubricants shall be avoided and if spilt, shall be collected and disposed of in such a way as not to adversely affect the environment.
- (xi) Rock blasting near settlement areas shall be properly coordinated with the relevant officers of the Government so as to minimize noise pollution and community interference.
- (xii) Dumping shall be done only at designated dumping areas and not haphazardly on surroundings.

Insurance of Works & Contractor's Equipment

- 21.1 (a) Delete the first sentence of this clause and replace with the following:

“Prior to commencement of the Works the Contractor shall, without limiting his or the Employer's obligations and responsibilities under Clause 20, insure to the satisfaction of the Employer.”

- (b) Add the following words at the end of sub - paragraph (a) and Immediately before the last word in (b)

“it being understood the insurance shall provide for compensation to be payable in the types and proportions of the currencies required to rectify the loss or damage incurred.”

In sub clause 21.1(b), delete the words “or as may be specified in Part II of these Conditions”.

21.3 (a) Delete the words “from the start of Work at the Site” and substitute with the words “from the first working day after the commencement date”

(c) Add the following sub-clause: “It shall be the responsibility of the Contractor to notify the insurance company of any change in the nature and extent of the Works and to ensure the adequacy of the insurance coverage at all times during the period of the Contract”.

23.3 Third Party Insurance

Add the following at the beginning of this sub-clause: -

“Prior to commencement of the Works

23.4 Minimum Amount of Insurance

Add the following at the end of this sub-clause: -

“ with no limits to the number of occurrences.”

25.2 Insert the words “as soon as practicable after the respective insurances have been taken out but in any case” before the words “Prior to the start of Work at the Site”

Add the following sub-clauses 25.5 to 25.7

25.8 Insurance Notices

Each policy of insurance effected by the Contractor for the purpose of the

Contract shall include a provision to the effect that the Insurer shall have a duty to give notice in writing to the Contractor and Employer of the date when a premium becomes payable not more than thirty (30) days after the giving of such notice.

25.9 **Re-insurance in Kenya**

The risks against which the Contractor is obliged to insure under the Contract shall be insured through established and reputable companies approved by the Employer and located in Kenya and any cover against risks which the Contractor may enjoy shall be reinsured in Kenya by an approved Kenyan Insurance Company In respect of the Contractor's obligations under the Contract.

- 25.10 It shall be the responsibility of the Contractor to notify the insurers under any of the insurances referred or event which by the terms of such insurances are required to be so notified and the Contractor shall indemnify and keep indemnified the Employer against all losses, claims, demands, proceedings, costs, charges and expenses whatsoever arising out of or in consequence of any default by the Contractor in complying with the requirements of this sub clause whether as a result of avoidance of such insurance or otherwise.

27. **Compliance with Statutes, Regulations**

Add the following sub-clause 26.2;-

The Employer will repay or allow to the Contractor all such sums as the Engineer shall certify to have been properly payable and paid by the Contractor in respect of such fees. Provided always that, without prejudice to sub clause, nothing contained in this clause shall be deemed to render the Employer liable to all claims which may be considered to fall within the provisions of clause 22.1.

Royalties

- 28.3 Add the following at the end of this sub-clause;

“The Contractor shall also be liable for all payments or compensation, if any, that are levied in connection with the dumping of part or all of any such material.”

Interference with Traffic and Adjoining Properties

- 29.3 Add new sub-clause 29.2;

The Contractor shall reinstate all properties whether public or private which

are damaged in consequence of the construction and maintenance of the Works to a condition at least equal to that prevailing before his first entry on them.

If in the opinion of the Engineer the Contractor shall have failed to take reasonable and prompt action to discharge his obligations in the matter of reinstatement, the Engineer will inform the Contractor in writing of his opinion, in which circumstances the Employer reserves the right to employ others to do the necessary work of reinstatement and to deduct the cost thereof from any money due or to become due to the Contractor.

The Contractor shall promptly refer to the Employer all claims, which may be considered to fall within the provisions of Clause 22.1.

LABOUR

35.4 Conditions of Employment of Labour

The Contractor shall be responsible for making all arrangements for and shall bear all costs relating to recruitment, obtaining of all necessary visas, permits or other official permission for movements of staff and Labour.

35.5 Fair Wages

The Contractor shall, in respect of all persons employed anywhere by him in the execution of the Contract, observe and fulfill the following conditions:

- (g) The Contractor shall pay the rates of wages, observe hours of Labour and provide conditions, housing amenities and facilities not less favorable than those required by the Regulation of wages (Building and Construction Industry) Order 1998, and any subsequent amendments thereto, or in any ministry of Labour or other government department in consultation with the district whose general circumstances in the trade or industry in which the Contractor is engaged are similar. The Contractor shall at all times during the continuation of the Contract display, for the information of his employees, a notice setting out the general rates of wages, hours and conditions of Labour of his employees and a copy of this clause.
- (h) In the absence of any rates for wages, hours or conditions of Labour so established, the Contractor shall pay rates or wages and observe hours and conditions for Labour which are not less favorable than the general circumstances in the trade or industry in which the Contractor is engaged.

- (i) Where the absence of established rates of wages, hours and conditions of Labour or the dissimilarity of the general circumstances in the trade or industry in which the Contractor is engaged prevent the Contractor from observing rates of wages, hours and conditions of Labour ascertained under sub-paragraph (a) or (b) above, the Contractor in fixing the rates of wages, hours and conditions of Labour of his employees shall be guided by the advice of the Labour department.
- (j) The Contractor shall recognize the freedom of his employees to be members of trade unions.
- (k) The Contractor shall maintain records of the times worked by, and the wages paid to his employees. The Contractor shall furnish to the Employer, if called upon so to do, particulars of the rates of wages, hours and conditions of Labour as the employer may direct.
- (l) The Contractor shall be responsible for observance by his sub-Contractors of the foregoing provisions.

35.6 Breach of Fair Wages Clause

Should a claim be made to the Employer alleging the Contractor's default in payment of fair wages to any workman employed on the Contract and if proof thereof satisfactory to the Employer is furnished by the Labour department, the Employer may, failing payment by the Contractor, pay the claims out of any monies due or which may become due to the Contractor under the Contract.

35.7 Recruitment of Unskilled Labour

Any additional unskilled Labour which may be required by the Contractor for the Works and which is not in his employ at the time of the acceptance of the tender shall be recruited by the Contractor from the Labour office nearest to the Site of the Works.

35.8 Compensation for injury

The Contractor shall, in accordance with the Workman's Compensation Act Chapter 236 of the laws of Kenya and any other regulations in force from time to time in Kenya, pay compensation for loss or damage suffered in consequence of any accident or injury or disease resulting from his work to any workman or other person in the employment of the Contractor or any sub-contractor.

35.9 Labour Standards

- d) The Contractor shall comply with the existing local Labour laws, regulations and Labour standards.
- e) The Contractor shall formulate and enforce an adequate safety program with respect to all Work under this Contract, whether performed by the Contractor or his sub-contractors. The Contractor has assurance from the Employer of cooperation where the implementation of these safety measures requires joint cooperation.
- f) Upon written request of the Employer the Contractor will remove or replace any of his employees employed under this Contract.

35.10 **Recruitment**

The Contractor shall not induce personnel of the employer or the Engineer to leave their regular employment and shall not, without the prior consent in writing of the Employer, employ personnel who have resigned from such service within the preceding twelve months.

36 Add the following sub clauses 35.2 and 35.3:-

36.2 The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.

36.3 The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means. The Contractor shall also notify the relevant authority(s) whenever such report is required by the law.

41.3 **Commencement and Delays**

Insert immediately after the word Works----- “on Site within 28 days” and before the word -----
---after

41.4 **Definition of Commencement**

For the purposes of this clause, the Works shall be deemed to have commenced when all of the following conditions are satisfied;

- e) The approved competent and authorized agent or representative of the Contractor is resident in the project area and is giving his whole time to the superintendence of the Works.

- f) The provision by the Contractor of evidence that all insurances required by the Contract are in force.
- g) The Contractor has an established office in the project area with postal address for receipt of correspondence.
- h) The principal items of constructional plant have been brought to Site and put to work in the execution of the permanent Works.

42.5 **Possession of Site and Access Thereto**

Add the following to this clause 42.4;

The Contractor shall not enter any part of the Site until he has requested and received permission to do so from the Employer or the Engineer.

The Contractor shall not use any portion of the Site for any purpose not connected with the Works.

45.1 Add at the end of sub-clause 44.1 the following:

Neither rains falling between 1st November and 31st December (inclusive) and between 1st February and 31st May (inclusive) nor floods caused by such rains shall be deemed exceptional weather conditions such as may fairly entitle the Contractor to an extension of time for the completion of the Work.

46 **Working Hours**

Delete sub-clause 45.1 and substitute:

“Subject to any provision to the contrary contained in the Contract, the Contractor shall have the option to work continuously by day and by night and on locally recognized days of rest.

If the Contractor requests for permission to work by day and night and if the Engineer shall grant such permission, the Contractor shall not be entitled to any additional payment for so doing. All such work at night shall be carried out without unreasonable noise or other disturbance and the Contractor shall indemnify the Employer from and against any liability for damages on account of noise or other disturbance created while or in carrying out night work and from and against all claims, demands, proceedings, costs, charges and expenses whatsoever in regard or in relation to

such liability. In addition, the Contractor shall be required to provide, for any work carried out by night or recognized days of rest, adequate lighting and other facilities so that the Work is carried out safely and properly. In the event of the Engineer granting permission to the Contractor to work double or rotary shifts or on Sundays, the Contractor shall be required to meet any additional costs to the Employer in the administration and supervision of the Contract arising from the granting of this permission.

47.3 **Reduction of Liquidated Damages**

There shall be no reduction in the amount of liquidated damages in the event that a part or a section of the Works within the Contract is certified as completed before the whole of the Works comprising that Contract. No bonus for early completion of the Works shall be paid to the Contractor by the Employer.

The sum stated in the Appendix to Form of Tender as liquidated damages shall be increased by a sum equivalent to any amount payable by the Employer to the Contractor under clause 70.1 in respect of an increase in costs in such period that would not have been incurred by the Contractor if the Works had been completed by the due date for completion prescribed by clause 43.

Defects Liability

49.3 Add at the end of this sub-clause the following sentence: -

Any work ordered to be executed under this clause shall be done at a time and in a manner as directed by the Engineer so as to interfere as little as possible with the operations of the Employer or of other contractors and no extension(s) of the defects liability period will be allowed for the execution of this Work.

Add the following sub-clause 49.5 to this Clause: -

53 **Variations**

53.1 Add the following final sentence to this sub clause: -

The agreement, fixing or determination of any rates or prices as aforesaid shall include any foreign currency and the proportion thereof.

52.5 **Day work**

Add the following at the end of this sub-clause:

The Work so ordered shall immediately become part of the Works under the Contract. The Contractor shall, as soon as practicable after receiving the Day work Order from the Engineer undertake the necessary steps for due execution of such Work. Prior to commencement of any work to be done on a Day work basis, the Contractor shall give a notice to the Engineer stating the exact time of such commencement.

55 **Plant, Temporary Works and Materials**

Delete Sub-Clauses 54.3 to 54.4 entirely.

For the purpose of these Clauses, the term “Equipment” shall be read as “Contractor’s Equipment” where the context so requires.

55.1 Line 5: - Add “written” between “the” and “consent”.

55.2 **Existing services**

The Contractor shall acquaint himself with the position of all existing services such as drains, telephone and electricity lines and poles, water mains and the like, before commencing any excavation or other which is likely to affect the existing services.

The Contractor will be held liable for all damage to roads, irrigation ditches, main pipes, electric cables, lines or services of any kind caused by him or his Sub-Contractors in the execution of the Works. The Contractor must make good any damage without delay and, if necessary, carry out any further work ordered by the Engineer's Representative.

The Contractor will be required to make all necessary arrangements with local authorities, corporations and owners before executing relocation of existing services. The Contractor shall pay the costs of such works on behalf of the Employer and shall be reimbursed thereafter by the Employer.

Quantities

55.3 Delete sub-clause 55.1 and substitute with the following;

The quality and quantity of the Work included in the Contract Price shall be deemed to be that which is set out in the Contract Bills. The Bills, unless otherwise expressly stated therein, shall be deemed to have been prepared in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement.

Any error in description or in quantity or any omission of items from the Contract Bills or Specifications shall not vitiate this Contract but shall be corrected and deemed to be a variation required by the Engineer. Subject to the foregoing, any error whether arithmetical or not in the computation of the Contract Price shall be deemed to have been accepted by the parties hereto.

The Contract Price shall not be adjusted or altered in any way whatsoever otherwise than in accordance with the express provisions of these Conditions.

55.4 Add as a new sub-clause:

“Items of Work described in the Bills of Quantities for which no rate or price has been entered in the Contract shall be considered as included in other rates and prices in the Contract and will not be paid for separately by the Employer.

Measurement

56.2 Delete sub clause 56.1 and replace with the following: -

The Contractor shall prepare and submit to the Engineer all necessary field notes and other records taken and computations made for the purpose of quantity measurements, of which the forms shall be approved by the Engineer, for the monthly progress payment under clause 60. The measurement of work quantities made by the Contractor shall be verified and certified by the Engineer based on the above-mentioned documents.

The Contractor shall furnish all personnel, equipment and materials to make such surveys and computations as necessary to determine the quantities of work performed. Unless otherwise prescribed in the specifications or the drawings, all measurements for payment shall be made by the dimensions, lines and grades as shown on the drawings or by direct survey of which the methods shall be approved by the Engineer.

The documents submitted for measurement and payment shall become the property of the Employer and shall be used to the extent necessary to determine the monthly progress payment to be made to the Contractor under the Contract. Direct survey, if done, shall be subject to checking and verification by the Engineer and all errors in the said survey work and related computations as found during such checking shall be immediately corrected by the Contractor.

57.2 Delete sub clause 57.1 and substitute with the following: -

The Works shall be measured net with deductions made in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement. All measurements shall be given in metric (SI) units.

Provisional Sums

58.5 Prime Cost sum

Wherever an item in the Bills of Quantities has been referred to as a “P.C. Sum” (Prime Cost Sum), that item shall be construed as a Provisional sum and the provisions of Sub-clauses 58.1 to 58.3 will apply.

59.6 Add the following paragraph at the end of sub clause 59.5:-

If the Engineer desires to secure final payment to any nominated sub-contractor before final payment is due to the Contractor and if such sub-contractor has satisfactorily indemnified the Contractor against any latent defects, the Engineer may, in an interim certificate, include an amount to cover the said final payment, and thereupon the Contractor shall pay to such nominated sub-contractor the amount so certified. Upon such final payment, the amount named in the Appendix to Form of Tender as Limit of Retention Money shall be reduced by the sum which bears the same ratio to the amount as does the subcontract and sub-contractor shall be discharged from all liability for the Work, materials or goods executed or supplied by such subcontractor under the Contract to which the payment relates.

Certificates and Payment

Delete Sub-clauses 60.1 to 60.10 entirely and substitute with the following: -

60.16 Advance Payment

In the event that an advance payment is granted, the following shall apply: -

- e) On signature of the Contract, the Contractor shall at his request, and without furnishing proof of expenditure, be entitled to an advance of 10% (ten percent) of the original amount of the Contract. The advance shall not be subject to retention money.
- f) No advance payment may be made before the Contractor has submitted proof of the establishment of deposit or of a directly liable guarantee satisfactory to the Employer in the amount of the advance payment. The guarantee shall be in the same currency as the advance.
- g) Reimbursement of the advance shall be effected by deductions from monthly interim payments.

- h) Reimbursement of the lump sum advance shall be made by deductions from the Interim payments and where applicable from the balance owing to the Contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original amount of the Contract. It shall have been completed by the time 80% of this amount is reached.

The amount to be repaid by way of successive deductions shall be calculated by means of the formula:

$$R = \frac{A (x^1 - x^{11})}{80 - 20}$$

Where:

R = the amount to be reimbursed

A = the amount of the advance which has been granted

X^1 = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This figure will exceed 20% but not exceed 80%.

X^{11} = the amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%.

- (f) With each reimbursement, the counterpart of the directly liable guarantee may be reduced accordingly.

60.17 **Interim Payment Certificate**

The Contractor shall submit to the Engineer, in the manner required by the Engineer after the end of each month a statement showing the estimated total value of permanent Work properly executed and materials or goods for permanent works brought to Site up to the end of the previous month (if the value shall justify the issue of an interim certificate) together with any adjustments under clause 70 and any outstanding claims and sums the Contractor considers may be due to him. The Contractor shall amend or correct his estimate as directed by the Engineer and the latter shall not accept it until he is satisfied that it is fair and reasonable. With respect to the said materials and goods, no payment for them shall be made unless; -

- (vi) The materials are in accordance with the specifications for the Works;

- (vii) The materials have been delivered to Site and are properly stored and protected against loss, damage or deterioration;
- (viii) The Contractor's record of the requirements, orders, receipts and use of materials are kept in a form approved by the Engineer, and such records are available for inspection by the Engineer;
- (ix) The Contractor has submitted a statement of his cost of acquiring and delivering the materials and goods to the Site, together with such documents as may be required for the purpose of evidencing such cost;
- (x) The materials are to be used within a reasonable time.

The Contractor will be paid on the certificate of the Engineer the amount due to him on account of the estimated total value of the permanent Work executed up to the end of the previous month together with such amount (not exceeding 75% of the value) as the Engineer may consider proper on account of materials and goods for permanent Work delivered by the Contractor on Site and in addition, such amount as the Engineer may consider fair and reasonable for any Temporary Works for which separate amounts are provided in the Bill of Quantities, all of which shall be subject to a retention of the percentage named in the Appendix to Form of Tender until the amount retained (hereinafter and in all Contract documents called the "Retention Money") shall reach the "Limit of Retention Money" named in the said Appendix. Provided always that no interim certificate shall be issued for a sum [such sum always being the net amount thereof after all deductions for retention etc.) less than that named in the Appendix to Form of Tender as "Minimum Amount of Interim Certificate" at one time.

Within 14 days after receiving a statement from the Contractor as aforesaid, and subject to the Contractor having made such further amendments and corrections as the Engineer may require, the Engineer shall issue a Certificate of Payment to the Employer showing the amount due, with a copy to the Contractor.

The Engineer shall not unreasonably withhold certifying an Interim Payment Certificate and where there is a dispute regarding an item for payment, the Engineer may delete this disputed item from the Interim Payment Certificate and certify the remainder for payment provided the said payment is in accordance with the preceding paragraph. In cases of difference in opinion as to the value of any item, the Engineer's view shall prevail.

60.18 Final Account and Final Payment Certificate

As soon as possible after the issue of Taking - Over Certificate or the termination of the Contract and not later than the time of issue of Defects Liability Certificate, the Contractor shall prepare and submit to the Engineer (with a copy to the Employer), a Statement of Final Account showing in detail the total value of work done in accordance with the Contract together with all sums paid

in previous payments. Within thirty (30) after receipt of such further information as may be reasonably required from the Contractor for its verification, the Engineer shall check the said statement, prepare and submit a Final Payment Certificate to the Employer (with a copy to the Contractor).

The Final Payment Certificate shall state;

- (c) The (final) total value of all Work done in accordance with the Contract;
- (d) After giving credit to the Employer for all amounts previously paid to the Contractor, the balance, if any, due from the Employer to the Contractor or the Contractor to the Employer, as the case may be.

Unless the Contractor notifies the Engineer of his objection to the Final Payment Certificate within twenty eight [28] days of delivery thereof, he shall be deemed to have agreed that he accepts the total Contract Price as set out in the Final Payment Certificate as full settlement for all work done under the Contract including any claims, variations and omissions thereof.

However, a Final Certificate of Payment shall not be conclusive:

- c) to the extent that fraud or dishonesty relates to or affects any matter dealt with in the Certificate, or
- d) If any arbitration or court proceedings under the Contract have been commenced by either party before the expiry of 84 days after the issue of the Final Certificate of Payment.

60.19 Payment of Certificates

Payment upon each of the Engineer's Certificates for Interim Payments shall be made by the Employer within the time stated in the Appendix to Form of Tender from the date of issue of each Certificate of Payment.

Payment upon the Engineer's Final Payment Certificate shall be made by the Employer within the time stated in the Appendix to Form of Tender from the date of issue of the Final Certificate of Payment signed by the Engineer and countersigned by the Contractor or his authorized agent or representative.

Making of a payment by the Employer shall be considered to have been duly executed on the day that the Employer has issued a cheque.

60.20 Payment of Retention Money

One half of the retention money shall become due upon the issue of a Taking – Over Certificate and shall be paid to the Contractor when the Engineer shall certify in writing that the last section of the whole of the Works has been substantially completed and the other half shall be paid to the Contractor after the expiration of the Defects Liability Period and the issue of a Certificate under Clause 62. Provided always that if such time there shall remain to be executed by the Contractor any Works ordered during such period pursuant to Clauses 49 and 50 thereof, the Employer shall be entitled to withhold payment [until the completion of such Works] of so much of the second half of the Retention Money as shall in the opinion of the Engineer represent the Costs of the Works so remaining to be executed. Provided further that in the event of different Defects Liability Periods having become applicable to different parts of the Works pursuant to clause 48 hereof the expression “expiration of the Defect Liability Period” shall for the purpose of this Sub-clause be deemed to mean the expiration of the latest of such periods.

60.21 Currency of Payment

The Contract price shall be stated in Kenya Shillings. All payments to the Contractor shall be made in Kenya shillings and foreign currency(s) in the proportion indicated in the tender, or agreed prior to the execution of the Contract Agreement and indicated therein. The rate[s] of exchange for the calculation of the amount of foreign currency payment[s] shall be the rate of exchange indicated in the Tender. If the Contractor indicated foreign currencies for payment other than the currencies of the countries of origin of related goods and services, the Employer reserves the right to pay the equivalent at the time of payment in the currencies of the countries of such goods and services. The Employer and the Engineer shall be notified promptly by the Contractor of any changes in the expected foreign currency requirements of the Contractor during the execution of the Works as indicated in the Statement of Foreign Currency Requirements and the foreign and local currency portions of the balance of the Contract Price shall then be amended by agreement between Employer and the Contractor in order to reflect appropriately such changes.

60.22 Overdue Payments

Unless otherwise stated in the appendix interest shall be paid on the overdue amounts and the interest to be paid shall be in accordance with prevailing commercial bank rates.

60.23 Correcting and With-holding

The Engineer may by any interim certificate or through the final account make any correction or modification to any previous certified sum and shall have authority, if any work or part thereof is not being carried out to his satisfaction, to omit or reduce the value of such work in any Interim Payment Certificate.

60.24 Completion by Sections.

If a Taking-Over Certificate shall be issued for any section or part of the Works separately, the payments herein provided for on or after issue of such a Certificate shall be made in respect of such section or part and references to the Contract Price shall mean such part of the Contract Price as shall in the absence of agreement be apportioned thereto by the Engineer.

60.25 Proportion of Foreign Currency

Subject to the provision of sub clause 60.5 the proportion of foreign currency in any amount due to the Contractor or Employer shall be determined in the following manner: -

- i) For all measured Work, the percentages of foreign currency for the appropriate section of the Bill of Quantities as stated in the schedule of foreign currency requirements shall be applied.
- j) Variations in the cost of imported materials shall be paid in foreign currency.
- k) Variations in the cost of locally purchased materials and those due to changes of legislation shall be paid in local currency.
- l) For Day works Labour and plant, the respective percentages of foreign currency stated in the schedule shall be applied.
- m) For Day works materials and materials on site, payment in foreign currency will only be made for imported materials.
- n) The provisions for the deduction and release of Retention Money and the payment of interest shall be applied similarly to both the local and foreign portions.
- o) The advance mobilization loan, its repayment thereof and liquidated damages shall all be apportioned on the basis of the ratio between local and foreign currency indicated in the Contract Price.

- p) In the event that the payment is for an item not covered in the foregoing paragraphs, the Engineer shall determine the proportion of foreign and local currency based on the information given in the Schedule of Foreign Currency Requirements, together with any additional information he may request the Contractor to provide.

60.26 **Statement at Completion**

Not later than 14 days after the issue of the Taking-Over Certificate in respect of the whole of the works, the Contractor shall submit to the Engineer a statement at completion showing in detail, in a form approved by the Engineer;

- (d) The final value of all work done in accordance with the Contract up to the date stated in such Taking-Over Certificate.
- (e) Any further sums which the Contractor considers to be due; and
- (f) An estimate of amounts, which the Contractor considers, will become due to him under the Contract.

Estimate amounts shall be shown separately in the Statement at Completion. The Contractor shall amend and correct the Statement as directed by the Engineer who shall issue a Certificate at Completion to be processed in accordance with sub-clause 60.4.

60.27 **Final Statement**

Not later than 56 days after the issue of the Defects Liability Certificate, the Contractor shall submit to the Engineer for consideration a draft final statement with supporting documents showing in detail, in the form approved by the Engineer;

- (c) The final value of all work done in accordance with the Contract;
- (d) Any further sums which the Contractor considers to be due to him.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonable require and shall make such changes in the draft as may be required.

60.28 Discharge

Upon submission of the Final Statement, the Contractor shall give to the Employer, with a copy to the Engineer, a written discharge confirming that the total of the Final Statement represents full and final settlement of all monies due to the Contractor arising out of or in respect of the Contract. Provided that such discharge shall become effective only after payment under the Final Payment Certificate issued pursuant to Sub-clause 60.14 has been made and the Performance Security referred to in Sub-clause 10.1 has been returned to the Contractor.

60.29 Final Payment Certificate

Upon acceptance of the Final Statement as given in Sub-clause 60.12, the Engineer shall prepare a Final Payment Certificate which shall be delivered to the Contractor's authorized agent or representative for his signature. The Final Payment Certificate shall state:

- (d) The final value of all work done in accordance with the Contract;
- (e) After giving credit to the Employer for all amounts previously paid by the Employer, the balance, if any, due from the Employer to the Contractor or the Contractor to the Employer as the case may be

Final Certificate shall be issued for any sum due to the Contractor even if such is less than the sum said named in the Appendix to the Form of Tender.

60.30 Cessation of Employer's Liability

Unless the Contractor notifies the Engineer of his objection to the Final Certificate within fourteen days of delivery thereof he shall be deemed to have agreed that he accepts the total Contract Price as set out in the Final Certificate as full settlement for all work done under the Contract including any variations and omissions thereof.

62.2 Defects Liability Certificate

Delete the last sentence of this Sub-Clause beginning "Provided that the issue.....in Sub-Clause 60.3".

Remedies

63.5 **Assignment of Benefit of Agreement**

Add the following at the end of this sub-clause:-

“But on the terms that a supplier or sub-contractor shall be entitled to make any reasonable objection to any further assignment thereof by the Employer and the Employer may pay the supplier or sub-contractor for any such materials supplied or Works executed under such agreement, whether the same be assigned as aforesaid or not, before or after the said determination, the amount due by such arrangement in so far as it has not already been paid by the Contractor”.

66 **Special Risks**

Add sub clause 65.9 as follows:

(a) In the event of the Employer unilaterally ordering the final cessation of performance of the Contract for reasons not specified elsewhere in the Conditions of Contract the Contract shall be considered to be frustrated and the Contractor shall be indemnified as provided for under clause 65.1.

(c) In the event of the Employer ordering the adjournment of the Contract before or after commencement of the Works for reasons not specified elsewhere in the Conditions of Contract, the Contractor shall be entitled to indemnity for any injury which he may have suffered as a consequence of such adjournment. The Engineer shall award the Contractor payment of such sum as in his opinion shall be reasonable giving regard to all material and relevant factors including the Contractor's on costs and overheads, and the nature of the instruction to adjourn the Contract.

Settlement of Disputes

67.4 **Arbitration**

For the purposes of this Clause, the Arbitrator shall be a person to be agreed between the parties or failing agreement, the Arbitrator shall be appointed by the appointer designated in the Appendix to the Form of Tender.

Add the following paragraph after the last paragraph of sub-clause 67.3:

Arbitration shall take place in Nairobi, Kenya. The language of all arbitration proceedings shall be in English. The cost of arbitration shall be apportioned by the Arbitrator according to his findings.

Notices

68.3 Add the following at the end of this sub clause: -

Notwithstanding the foregoing, the Contractor shall either maintain an address close to the Works or appoint an agent residing close to the Works for the purpose of receiving notices to be given to the Contractor under the terms of the Contract. This obligation shall be terminated upon the issue of the Certificate of Completion.

68.4 Delete the words “nominated for that purpose in Part II of these Conditions” in this sub-clause.

Default of Employer

69.2 **Default of Employer**

In paragraph (a) of this Sub-Clause, delete the words “within 28 days of expiry of the time stated in Sub-clause 60.10” and insert “within 56 days after the expiry of the time stated in Sub-Clause 60.4”.

69.6 **Contractor’s Entitlement to Suspend Work**

Delete the first four lines of this Sub-Clause and replace with the following: -

“Without prejudice to the Contractor’s entitlement to interest under Sub-clause 60.7 and to terminate his employment under Sub-Clause 69.1, the Contractor may, if the Employer fails to pay the Contractor the amount due under any certificate of the Engineer within 56 days after the expiry of the time stated in Sub-Clause 60.4.....”

Delete sub-clause 69.4 (b) and substitute with the following----“the amount of such cost, which shall be added to the Contract Price. However, the costs due to idle time for plant, equipment and Labour shall not be included in the said costs and shall be borne by the Contractor.

69.7 **Resumption of Work**

In line 3 of this Sub-Clause delete the Words “Sub-Clause 60.10” and replace with “Sub-Clause 60.7”

Changes in Cost and Legislation

70.2 Delete the sub-clause 70.1 in its entirety and substitute with the following: -

“The Contract Price shall be deemed to have been calculated in the matter set below and shall be subject to the adjustment in the event specified hereunder:

- (f) The rates contained in the priced Bill of Quantities are based upon the rates of wages and other emoluments and expenses applicable at the site and the date of tender pricing (as defined in sub-clause 70.4 hereinafter);
- (g) If the said rates of wages and other emoluments and expenses shall be increased or decreased by act, statue, decree, regulation and the like after the said date of tender pricing then the net amount of increase the emoluments and expenses shall, as the case may be, paid to or allowed by Contractor;
- (h) The rates contained in the price Bill of Quantities are based upon the rates of the Contractor’s compulsory contributions payable at the date of tender under or by virtue of any Act, Statue, Regulations and the like applicable at the site;
- (i) If any of the said rates of contribution becomes payable after that date then the net amount of new statutory contribution becomes payable after that date then the net amount of increase or decrease of the emoluments and expenses shall, as the case may be, be paid to or allowed by the Contractor. Difference between what the Contractor actually pays in respect of work people engaged upon or in connection with the works and what he would have paid in respect of such person had any of the said rates not been increased or

decreased or had a new contribution not become payable as aforesaid, shall as the case may be, be paid to or allowed by the Contractor. Provided always that the Engineer and the Contractor may agree a sum, which shall be deemed to be the net amount of the aforesaid difference, and such sum shall be deemed for the purpose of this Contract to be, that which is to be paid to or allowed by the Contractor by the virtue of this subparagraph;

- (j) If the market price or any materials or goods specified as aforesaid shall be increased or decreased after the said Date of Tender Pricing, then the net amount of difference between the basic price and the market price payable by the Contractor and current when any such goods and materials are bought shall, as the case may be, be paid to or allowed by the Contractor. Orders for materials and goods listed as aforesaid shall have been placed within a reasonable time after the date at which sufficient information is available for the placing of such orders, and the placing of orders at that time shall be a condition precedent to any payments being made to the Contractor in respect of increased market prices.”

Substitute and add the following sub-clauses:

- 70.2 (a) If the Contractor shall decide subject to Clause 4 thereof to sub-let any portion of the work he shall incorporate in the sub-contract provisions to the like effect as those contained in sub-clause (1) of this Clause;

- (f) If the price payable under a sub-contract as aforesaid is increased above or decreased below the price in such sub-contract by reason of the operation of the incorporated provisions of sub-clause (1) of this clause then the net amount of such increase or decrease shall as the case may be, be paid to or allowed by the Contractor under this Contract.

- 70.3 The expression “the date of tender pricing” as used in this Clause means the date 28 days prior to the final date for submission of Tenders as determined by the Employer in the Tender documents.

- 70.11 For imported materials, the supplier’s/manufacturer’s Prime costs shall be C.I.F. cost at point of entry by the same means of transport as determined by the Contractor’s Basic Rate.

For locally produced materials, the supplier’s or manufacturer’s prime costs shall be at their nearest depot or the nearest railway station relevant to the works.

For materials, which are subject to Government Price Control, payments for price variations will be determined from the difference between the control price in force at a date 28 days prior to date for submission of Tenders and the price in force on the date of purchase.

- 70.12 The materials to which this Variation Clause applies are:

- ◆ All bitumen material
- ◆ Fuels, oils and lubricant
- ◆ Cement
- ◆ Lime
- ◆ Flex beam guardrail
- ◆ Explosives
- ◆ Gabion mesh
- ◆ Reinforcing steel

70.13 The Contractor shall not change the supplier or manufacturer during the Contract without the approval of the Engineer.

70.14 No payments will be made for price variation related to expenses incurred by the Contractor in his Head Office in Kenya, or overseas.

70.15 All payments made pursuant to Clause 70 shall be in Kenya Shillings.

70.16 No payments will be made for the cost of preparing V.O.P. claims.

70.17 Add the following at the end of this clause.

“Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited as aforesaid if the same shall already have been taken into account in accordance with the provisions of sub-clause 70.1”.

ADDITIONAL CLAUSES

Clause 73 Declaration against Waiver

The condoning by the Employer of any breach or breaches by the Contractor or any authorized sub-contractor of any of the stipulations and Conditions contained in the Contract shall in no way prejudice or affect or be construed as a waiver of the Employer's rights, powers and remedies under the Contract in respect of any breach or breaches as aforesaid.

Clause 74 Bribery and Collusion

The Employer shall be entitled to determine the Contract and recover from the Contractor the amount of any loss resulting from such determination if the Contractor shall have offered or given or agreed to give any person any gift or consideration of any kind as an inducement of regard for doing or fore bearing to do or for having done or fore borne to do any action in relation to obtaining or the execution of the Contract or any other contract with the Employer or if any of the like acts shall have been done by any person employed by the Contractor or acting on his behalf (whether with or without the knowledge of the Contractor) or if the Contractor shall have come to any agreement with another contractor or number of contractors whereby an agreed quotation or estimate shall be tendered to the Employer by one or more contractors.

Clause 75 Contract Confidential

The Contractor shall treat the Contract and everything in connection therewith as private and confidential. In particular, the Contractor shall not publish any information, drawings or photographs concerning the Works in any trade or technical paper etc., and shall not use the Site for the purpose of advertising except with the written consent of the Engineer and subject to such conditions as the Engineer may prescribe.

Clause 76 Employer's Officials etc., Not Personally Liable

No official of the Employer or the Engineer or the Engineer's Representative or anyone of their respective staffs or their employees shall be in any way personally bound or liable for the acts or obligations of the Employer under the Contract or answerable for default or omission in the observance or performance of any of the acts, matters or things which are herein contained.

Clause 77 Taxes and Duties

- (3) The Contractor shall list in his tender the plant and vehicles which he intends to import for the execution of the Works. The Engineer will consider the list in the context of the program of the Works and will give his approval subject to any modifications that he may see fit to make. No appeal against the Engineer's decision shall be permitted.

The Contractor will be permitted to import approved plant and vehicles required for the execution of the Works on the basis of temporary admission into Kenya and re-export thereafter upon completion of the Contract without payment of customs duties and Value Added Tax for them. If the plant and equipment shall not be re-exported, duties and taxes shall then be paid based upon their residual

value at the date of completion of the Contract, or the date of withdrawal from the Works, if earlier. Plant and vehicles so imported shall not be utilized on other works not associated with the Contract unless specifically authorized by the Engineer.

- (4) The Contractor will be permitted to import approved spare parts, tires and tubes without payment of customs duty and Value Added Tax for maintenance of any imported vehicles and plant as provided in sub-clause 77.1 above, within a financial limit indicated by himself. However, this limit will not exceed 15% of the Contract Price excluding Contingencies.
- (3) All materials approved by the Engineer to be incorporated into the Works or temporary works, and whose importation into Kenya is agreed to be essential shall be free of customs duties and Value Added Tax. The Contractor shall submit a list of such materials required with the tender. The Contractor shall be required to satisfy the Engineer that such materials have actually been incorporated into the Works.

Items produced in Kenya will not be permitted to be imported without payment of customs duty and Value Added Tax.

Items produced in Kenya shall mean commercially recognized goods or products that are either mined, grown, manufactured, processed or assembled (whether the components are imported or not) in Kenya.

Clause 78 Joint Ventures

- 78.2 If the Contractor is a joint venture, all partners of the joint venture shall be jointly and severally liable to the Employer for the execution of the entire Contract in accordance with its terms and Conditions.

SECTION V-SPECIFIC SPECIFICATIONS

Notes for preparing Specifications

- 7. 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 incorporated in the permanent Works be

new, unused, of the most recent or current models and incorporating all recent improvements in design and materials unless provided otherwise in the Contract. Where the Contractor is responsible for the design of any part of the permanent Works, the extent of his obligations must be stated.

8. Specifications from previous similar projects are useful and it may not be necessary to re- write specifications for every works contract.
9. There are considerable advantages in standardizing **General Specifications** for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation and water supply. The General Specifications should cover all classes of workmanship, materials and equipment commonly involved in construction works, although not necessarily to be used in a particular works contract. Deletions or addenda should then adapt the General Specifications to the particular Works.
10. Care must be taken in drafting Specifications to ensure they are not restrictive. In the specifications 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.
11. The Employer should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in tender documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential tenderers.
 - a. The Employer should provide a description of the selected parts of the Works with appropriate reference to Drawings, Specifications, Bills of Quantities, and Design or Performance criteria, stating that the alternative solutions shall be at least structurally and functionally equivalent to the basic design parameters and Specifications.
 - b. Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology and other relevant details. Technical alternatives permitted in this manner shall be considered by the Employer each on its own merits and independently of whether the tenderer has priced the item as described in the Employer's design included with the tender documents
 - c.

12. Health Care and Welfare

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the Laws of Kenya, the Contractor shall provide and maintain on Site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer/Nurse who shall offer the necessary medical advice on AIDS/HIV and related diseases to the Engineer's and Contractor's Site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

Notes for preparing Specifications

7. 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 incorporated in the permanent Works be new, unused, of the most recent or current models and incorporating all recent improvements in design and materials unless provided otherwise in the Contract. Where the Contractor is responsible for the design of any part of the permanent Works, the extent of his obligations must be stated.
8. Specifications from previous similar projects are useful and it may not be necessary to re- write specifications for every works contract.
9. There are considerable advantages in standardizing **General Specifications** for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation and water supply. The General Specifications should cover all classes of workmanship, materials and equipment commonly involved in construction works, although not necessarily to be used in a particular works contract. Deletions or addenda should then adapt the General Specifications to the particular Works.
10. Care must be taken in drafting Specifications to ensure they are not restrictive. In the specifications 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.
11. The Employer should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in tender documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential tenderers.
 - a. The Employer should provide a description of the selected parts of the Works with appropriate reference to Drawings, Specifications, Bills of Quantities, and Design or Performance criteria, stating that the alternative solutions shall be at least structurally and functionally equivalent to the basic design parameters and Specifications.
 - b. Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology and other relevant details. Technical alternatives permitted in this manner shall be considered by the Employer each on its own merits and independently of whether the tenderer has priced the item as described in the Employer's design included with the tender documents

12. Health Care and Welfare

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the Laws of Kenya, the Contractor shall provide and maintain on Site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer/Nurse who shall offer the necessary medical advice on AIDS/HIV and related diseases to the Engineer's and Contractor's Site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

STANDARD SPECIFICATIONS

The Standard Specifications referred to in this document is the Standard Specifications for Road and Bridge Construction, 1986 Edition published by the Ministry of Transport and Communications. This document shall form part of The Contract

Work shall be carried out in accordance with the Standard Specification except as supplemented or revised in the Special Specification.

SPECIAL SPECIFICATIONS

TABLE OF CONTENTS

1 - GENERAL.....	59
100 SPECIAL SPECIFICATIONS.....	59
101 LOCATION AND EXTENT OF THE CONTRACT.....	59
102 EXTENT OF CONTRACT.....	59
103 CONTRACT DRAWINGS.....	60
104 PROGRAMME OF EXECUTION OF THE WORKS.....	60
105 ORDER OF EXECUTION OF WORKS.....	61
107 TAKING OVER CERTIFICATE.....	61

109 NOTICE OF OPERATIONS.....	61
111 NATIONAL SPECIFICATIONS.....	61
117 HEALTH, SAFETY AND ACCIDENTS.....	62
121 DIVERSION OF SERVICES.....	63
123 LIAISON WITH GOVERNMENT AND POLICE OFFICIALS.....	63
124 LAND FOR ALL CAMPS SITES AND FOR THE CONTRACTOR'S OWN PURPOSES, INCLUDING TEMPORARY WORKS.....	63
126 MATERIALS AND MANUFACTURED GOODS.....	64
127 INFORMATION FROM EXPLORATORY BORINGS AND TEST PITS.....	64
127.1 FACTUAL MATERIALS REPORT.....	64
127.2 TRIAL SECTIONS.....	64
128 STORAGE OF MATERIALS.....	65
129 TEST CERTIFICATES.....	65
130 PROGRESS PHOTOGRAPHS.....	65
131 SIGNBOARDS.....	65
132 HOUSING ACCOMMODATION FOR THE RESIDENT ENGINEER AND HIS STAFF, OFFICE AND LABORATORY INCLUDING FURNITURE.....	65
132.1 HOUSING AND ACCOMMODATION FOR THE ENGINEER'S SENIOR STAFF	65
132.2 HOUSING ACCOMMODATION FOR ENGINEER'S JUNIOR STAFF.....	65
132.3 LIST OF FURNITURE FOR ENGINEER'S STAFF HOUSES.....	65
132.4 MAIN OFFICE.....	65
132.7 SURVEY EQUIPMENT.....	65
132.8 MOBILE PHONES FOR ENGINEER'S STAFF AND OFFICE.....	65
133 TIME FOR ERECTION OF THE ENGINEER'S STAFF HOUSES, OFFICE AND LABORATORY.....	65
134 INSURANCE AND OWNERSHIP OF THE ENGINEER'S STAFF HOUSES, OFFICES, LABORATORIES, FURNITURE AND EQUIPMENT.....	65
135 MAINTENANCE OF THE ENGINEER'S STAFF HOUSES, OFFICES LABORATORIES, FURNITURE AND EQUIPMENT.....	65

137	ATTENDANCE UPON THE ENGINEER AND HIS STAFF.....	65
138	VEHICLES AND DRIVERS FOR THE ENGINEER AND HIS STAFF AND METHOD OF PAYMENT.....	65
139	MISCELLANEOUS ACCOUNTS.....	66
140	PAYMENT OF OVERTIME FOR ENGINEER'S JUNIOR STAFF.....	66
141	MEASUREMENT AND PAYMENT.....	66
142	ENVIRONMENTAL PROTECTION.....	66

SECTION 2 - MATERIALS AND TESTING OF MATERIALS.....	69
202 TESTING BY THE CONTRACTOR.....	69
202.1 CONTRACTOR'S TESTING.....	69
204 SIEVES.....	69
204.1 SIEVE SIZES.....	69
205 SOILS AND GRAVEL.....	69
211 BITUMINOUS BINDERS.....	69
301 SETTING OUT.....	70
302 TOLERANCES.....	70
SECTION 4 - SITE CLEARANCE AND TOP SOIL STRIPPING.....	72
401 SITE CLEARANCE.....	72
402 REMOVAL OF TOPSOIL.....	72

403	REMOVAL OF STRUCTURES, FENCES AND OBSTRUCTIONS.....	72
	SECTION 5 - EARTHWORKS.....	73
504	PREPARATION PRIOR TO FORMING EMBANKMENT.....	73
505	CONSTRUCTION OF EMBANKMENTS.....	74
509	MASS-HAUL DIAGRAM.....	75
511	BORROW PITS.....	75
515	SIDE DRAINS.....	75
517	MEASUREMENT AND PAYMENT.....	75
	SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS	76
601	GENERAL.....	76
605	SAFETY AND PUBLIC HEALTH REQUIREMENT.....	76
607	SITE CLEARANCE AND REMOVAL OF TOPSOIL AND OVERBURDEN.....	76
	SECTION 7 - EXCAVATION AND FILLING FOR STRUCTURES.....	77
703	EXCAVATION OF FOUNDATIONS FOR STRUCTURES.....	77
707	BACKFILLING FOR STRUCTURES.....	77
709	EXCAVATIONS FOR RIVER TRAINING AND NEW WATER COURSES.....	77
710	STONE PITCHING.....	77
711	GABIONS.....	78
712	RIP-RAP PROTECTION WORK.....	78
714	BACKFILL BELOW STRUCTURES.....	78
	SECTION 8 - CULVERTS AND DRAINAGE WORKS.....	79
804	EXCAVATION FOR CULVERTS AND DRAINAGE WORKS.....	79
805	EXCAVATION IN HARD MATERIAL.....	79
809	BEDDING AND LAYING OF PIPE CULVERTS.....	80
810	JOINTING CONCRETE PIPES.....	80
812	BACKFILLING OVER PIPE CULVERTS.....	80
813	PRECAST CONCRETE OPEN CHANNELS.....	81
813.1	HALF ROUND OPEN CHANNELS.....	81

813.2	INVERT BLOCK OPEN CHANNELS.....	81
814.1	SUBSOIL DRAINS.....	81
814.2	FILTER FABRIC TO SUBSOIL DRAINS.....	81
818	SCOUR CHECKS.....	82
	SECTION 9 - PASSAGE OF TRAFFIC.....	83
901	SCOPE OF THE SECTION.....	83
903	MAINTENANCE OF EXISTING ROAD.....	83
904	CONSTRUCTION OF DEVIATIONS.....	83
906	PASSAGE OF TRAFFIC THROUGH THE WORKS.....	84
907	SIGNS, BARRIERS AND LIGHTS.....	84
909	ASSISTANCE TO PUBLIC.....	85
912	MEASUREMENT AND PAYMENT.....	85
913	TRAFFIC MANAGEMENT PLAN.....	86
	SECTION 11 - SHOULDERS TO PAVEMENT.....	87
1101	GENERAL.....	88
	SECTION 12 - NATURAL MATERIAL SUBBASE AND BASE.....	88
1201	GENERAL.....	88
1203	MATERIAL REQUIREMENTS.....	88
1209	MEASUREMENT AND PAYMENT.....	88
	SECTION 14 - CEMENT TREATED MATERIALS.....	89
1401	CEMENT TREATMENT.....	89
1409	PROTECTION AND CURING.....	89
	SECTION 15 - BITUMINOUS SURFACE TREATMENTS.....	90
	PART A - GENERAL.....	90
	SECTION 15 - BITUMINOUS SURFACE TREATMENTS.....	90
	PART A - GENERAL.....	90
1501A	GENERAL.....	90
	PART B - PRIME COAT.....	90

1502 MATERIALS FOR PRIME COAT AND TACK COAT.....	90
PART C - SURFACE DRESSING.....	91
1502C MATERIALS FOR SURFACE DRESSING.....	91
1503C SPRAY AND SPREAD RATES OF BITUMEN AND CHIPPINGS.....	91
1505C PRECOATED CHIPPINGS.....	92
1511C MEASUREMENT AND PAYMENT.....	105
SECTION 17 - CONCRETE WORKS.....	106
1703 BEDDING MATERIALS FOR CONCRETE.....	106
1703A LEVELLING CONCRETE (CLASS 15/20) FOR BOTTOM SLAB INCLUSIVE OF COST OF FORM WORKS.....	106
1703B REINFORCING BARS OF WALLS AND SLABS.....	107
1703C FORMWORK FOR CULVERT WALLS AND SLABS.....	109
1703D CONCRETE WORKS (CLASS 30/20) OF CULVERT WALLS AND SLABS.....	111
SECTION 20 - ROAD FURNITURE.....	115
2001 ROAD RESERVE BOUNDARY POSTS.....	115
2003 EDGE MARKER POSTS.....,,,,,,,,,,,,,	115
2004 PERMANENT ROAD SIGNS.....	115
2004B EXISTING ROAD SIGNS.....	115
2005 ROAD MARKING.....	115
2006 GUARDRAILS.....	115
2007 KERBS.....	116
2008 KILOMETRE MARKER POSTS.....	116
2011 BOLLARDS.....	116
2012 RETRO-REFLECTIVE ROAD STUDS.....	116
SECTION 22-DAYWORKS.....	117
2202 MEASUREMENTS AND PAYMENT.....	117

SECTION 1 - GENERAL

100 INTRODUCTION

Special specification is supplementary to the Standard Specifications and the two must be read in conjunction. In any case where there appears to be conflict between the two then the Special Specifications will take precedence

When the term 'Period of Maintenance' has been used in the Standard Specifications, it shall be changed to 'Defects Liability Period'.

101 LOCATION AND EXTENT OF THE CONTRACT.

The site of the works shall be the area within the road reserve and any other places as may be designated in the Contract. The works involve re-construction to bitumen standard of the project road including junctions, and installation of drainage facilities such as pipe culverts etc. all as per drawings and relevant documentation issued for the works. Any other works shall be as directed by the Engineer.

102 EXTENT OF CONTRACT.

The major works to be executed under the Contract comprise mainly of but are not limited to the following:

1. Site clearance and top soil removal.
2. Earthworks and laying of improved subgrade to receive the pavement layers as per the design and specifications.
3. Construction of a 175mm thick layer of natural material as subbase for the carriageway and shoulders.
4. Construction of a 150mm thick layer of cement improved natural material as base for the Carriageway and shoulders.

5. Apply a 40mm asphaltic concrete wearing course, and a double seal surface dressing on the shoulders comprising 0/20mm and 6/10mm chippings on the shoulders.
6. Construction of a cross culvert, standard pipe culverts, and other drainage works
7. Construction of junctions and busbays
8. Installation of road furniture including guardrails and road marking
9. Works auxiliary to the main works.
10. Maintenance of passage of traffic through and around the works.
11. Maintenance of the works during construction. The defects liability period shall be 6 months.

The road carriageway shall be 7m wide with shoulders of 1m width. The side ditch shall be both rectangular and trapezoidal with its invert level being at least 0.7m below the road formation level.

103 CONTRACT DRAWINGS

Contract drawings have been bound in a book of drawings accompanying these Contract Documents as a separate volume. Additional copies of these drawings that may be required by the Contractor can be obtained from the Engineer, in which case the Contractor will be required to reimburse the cost of producing such additional copies.

The Engineer may from time to time, in order to enable the satisfactory completion of the works, revise, amend or supersede any of these drawings. It shall be the Contractor's responsibility to construct all works in conformity with the latest revision, amendment or superseding drawings, provided that the Engineer has given to the Contractor in writing such reasonable prior notices of intention to revise, amend or supersede as the nature of the intended change requires, and the relevant drawings have been issued to the Contractor.

The changed drawings shall entitle the Contractor such reasonable additional payments as provided for in the Contract, including any abortive work carried out by the Contractor prior to notice of intent to undertake changes having been given. The Contractor may be required to demolish, alter and/or correctly rebuild at his own expense any part of the Works not in conformity with the current drawings issued to him within a reasonable prior notice.

Documents

The following manuals that are important and relevant to the contract, will not be issued with the tender documents but will be available for inspection during normal working hours at the offices of

the County Roads Engineer
Roads, Transport, Public Works & Utilities
County Government of Kakamega,
P.O Box 36-50100, Kakamega

Road Design Manual:
Part 1: Geometric Design of Rural Roads
Part 3: Materials and Pavement Design for New Roads

Manual for Traffic Signs:

Part 1: Road Markings

Part 2: Traffic Signs.

104 PROGRAMME OF EXECUTION OF THE WORKS

The contractor shall provide the works programme, required under clause 14 of the Conditions of Contract, within 14 days of receipt of the Engineer's Order to commence work.

The programme shall be coordinated with climatic and other conditions to provide for the completion of the works in the order and by the time specified.

The Contractor shall carry out the contract in accordance with the programme agreed with the Engineer, but he shall in no manner be relieved by the Engineer's approval of the programme, of his obligation to complete the works in the prescribed order and by the prescribed completion date and he shall from time to time review his progress and make such amendments to his rate of execution of the works as may be necessary to fulfil his obligations.

The Contractor shall allow in his programme for construction of trial sections and carrying out tests

upon them as directed by the Engineer in accordance with the provisions of Clause 129 of the Standard Specification. The time for completion of the Contract shall not be extended because of the time taken to carry out tests and evaluate trial sections.

105 ORDER OF EXECUTION OF WORKS

In addition to Clause 105 of the Standard Specification the Contractor shall carry out the Works such that a continuous and consecutive output of fully completed work is achieved.

107 TAKING OVER CERTIFICATE

The minimum length of the road for which a certificate will be issued is the whole length of the project road when substantially completed.

109 NOTICE OF OPERATIONS

Add the following sub- Clause.

Notification Terms

It shall be the Contractor's responsibility to notify the Engineer when any item of works scheduled

are completed and ready for approval, and the contractor shall give sufficient notice to allow control test to be performed.

Explosive and Blasting

a) The requirements of the Laws of Kenya governing explosives and other requirements and regulations of Government of Kenya and other authorities shall be complied with.

b) No explosives of any kind shall be used without prior written consent of the Engineer.

c) The Contractor shall be solely responsible for the provision, handling, storage and transporting

of all explosives, ancillary materials and all other items of related kind whatsoever required for blasting.

111 NATIONAL SPECIFICATIONS

Add the following at the end of this clause

‘The Contractor shall provide all such specifications not more than 60 days after commencement of contract and at least 14 days before the execution of work to which the specification is applicable.’

116 PROTECTION FROM WATER

Except as otherwise specified, the contractor shall be responsible for dealing with water, whether from existing drainage systems, water courses, underground springs, precipitations or any other source or cause. In discharging and diverting water he shall avoid flooding or damaging other works or services, causing erosion and/ or polluting water courses. The contractor shall keep the whole of the Works free from water and shall provide all dams, cofferdams, pumping, piling, shoring, temporary drains, sumps etc, necessary for this purpose. Well in advance of commencing the permanent works, the contractor shall at his own expense cut drains and ditches and carry out any other measures necessary to effectively drain the original ground and/or shall so programme his works that the necessity of temporarily draining the original ground is partially or totally obviated by working in the dry season. The Contractor shall at his own expense take all necessary precautions to prevent damage due to erosion and siltation during construction. Precautions will include Temporary drainage berms, scour checks, riprap and the like. Spoil material shall be dumped so as not to interfere with streams, watercourses or any of the drainage works detailed by the Engineer.

On cessation of the works each day the surface of each complete layer shall be trimmed so that ponding and concentration of surface run-off does not occur. Should any water accumulate on any part of the works either during construction or after construction until the end of the period of maintenance, giving rise to soaking or eroding conditions, the Engineer may order the contractor to remove and replace at the contractor’s expense any material or works that has been so affected. Any damage to the works or to adjacent properties resulting from the contractors’ failure to take the necessary precautions shall be made good at the contractor’s expense.

117 HEALTH, SAFETY AND ACCIDENTS

Add the following:

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the laws of Kenya, the contractor shall provide and maintain on site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer / Nurse who shall offer the necessary medical advice on HIV and related diseases to the Engineer’s and Contractor’s site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

120 PROTECTION OF EXISTING WORKS AND SERVICES

The contractor shall acquaint himself with the position of all existing services such as sewers, surface water drains, cables for electricity and telephone, telephone and lighting poles, water mains, and the like before commencing any excavation or other work likely to affect the existing services. Where work is to be carried out in the vicinity of the overhead power lines, the contractor shall ensure that all persons working in such areas are aware of the relatively large distance that high voltage electricity can “short” to earth when cranes, or other large masses of steel, are in the vicinity of power lines. The Contractor’s attention is drawn to BS 162 which gives safe clearances for the various voltages. The contractor shall be held responsible for injury to existing works or services, and shall indemnify the Employer against any claims in this respect (including consequential damages). The contractor shall be responsible for the reinstatement of

the services so affected. In all cases where such works or services are exposed, they shall be properly shored, hung up or otherwise protected. Special care must be exercised in filling and compacting the ground under mains, cables, etc, and to leave uncovered exposed water meters, stopcock boxes and similar items. Installations adjacent to the Works shall be kept securely in place until the work is completed and shall then be made as safe and permanent as before. Notwithstanding the foregoing requirements, and without reducing the contractor's responsibility, the contractor shall inform the Engineer immediately if any existing works or services are exposed, located or damaged. All costs which may be incurred by the contractor as a result of programming and co-coordinating work to enable any alterations to the services to be carried out and the cost of any safety precautions which shall be deemed necessary due to the proximity of the works to the power lines belonging to the Kenya Power & Lighting Co. Ltd shall be at the Contractor's expense.

121 DIVERSION OF SERVICES

The Contractor shall acquaint himself with the location of all existing services such as telephone lines, electricity cables, water pipes, sewers etc., before execution of any works that may affect the services. The cost of determining the location of the existing services together with making good or repairing of any damage caused all to the satisfaction of the Engineer shall be included in the BID rates.

Subject to the agreement with the Engineer, the Contractor shall be responsible for removal of alteration and relocation of existing services.

Such work will be reimbursed at Contractor's actual expenditure plus overhead and profit under a Prime Cost Sum in Bill 1.

The Contractor shall indemnify the Employer against claims originating from damage to existing services or works.

123 LIAISON WITH GOVERNMENT AND POLICE OFFICIALS

The Contractor shall keep in close touch with the Police and the other Government officials of the area regarding their requirements in the control of traffic, or other matters, and shall provide all assistance or facilities, which may be required by such officials in the execution of their duties.

LAND FOR ALL CAMPS SITES AND FOR THE CONTRACTOR'S OWN PURPOSES, INCLUDING TEMPORARY WORKS.

Notwithstanding Clause 124 of the Standard Specification all requirements of land for temporary works and construction purposes shall be to the approval of the Engineer but the Contractor will make all necessary arrangements with the property owners concerned and pay all charges arising there from. On or before completion of the Contract, the Contractor shall remove all temporary works and shall restore all such land to the condition in which it was immediately prior to the occupation thereof as far as is reasonable and practicable. No separate payment will be made to the Contractor on account of these items and the Contractor must make due allowance for them in his rates.

Notwithstanding Clause 120 of the Standard Specifications, the Contractor shall be required to appoint competent surveyors who will liaise with the Engineer on matters related to the demarcation of the existing road reserve, site measurements, removal and reinstatement of existing services.

121 DIVERSION OF SERVICES

The contractor shall be responsible for arranging in liaison with the appropriate authority as soon as the requirement is known for the moving of or alterations to services such as power and telephone lines, water mains, sewers and surface water drains which are affected by the works. The arrangements for such moving or alteration shall be subject to the agreement and the appropriate authority

126 MATERIALS AND MANUFACTURED GOODS

Notwithstanding the provisions of Clause 126 of the Standard Specification, the Contractor's attention is drawn to his obligations with regard to quality and delivery schedule of materials and goods obtained from suppliers.

Should the Engineer at any time be dissatisfied with any goods and materials intended for use by the Contractor upon the Works, he shall be empowered to reject the goods and materials and shall order that others of acceptable quality replace them. Any more work that may consequently have to be redone and the costs of the new supplies shall be borne by the Contractor.

127 INFORMATION FROM EXPLORATORY BORINGS AND TEST PITS

Omit the content of Clause 127 and substitute the following Sub-Clauses: -

FACTUAL MATERIALS REPORT

The Factual Materials Report for this Contract does not form part of the Contract Documents. However, the Report will be made available for the Contractor's information only, and any conclusions on issues such as suitability of materials, location of borrow pits, material quantities etc., made by the Contractor on basis of the Factual Materials Report, will be at his own risk.

TRIAL SECTIONS

The Contractor shall allow in his programme for constructing trial sections and carrying out tests upon them as directed by the Engineer. Trials would normally be required at the start of each pavement layer and if changes of materials, method or equipment deem it necessary as directed by the Engineer.

The time for completion of the Contract shall not be extended because of the time needed to construct trial sections and evaluate the tests on them.

At least fourteen days before the work of laying any pavement layer is commenced, the contractor shall construct trial sections of at least 100m in length and to the full construction width and the specified pavement layer thickness. For each trial section, the Contractor shall use the materials, mix proportions, mixing, laying, compaction plants and construction procedure that he proposes to use for the main work. The main work of laying the pavement layer shall not be commenced until this trial has been tested and approved by the Engineer.

No variation in the construction procedure, mix proportions, size, grading or source of any of the constituents shall be made without the agreement of the Engineer who may first require new trial sections to be carried out.

Trial sections, if found satisfactory, will be paid for under the rates in the Bill of Quantities for the appropriate items, as if the trial sections were part of the normal work. No separate payment will be made for trial sections and testing and the Contractor shall be deemed to have provided for this in his rates.

The Contractor shall make good, at his own expense, any trial sections that fail to meet the specified standards. The standards shall include, but not be limited to, material quality, layer thickness, levels and compaction.

128 STORAGE OF MATERIALS

All materials shall be stored on site in a manner approved by the Engineer and the Contractor shall carefully protect from the weather all work and materials which may be affected thereby.

129 TEST CERTIFICATES

When instructed by the Engineer the Contractor shall submit certificates of test from the suppliers of materials and goods required in connection with the works as the Engineer may require.

Such certificates shall certify that the materials or goods concerned have been tested in accordance with the requirements of the specifications and shall give the results of all the tests carried out. The Contractor shall provide adequate means of identifying the materials and goods delivered to the site with the corresponding certificates.

130 PROGRESS PHOTOGRAPHS

Notwithstanding the provision of Clause 130 of the Standard Specifications, the Contractor shall not be responsible for taking of progress photographs. Progress Photographs shall be taken by the Engineer's Representative and relevant costs charged to the Contractor who will be reimbursed under Miscellaneous Accounts

131 SIGNBOARDS

The Contractor shall provide and erect two (2) publicity signboards on the site as directed. The Engineer shall, as shown in the Drawings, direct the minimum dimensions of the boards. The boards shall be prepared, primed and painted cream and lettered in black. The boards shall be of stout construction, resistant to the effects of weather.

138 VEHICLES AND DRIVERS FOR THE ENGINEER AND HIS STAFF AND METHOD OF PAYMENT

The Contractor shall when instructed to do so provide and maintain in good working condition for the exclusive use of the Engineer and his staff throughout the contract, brand new vehicles, right hand drive, diesel powered and fitted with air-conditioner, CD/mp3 music player, Air bags and power steering as described below. The Engineer will approve the type of vehicle and confirm the number of each type to be provided.

2No. Type 2 - new Turbo diesel propelled Toyota Hilux 4WD Twin Cab Pick-up vehicle of minimum engine capacity 2500cc will be for Client's use on the project and will be maintained throughout the 6-month Defects Liability Period. Payment will be made as for the construction period.

The Contractor shall insure comprehensively the vehicles for any licensed drivers. Should any vehicle supplied not be in road worthy condition, the Contractor shall provide an acceptable equivalent replacement vehicle until such time as the original vehicle is repaired to the satisfaction of the Engineer and returned for use.

Payment for the vehicles (up to 4,000Km per veh. month), shall be by vehicle months. Payment for mileage above 4,000Km per vehicle month, shall be made at a rate per Kilometre. These payments shall be inclusive of all fuels, lubricants, servicing, insurance, maintenance, drivers and repairs. Payment shall be made under appropriate items in the Bills of Quantities. The vehicles shall revert to the Client at the end of the contract.

139 MISCELLANEOUS ACCOUNTS

The Contractor maybe instructed by the Engineer to make payments of general receipted accounts for such items as stationary, stores and equipment, or make payments for claims and allowances for the supervision personnel; or the Engineer may direct the Contractor to purchase or pay for the above. The Contractor will be paid on a prime cost basis plus a percentage for overheads and profits under appropriate items in the Bills of Quantities.

MEASUREMENT AND PAYMENT

Item: Preliminary Item

Delete the contents of Sub-Clause 141 (a) entirely and substitute with:-

‘No Preliminary item has been included in this Contract. All Contractor’s mobilisation and general costs shall therefore be included in relevant rates in the Bill of Quantities.’

Item: Progress Photographs

Delete this Sub-Clause

142 ENVIRONMENTAL PROTECTION

Further to the requirements of Clause 19.1 of the Conditions of Contract, the Contractor shall be responsible for the following measures to protect the environment:

1. Compliance with national and local statutes and regulations relating to protection of the environment. The Contractor will be responsible for familiarizing himself with all existing national and local legislation in this regard.
2. All construction activities shall be carried out using the best possible means to reduce environmental pollution such as noise, dust and smoke. All vehicles and plant shall be regularly serviced in accordance with the manufacturer’s recommendations to ensure that they operate efficiently and without excessive noxious emissions. The Engineer will have the authority to instruct the Contractor to temporarily cease operations and/or remove from the site vehicles or plant which do not comply with this requirement, until such time that he is satisfied that best practicable means to reduce environmental pollution to a minimum are being used.
3. The Contractor shall at all times maintain all sites under his control in a clean and tidy condition and shall provide appropriate and adequate facilities for the temporary storage of all waste prior to proper approved disposal.
4. The Contractor shall be responsible for the safe transportation and disposal of all waste generated as a result of his activities in such a manner as will not give rise to environmental pollution in any form, or hazard to human or animal health. In the event of any third party being employed to dispose of waste, the Contractor shall be considered to have discharged his responsibilities under this clause from the time at which waste leaves sites under his control, providing that he has satisfied himself that the proposed transportation and disposal arrangements are such as will not give rise to pollution or health hazard.
5. The Contractor shall be responsible for the provision of adequate sanitary facilities for his workforce, and that of his sub-contractors, at all construction and ancillary sites. The Contractor

shall not allow the discharge of any untreated sanitary waste to groundwater or any surface watercourse.

Prior to the mobilization of the workforce the Contractor shall provide details of proposed sanitary arrangements to the Engineer for approval, such as will allow him to assess whether or not the proposed facilities are adequate and are unlikely to pollute water resources, and also that the facilities will be properly operated and maintained.

6. All concrete and asphalt plants shall be operated and maintained in accordance with the original manufacturer's specifications and manuals, and in such a manner as to minimize emissions of hydrocarbons and particulates. If, in the opinion of the Engineer, the operation of such plant is causing, or is likely to cause nuisance or health problems to site staff or the general public, the Contractor shall carry out such work as is necessary to reduce emissions to an acceptable level within a time-scale agreed with the Engineer.

7. The Contractor shall regularly douse with water all exposed dirt surfaces to reduce dust levels.

8. The Contractor shall take all reasonable measures, at all sites under his control, to prevent spillage and leakage of materials likely to cause pollution of water resources. Such measures shall include, but not be limited to the provision of bunds around fuel, oil and bitumen storage facilities, and provision of oil and grease traps for servicing and fuelling areas. Prior to construction of such facilities, the Contractor shall submit details of pollution prevention measures to the Engineer for his approval.

9. The Contractor shall be responsible for ensuring that exposed surfaces are re-vegetated as construction progresses, all to the satisfaction of the Engineer. The removal of trees shall be kept to the minimum necessary to accommodate the Permanent Works.

10. Prior to the removal of any trees the Contractor shall inform the Engineer of the intended operation and obtain the permission of the Engineer for the removal of the trees. If any tree is removed without permission the Contractor shall replant another approved tree at no additional cost to the Employer.

11. The Contractor shall ensure that fires, except for controlled fires for burning rubbish, do not start within the Site or in the environs thereto as a result of the works or from the actions of his employees. The burning of waste, such as vehicle tyres causing noxious emissions is prohibited. The Contractor shall have available at all times trained fire-fighting personnel provided with adequate fire-fighting equipment to deal with all fires. The Contractor shall additionally at all times provide sufficient fire protection and fighting equipment local to parts of the Works which constitute particular fire hazards.

12. The contractor shall as instructed by the Engineer carry out off - road mitigation measures to the approval and satisfaction of the Engineer and to the required standards. The contractor shall obtain Environmental mitigation licence for the same and also comply with Environmental Management Coordination Act (EMCA) 1999, and Environmental Impact Assessment (EIA) and Environmental Audit (EA) Regulations 2003.

No separate payment shall be made in respect of this Clause 142 and the Contractor shall be deemed to have allowed in his general rates and prices for the cost of complying with the requirements of this Clauses.

RECTIFICATION OF TITLE DEEDS

Properties acquired during construction of the road will need to have their title deeds rectified with the Commissioner of Lands. The Contractor shall pay, on instruction from the Engineer, the cost of rectification of title deeds of the affected properties. Contractor will be reimbursed under the Prime Cost sum allowed for land acquisition in Bill 1.

Contractor's overhead shall cover his administration and liaison with the Commissioner of Lands.

Payment will be under appropriate items in the BoQ.

SECTION 2 - MATERIALS AND TESTING OF MATERIALS

All materials testing shall be in accordance with Section 2 of the Standard Specifications.

TESTING BY THE CONTRACTOR

Add the following: -

CONTRACTOR'S TESTING

The provision of the Engineer's laboratory and testing equipment, as specified in Section 1 of this Special Specification, does not relieve the Contractor of his obligation to provide laboratory and testing equipment and execute his own testing, in conformity with the specified requirements in the Standard Specification.

SIEVES

Add the following: -

SIEVE SIZES

A standard set of sieves for general use shall consist of the following sieve sizes mm: 100-63-50-37.5-25-20-14-10-6.3-5-4-2-1-0.6-0.5-0.425-0.300-0.150-0.075 mm. The sieves from 0.425 to 0.075 mm shall be suited for wet sieving.

SOILS AND GRAVEL

Whenever in the Contract Document a minimum California Bearing Ratio (CBR) is specified, the CBR of the material shall be determined at the specified state of compaction;

- a) After four days soaking in the case of neat materials and
- b) After seven days curing plus seven days soaking in the case of cement/lime improved

materials

BITUMINOUS BINDERS

(c) Requirements

(i) Straight run bitumen

In addition to the requirements of the Standard Specification the ash content of penetration grade bitumen shall not exceed 5 % by weight

SECTION 3 - SETTING OUT & TOLERANCES

SETTING OUT

a) General

Add the following:

If the traverse points to be used for the setting out are close to the existing carriageway and interfere with construction works then the Contractor will have to relocate them to a location where they will not be disturbed. The co-ordinates and heights of all traverse points so located shall be listed and provided to the Engineer for checking and/or approval. Contractor shall also monument the new centreline every 200m along straight and all salient points along curves by a pin in the concrete beacon before commencement of any works.

The road reserve boundary posts shall have 12mm diameter steel pins embedded in concrete, 200mm long with 25mm exposed to the air, sticking out from its top surface. This pin shall be co-ordinated and heighted and result of the same shall be provided to the Engineer for approval. Cost of these works shall be included in the rates as no separate item has been provided. Commencement of the works shall not be permitted until this basic survey data has been provided and approved by the Engineer for at least 5 Kms of the road.

b) Detailed Setting Out

Add the following:

Reference pegs shall be 50mm by 50mm in section 600mm long driven 400mm firmly into ground and painted white above the ground. The offset from centre line shall be indicated by

small nail 20mm to 25mm long with its head driven flush with the top of the peg. Chainages, offset and reference elevation shall be clearly indicated to the sides of the peg to the satisfaction of the Engineer.

After cutting of benches and prior to commencement of earthworks or subgrade works, Contractor shall take cross-sections again and submit the copy of the same to Engineer for agreement. These cross-sections shall then be used as basis of measurement for all subsequent layers, unless otherwise stated.

TOLERANCES

Add the following:

(j) Pavement Widths

For Pavement widths for subbase, base and wearing course, the allowable tolerances shall be 0 to +50 mm.

(k) Pipe Culverts

The maximum deviation from the specified line of a drainage pipe shall be: -

Horizontal - 25mm in 3.0 m

Vertical - 30 mm in 10.0 m

SECTION 4 - SITE CLEARANCE AND TOP SOIL STRIPPING

SITE CLEARANCE

Site Clearance shall be carried out as directed by the Engineer.

Add the following as the last paragraph in Sub-clause (a):

Site clearance is not required over the gravelled width of existing road and shoulders. No measurement and payment for site clearance will be made for this width. The remaining area within the road reserve including sides of existing embankments and cuttings shall be cleared as instructed by the Engineer. This operation shall also include the removal of all trees, except for some trees as directed by the Engineer. The Contractor shall provide paint and all the assistance the Engineer may require to mark the trees which should not be removed during site clearance. The Contractor shall take care not to uproot or damage trees which are within the road reserve but outside the construction width. After the Contractor has staked out the extent of the road, the Engineer, with the assistance of the Contractor, shall mark out the trees to be removed. After removal, the trunks and branches of these trees shall be cut up into pieces not more than 2.0m in length, transported and neatly stored at the nearest County Offices or otherwise in a position to be indicated by the Engineer. No additional payment shall be made for complying with this requirements and it is deemed the Contractor will have included its cost in the rates for site clearance.

REMOVAL OF TOPSOIL

Topsoil shall include up to 200mm depth of any unsuitable material encountered in existing or newly constructed drains, drainage channels, and accesses.

REMOVAL OF STRUCTURES, FENCES AND OBSTRUCTIONS

When instructed by the Engineer, the Contractor shall demolish or remove any structure and payment for this shall be made on day works basis.

SECTION 5 - EARTHWORKS

PREPARATION PRIOR TO FORMING EMBANKMENT

Add the following at the end:

Where benching is required for existing pavement or embankment slope to accommodate earthworks, subgrade or subbase for widening the road, the rate for compaction of existing ground shall be deemed to cover this activity.

Excavation in the existing road shall be kept dry. In the event of water penetrating the underlying layer, construction of the subsequent layers shall be postponed until the underlying layers are dry enough to accommodate the construction plant without deforming or otherwise showing distress.

Step construction shall be carried out per layer at the joint where excavating both vertically and perpendicular to the direction of the travel. The step shall be 500 mm perpendicular to the direction of the travel and 150 mm vertical unless otherwise instructed by the Engineer.

Special care shall be taken when compacting the new material at the joint ensuring that specified density is achieved.

In cuttings, the contractor shall excavate to a level that would accommodate the 300mm subgrade and the existing ground below this MUST be processed and compacted in accordance with clause 504 of the standard specifications.

CONSTRUCTION OF EMBANKMENTS

Only material approved by the Engineer shall be used for fill in embankments.

Material with high swelling characteristics or high organic matter content and any other undesirable material shall not be used, unless specifically directed by the Engineer. Unsuitable material shall include:

- (i) All material with CBR Values of less than 2%
- (ii) All material containing more than 5% by weight of organic matter (such as topsoil, material from swamps, mud, logs, stumps and other perishable material)
- (iii) All material with a swell of more than 3% (such as black cotton soil)
- (iv) All clay of plasticity index exceeding 50.
- (v) All material having moisture content greater than 105% of optimum moisture content (Standard Compaction)

Subgrade

Improved Subgrade layer, 300mm thick shall be required below the formation layer and shall be formed as below;

- (i) Existing pavement layers shall be scarified and spread to required width, extra material added from approved borrow sites as necessary, and the whole layer processed and compacted as specified to a thickness of 300mm.
- (ii) The material forming the improved subgrade shall be of Soil Class S4 minimum with CBR of not less than 10% and a swell of less than 1% measured after a 4-day soak. The full layer of 300mm shall be compacted to a 100% MDD (AASHTO T99).

Payment for laying the improved subgrade as per requirements in (i) and (ii) above shall be done under item 5.05 of BOQ. No extra payment will be made for haulage of supplementary subgrade material from borrow pits and all costs shall be deemed to have been factored in the rate entered against item 5.05.

Where the insitu material shall be deemed substandard or weak due to say wet spots, the Engineer may instruct that the material forming the existing pavement first be removed to stockpile and the resultant exposed surface be scarified, re-processed and re-compacted as specified under Clause 504 before laying the improved subgrade material.

Where the Engineer shall deem it necessary to protect the pavement layer from water seepage, subsoil drains in form of rockfill wrapped in filter fabric shall be installed at suitable depths below the pavement as instructed (refer to Clause 814 of the Special Specifications). The rockfill and the filter fabric shall be measured in terms of cubic metres and by square metres respectively and payments made under appropriate items of the BOQ.

Embankment repair

Where directed by the Engineer, any localized filling in soft or hard material shall be executed in accordance with Clause 505.

COMPACTION OF EARTHWORKS

At pipe culverts, all fill above ground level around the culverts shall be compacted to density of 100% MDD (AASHTO T.99) up to the level of the top of the pipes or top of the surround(s), if any and for a width equal to the internal diameter of the pipe on either side of the pipe(s) or surround(s) as applicable.

At locations adjacent to structures (up to 100m away from structure), all fill above ground level upto the underside of the subgrade shall be compacted to density of 105% MDD (AASHTO T.99). In case of fill around box culverts this should be carried out for the full width of the fill and for a length bounded by the vertical plane passing through the ends of the wingwalls. Notwithstanding the provision of clause 503 of the standard Specification, Compaction of subgrade material (i.e. material immediately below formation) in cut areas shall not be carried out by the contractor in areas where the formation is formed in hard material, unless specific instructions to the contrary are issued by the Engineer.

Where improved sub-grade material shall be required, the material shall have a CBR greater than 14% and this shall be compacted and finished to the same standards and tolerances as those required for normal subgrade and clauses in the specifications applying to normal subgrade shall also apply.

MASS-HAUL DIAGRAM

Delete Clause 509 entirely and substitute No Mass-Haul diagram has been provided with the Documents. The Contractor shall be responsible for locating suitable materials for constructing earthworks along the alignment and elsewhere and shall include in his rates for fill, spoil and for the cost of haulage’.

BORROW PITS

The first part of the Standard Specification is amended as follows: -
Fill material which is required in addition to that provided by excavation shall be obtained from borrow pits to be located and provided by the Contractor but to the approval of the Engineer contrary to what has been stated.

SIDE DRAINS

Whenever excavation works in side drains constitutes a separate operation from the bulk earthworks, such excavation shall be classified as catchwater drains under Section 8 of the Specifications

MEASUREMENT AND PAYMENT

Notwithstanding the provisions of clause 517 of the standard specifications, the rate for compaction of fill in soft material shall allow for the requirements of clause 508 of the special specification and no extra payment shall be made for compaction around pipe culverts (100% MDD AASHTO T.99).

(h) Delete the text and replace: -

Item: Fill in soft material for improved subgrade

Unit: m³

The rate shall include;

- Provision of additional subgrade material meeting the specified quality - where required - from approved borrow sites
- Trimming, shaping and compaction of the improved subgrade to 100% MDD (AASHTO T99) in two layers as to achieve the total thickness of 300mm.

SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS

GENERAL

Notwithstanding any indications to the contrary in the Standard specification the Engineer will not make available to the Contractor any land for quarries, borrow pits, stockpiles and spoil areas, except for those areas in road reserves specifically approved by him.

The contractor will be entirely responsible for locating suitable sources of materials complying with the Standard and Special Specifications, and for the procurement, Winning, haulage to site of these materials and all costs involved therein. Similarly, the contractor will be responsible for the provision and costs involved in providing suitable areas for stockpiling materials and spoil dumps. Should there be suitable sites for spoil dumps or stockpiles within the road reserve forming the site of the works the Contractor may utilize these subject to the approval of the Engineer.

No additional payment will be made to the Contractor to cover costs arising from the requirements for this Clause and the Contractor must include these costs in the rates inserted into the Bills of Quantities.

SAFETY AND PUBLIC HEALTH REQUIREMENT

Add the following to Clause 605:

When working the material sites, the Contractor shall time and arrange his works in such a way that at no times the public safety is endangered in any way.

SITE CLEARANCE AND REMOVAL OF TOPSOIL AND OVERBURDEN

Add the following to Clause 607:

Faces of quarries or borrow pits being higher than 4 metres shall be shaped and stepped with benches 1.5 m wide, sloping 1:10 out of the face at an interval of 4 metres height. All quarries and borrow pits shall be permanently fenced with 5-strand barbed wire which shall be located 5 metres off the edge of the face.

SECTION 7 - EXCAVATION AND FILLING FOR STRUCTURES

EXCAVATION OF FOUNDATIONS FOR STRUCTURES

Unless otherwise instructed by the Engineer, all excavated surfaces in material other than hard material, on which foundations for structures shall be placed, shall be compacted to 100% MDD (AASHTO T.99) immediately before structures are constructed.

Paragraph 4, last line: - Replace "95%" with "100%".

BACKFILLING FOR STRUCTURES

Unless otherwise instructed by the Engineer, all backfilling material shall be compacted to a minimum of 100% MDD (AASHTO T.99).

EXCAVATIONS FOR RIVER TRAINING AND NEW WATER COURSES

Payments for river training and establishment of new watercourses shall only be made where such work constitutes permanent works. Works done for road deviation or other temporary works shall not qualify for payment.

STONE PITCHING

Stone pitching to drains, inlets and outlets of culverts to embankments and around structure shall consist of sound unweathered rock approved by the Engineer. The stone as dressed shall be roughly cubical in shape with minimum dimensions of 150 x 150mm for normal thickness of stone pitching. Cement mortar Grouting will be done for all stone pitching areas and the top line of the stone pitching should be grouted/sealed with concrete class 15/20. The cement shall be mixed with sand in the ratio of 1:3 by volume to form the grout.

The surface to receive the pitching shall be compacted and trimmed to slope and the stone laid, interlocked and rammed into the material to give an even finished surface. Soil erosion is rampant along the project location and this can be minimized by ensuring that proper protection works is carried out along the drains using stone pitching. Most of the sections shall be stone pitched especially areas where we have steep slopes to minimize undermining of the road by rain water or as may be instructed by the Engineer.

In areas where stone pitching has been damaged, the Contractor shall identify such areas and notify the Engineer for his agreement of the extent of the Works required and his approval and

instructions to proceed with the Works. Stone Pitching Repair and reconstruction shall be carried out in accordance with Clause 710 of the Standard Specifications.

GABIONS

Where instructed by the Engineer the Contractor will install gabions as protection works to washout areas or bridge Piers and or Abutments. Gabions shall be constructed in accordance with Clause 711 of the Standard Specification.

In cases where existing gabions have been damaged, the Contractor shall identify them and notify the Engineer for his agreement of the extent of the Work required and his approval and instructions to proceed with the Works.

The Works shall involve removal of the damaged gabions / rocks, excavation to the correct levels and grades as directed by the Engineer, and in accordance with Clause 711 of the Standard Specifications and reconstruction with new gabions and other necessary materials as necessary. The damaged gabions shall be recovered and transported to the County Government of Kakamega yard.

RIP-RAP PROTECTION WORK

Quarry waste or similar approved material shall be used to backfill scoured and eroded side, outfall and cut-off drain. The material shall be compacted to form a flat or curved surface preparatory to stone pitching of drainage channels, existing and new scour checks as directed by the Engineer.

The surface to receive the pitching shall be compacted and trimmed to slope and the stone hand laid, interlocked and rammed into the material to give an even finished surface. The interstices of the Pitching shall be rammed with insitu material. The insitu material immediately behind the pitching shall be compacted to minimum density of 100% MDD compaction (AASHTO T.99)

BACKFILL BELOW STRUCTURES

Where instructed this shall be carried out in compliance with the requirements of Clause 507 and 804 of the Standard Specification.

SECTION 8 - CULVERTS AND DRAINAGE WORKS

EXCAVATION FOR CULVERTS AND DRAINAGE WORKS

In the Standard Specifications, make the following amendments: -

(a) In paragraph 6, line 3, and in paragraph 7, line 5 and in paragraph 11, line 6, delete "95%" and insert "100%".

(b) Removal of Existing Pipe Culverts

Where instructed by the Engineer, the Contractor shall excavate and remove all existing blocked or collapsed culvert pipes of 450mm, 600mm and 900mm diameter including concrete surround, bedding, inlet and outlet structures.

The void left after removal of culvert pipes shall be widened as necessary to accommodate new concrete bedding, pipe and haunching in order to accommodate replacement 600mm or 900mm diameter pipe culverts as shall be directed by the Engineer. The payment of this work shall be per linear metre of pipes removed.

(c) Removal of Other Existing Drainage Structures

Where instructed by the Engineer, the Contractor shall demolish or remove any other structure and payment for this shall be made on day work basis.

(d) Excavation for Culverts and Drainage Works

The Contractor shall carry out all excavations for new culverts and drainage works to the lines, levels, inclinations, and dimensions shown on the drawings or as instructed by the Engineer.

EXCAVATION IN HARD MATERIAL

In the Standard Specifications, Sub-clauses 805(a) and 805 (b) delete "95%" and insert "100%".

In sub-clause 809(a), paragraph 1, line 1, substitute "95%" with "100%".

In sub-clause 809(c), paragraph 2, line 4, between the words "compacted" and "and shaped" insert the words "to 100% MDD (AASHTO T.99)".

Hard material is material that can be excavated only after blasting with explosives or boring and

wedging or the use of a mechanical breaker fitted with a rock point in good condition and operated correctly. Boulders of more than 0.2m occurring in soft material shall be classified as hard material.

BEDDING AND LAYING OF PIPE CULVERTS

Concrete pipes shall be laid on a 150mm thick concrete bed of class 15/40 and the pipes shall be bedded on 1:3 cement: sand mortar at least 50mm thick, 150mm wide and extending the full length of the barrel.

The rates inserted shall allow for compaction of the bottom of excavation to 100% MDD (AASHTO T.99).

In addition to the requirements of the Standard Specification, where inflatable balloon method of casting culverts in-situ is used, it is essential that thorough pre-construction trials are carried out and necessary adjustments made to ensure that: -

- i. All concrete used for surround and bedding shall be Class 25/20.
- ii. The inner concrete barrel surface immediately in contact with the inflated balloon form during placing shall achieve Class F3 finish.

Payments for the bedding, pipe culvert and surround shall be made as specified in the standard specifications. No additional payments shall be made for complying with this requirements where the balloon method is adopted.

JOINTING CONCRETE PIPES

The concrete pipes for the culverts shall have ogee joints and will be jointed by 1:2 cement: sand mortar and provided with fillets on the outside as described in clause 810 of the Standard Specification.

BACKFILLING OVER PIPE CULVERTS

In the Standard Specifications, clause 812

- i. Delete paragraph 6 'for pipe culverts.....depth of 150mm', entirely.
- ii. Wherever the expression "dry density of 95% MDD (AASHTO T. 99)" occurs delete and replace with "dry density of 100% MDD (AASHTO T.99)".

The rates entered for laying of pipe culverts shall allow for backfilling to pipe culverts and compacting to 100% MDD (AASHTO T.99) and these works shall not be measured and paid for separately.

PRECAST CONCRETE OPEN CHANNELS

Add the following to the standard specification clause 813: -

HALF ROUND OPEN CHANNELS

These shall be provided as directed by the Engineer and in compliance with sections 813 and 820 of the standard specifications.

INVERT BLOCK OPEN CHANNELS

These shall be provided as directed by the Engineer and in compliance with sections 813 and 820 of the standard specifications.

Where instructed, the Contractor shall excavate, compact the excavated bed to 100% MDD AASHTO (T.99), backfill as necessary with selected material compacted to 100% MDD AASHTO (T.99) and remove surplus material to spoil, provide, lay and joint invert block drains of 300mm diameter with two side slabs

Precast concrete invert block side drains shall comply with the requirements of BS 340, and shall be laid in accordance with the drawings.

Precast concrete invert block drains and side slabs shall be formed of concrete of the class specified and to the dimensions shown on the drawing. Drains shall not normally be laid to a radius of a curvature less than 10 times the bed width or a diameter of the drain.

Invert block drains shall be constructed in the positions and to the levels and dimensions shown on the drawings or as directed by the Engineer. The earth sides to such channels shall be neatly finished to a slope of 1: 1 or such other slope as the Engineer may direct. Invert block drains and side slabs shall be neatly jointed with mortar consisting of 1:3 cement: sand by volume. Payment for laying invert block drains of 300 mm dia. inclusive of two side slabs shall be by linear metre laid as instructed. The rate shall be inclusive of provision and transport of all materials, excavation, bed compaction and preparation, laying, jointing and disposal of spoil.

SUBSOIL DRAINS

In the event of excavation for repairs exposing local seepage, springs or unacceptably high water table, the Engineer may instruct the provision of counter fort or French drains.

These drains shall consist of a trench excavated to the alignment, width, depth and gradient instructed by the Engineer, and backfilled with approved compacted clean hard crushed rock material as specified in clause 815 of the standard specification. Where these drains lie within the carriageway the carriageway shall be constructed only after the subsoil drain has been completed and approved by the Engineer

FILTER FABRIC TO SUBSOIL DRAINS

A filter fabric shall be placed under, around and over rock fill of the subsoil drains. The provisions and placing of the fabric shall be in accordance with manufacturer's instructions and complying with Clause 804 and 814 of the Standard Specification. Payment shall be in metre square of the fabric used.

SCOUR CHECKS

Scour checks are to be constructed in mass concrete in accordance with clause 818 of the standard Specifications and the drawings as shall be provided.

SECTION 9 - PASSAGE OF TRAFFIC

SCOPE OF THE SECTION

The Contractor shall so arrange his work to ensure the safe passage of the Traffic at all times and if necessary construct and maintain an adequate diversion for traffic complete with all the necessary road traffic signs.

The contractor shall provide to the satisfaction of the Engineer adequate warning signs, temporary restriction signs, advance warning signs, barriers, temporary bumps and any other device and personnel equipped with two way radios to ensure the safe passage of traffic through the works.

When carrying out the Works the Contractor shall have full regard for the safety of all road users.

The Contractor shall also provide sign posts and maintain to the satisfaction of the Engineer all deviations necessary to complete the works. The contractor should allow for the costs of complying with the requirements of this clause in his rates.

The contractor will be deemed to have inspected the site and satisfied himself as to the adequacy of his bid for these works and no additional payments will be made to the contractor for any expenditure on traffic control or the provision of deviations. The employer shall not be liable for inadequate prior investigations of this nature by the contractor.

MAINTENANCE OF EXISTING ROAD

The Employer shall hand-over the existing road to the Contractor at the commencement of the Contract. The Contractor shall be responsible for all repairs and maintenance during the duration of the Contract. The existing road is gravel and the Contractor shall maintain it with suitable approved gravel of minimum CBR 20%. The Contractor shall regularly inspect the road and carry out such repairs and maintenance to the satisfaction of the Engineer. If at any time, the Engineer draws the Contractor's attention to a road section which requires maintenance, the Contractor shall promptly repair the section. The Contractor shall be legally responsible for any accident or damage attributable to his failure to maintain the road.

CONSTRUCTION OF DEVIATIONS

a) General

In addition to requirement of this clause, the maximum length of deviation road shall be restricted to 5 Kms at any given time unless otherwise instructed. The Contractor shall construct and complete deviations to the satisfaction of the Engineer before commencing any permanent work on the existing road. Also during these works the contractor is supposed to provide a detour of adequate pipe culverts for pedestrian and traffic crossing where there is bridge works.

Contractor will be allowed to open further 5 Km of the deviation road only when 80% of the permanent work has been completed on first one and he will not be allowed to open further 5 Km till he has completed first 10 Km of the road and has it opened to traffic.

Where there is an existing side road near the main road, the Contractor shall use this road as deviation road.

b) Geometry

The carriageway width of the deviations shall not be less than 6m wide and suitable for 2-way lorry traffic unless otherwise specified.

c) Construction

Unless otherwise instructed gravel wearing course for the deviation shall be 100 mm compacted thicknesses complying with section 10 of the Standard Specification.

The Contractor shall allow in his rate for removal of any unsuitable material before placing of gravel wearing course, as this will not be paid for separately.

The Contractor shall be responsible for locating and obtaining suitable gravel for the construction of deviations. He shall be fully responsible for all payments necessary to enable him to purchase, excavate, stockpile, transport, lay and compact the gravel.

These costs shall include but not limited to the following

- site clearance,
- stripping and removal of topsoil and any overburden,
- construction and maintenance of haul roads,
- reinstatement of borrow areas after they become disused.

All works shall be executed in accordance with Clauses 604, 605, 606, 607 and 608 of Section 6 of the Specification. Contrary to provisions of Clause 610, no reimbursement for land acquisition shall be done.

In addition to provisions of this clause, Contractor is required to sprinkle water at least 4 times a day at the rate of 1 - 1.4 litres/m in regular interval to minimize the effects of dust. Latest sprinkling time shall be one hour before the sunset.

PASSAGE OF TRAFFIC THROUGH THE WORKS

The Contractor shall arrange for passage of traffic through the works during construction whenever it is not practicable to make deviations. The contractor shall be reimbursed in accordance with the standard specifications.

Any damage caused by passing traffic through the works shall be made good at the contractor's own cost.

SIGNS, BARRIERS AND LIGHTS

Contractor shall provide signs, barriers and lights as shown in the drawings at the locations where the traffic is being carried off the existing road to the deviation and back again to existing road. The Contractor shall provide ramps and carry out any other measures as instructed by the Engineer to safely carry traffic from the road to deviation.

Contrary to what has been specified in this clause the road signs provided shall be fully reflectorised and in conformity with clause 9.1 of the "Manual for Traffic Signs in Kenya Part II".

ASSISTANCE TO PUBLIC

In addition to provision of clause 909, Contractor shall maintain close liaison with the relevant authorities to clear any broken down or accident vehicles from the deviations and the main road, in order to maintain smooth and safe flow of the traffic.

MEASUREMENT AND PAYMENT

(a) Maintenance of existing road

The Contractor will be paid by the cubic metre of compacted gravel used to maintain existing road.

(b) Construct Deviation

The Contractor shall be paid only 50% of the rate for this when he completes deviation road to the satisfaction of the Engineer. The balance shall be paid in equal monthly instalments over the contract period, as he satisfactorily maintains the deviation (as per clause 904 and 905 above) when it is in operation.

The rate shall include for the construction of any drainage requirement found necessary.

(d) Passage of traffic through the works

Payment shall be made on Lump Sum basis.

(e) Add the following:

Source of gravel material shall be provided by the Contractor and is subject to approval by the Engineer.

(f) Delete this Sub-Clause.

There will be no payment for overhaul.

(i) Assistance to Public

The Contractor will be deemed to have included cost of this item in other items and no separate payment shall be made.

TRAFFIC MANAGEMENT PLAN

Separately with the program for the Execution for the Works, the Contractor shall submit a traffic management plan prepared at a suitable scale showing his proposals for the management and control of traffic during the period of construction.

The plan shall indicate the overall time sequence of construction for the project roads such that disruptions to traffic are minimized. The plan shall show the proposed deviations or where it is necessary to pass traffic through the works, the sequence of operations along the length of the road such that hindrance to traffic is kept to an absolute minimum. Modifications may be made to the plan as necessary with the prior approval of the Engineer. No operations shall commence until such time that the Engineer has approved in writing the traffic management plan.

SECTION 11 - SHOULDERS TO PAVEMENT

GENERAL

Shoulders shall be constructed to a width of 1m, to the same standard as the carriageway with the pavement layers being constructed concurrently. Thus sections 12, 14 and 15 of the specifications apply as appropriate.

SECTION 12 - NATURAL MATERIAL SUBBASE AND BASE

GENERAL

Natural Material for subbase and base shall be sourced from approved gravel sites.

MATERIAL REQUIREMENTS

Natural materials for base and subbase shall conform to the specifications given in Section 12 of the Standard Specifications for cement improved base and subbase.

MEASUREMENT AND PAYMENT

a) Natural material for subbase and base

Natural material for subbase and base shall be measured by the cubic metre placed and compacted upon the road calculated as the product of the compacted sectional area laid and the length. Notwithstanding the provisions of the Standard Specifications as regards the different methods of measurement, the applicable method here shall be 'method – A' irrespective of whether the source of material shall be available at the time of tender or not. The responsibility of locating suitable gravel sources meeting the requirements of Clause 1203 shall lie with the Contractor.

No extra payment will be made for haulage of gravel material as the overhaul costs shall be deemed to have been factored in the rates inserted in the Bills of Quantities.

b) Overhaul

No extra payment will be made for haulage of gravel material as the overhaul costs shall be deemed to have been factored in the rates inserted in the Bills of Quantities.

SECTION 14 - CEMENT TREATED MATERIALS

CEMENT TREATMENT

a) Cement for Treatment

Cement for stabilization will be Ordinary Portland Cement complying with clause 207 of the Standard Specifications. The cement content of the treated material shall be as indicated by the Engineer and will normally be about 2-4%. The Engineer shall exercise his discretion to any variation in the rate of application of the cement, which he may see fit to order from time to time.

b) Moisture content

The moisture content of the treated material shall be as directed by the Engineer but nevertheless within the range of 95% to 105% of the Optimum Moisture Content (AASHTO T180).

c) Mixing and Placing

The material to be treated and the cement shall be mixed by an approved mixing plant (i.e a mix-in place pulvimixer or a stationary plant).

PROTECTION AND CURING

Protection and curing shall be carried out in accordance with the provisions of Clause 1409(i) of the Standard Specification but provision shall be made to wet the surface from time to time as directed by the Engineer.

MEASUREMENT AND PAYMENT

Stabilizer

The provision of the stabilizer shall be measured by the tonne calculated as the specific weight of stabilizer added to the material.

Mix-in stabilizer

Mixing stabilizer into the material shall be measured by the cubic metre of treated material calculated as the product of the compacted sectional area treated and the length.

SECTION 15 - BITUMINOUS SURFACE TREATMENTS

PART A - GENERAL

1501A GENERAL

Details of the bitumen spray rates and the chipping spread rates will be directed by the engineer but the rates given below can be used for general guidance purposes.

(a) Chippings

14/20mm size precoated chippings at a spread rate of 60-70 square metres per cubic metre.

10/14mm precoated chippings at a spread rate of 70-90 square metres per cubic metre.

10/14mm precoated chippings at a spread rate of 70-90 square metres per cubic metre.

(b) Bitumen Spray Rates

1.0-1.4l/m² for the first seal

0.8-1.0l/m² for the second seal

0.6-0.8l/m² for the third seal

PART B - PRIME COAT

1502 MATERIALS FOR PRIME COAT AND TACK COAT.

For prime coat, the binder shall be a medium-curing cut-back MC30 for Cement Stabilised Base unless otherwise directed by the Engineer. The spray rate shall be 1.0-1.2 l/m

The rate of spray of bituminous prime coat refers to the gross volume of the cut-back bitumen, that is the volume of the bitumen plus dilutant.

Prime Coat shall be applied to areas which are to receive single seal surface dressing, double seal surface dressing or bituminous mixes as directed by the Engineer.

The tack coat shall consist of K1-60 unless directed by the Engineer

The spray rates of the binder shall be as instructed by the Engineer and shall generally be within the range 0.3-1.04l/m

PART C - SURFACE DRESSING

1502C MATERIALS FOR SURFACE DRESSING.

In addition to the requirements of the standard specifications, details of the bitumen spray rates and the chipping spread rates will be directed by the Engineer but the rates given below can be

used for general guidance purposes.

(a) Binder

The bituminous binder shall be 80/100 penetration grade bitumen, cut-back with Kerosene fuel in accordance with the prevailing road temperature and conforming to clause 211 of the standard specification.

(b) Chippings

Chippings shall be of Class I material and shall comply in all respects with clause 1502C of the Standard Specification. The Contractors attention is drawn to Clause 1501C of the Standard Specification with regard to cleanliness and dust content of the chippings for surface dressing. Should it prove necessary in the Engineers opinion to wash the chippings, no extra payment will be made to the Contractor for this operation.

1503C SPRAY AND SPREAD RATES OF BITUMEN AND CHIPPINGS.

Spray and Spread rates cannot be calculated until samples of the chippings to be used are available for the test.

After submission of samples and completion of Laboratory tests on chippings and binder, the contractor shall in the presence of the Engineer or his representative, lay trial sections of seal at various rates of spray and spread as directed by the Engineer and in accordance with clause 1503C of the Standard Specifications.

Should any change occur in the source of chippings or bitumen, the Contractor shall advise the engineer accordingly who will then decide if any revisions are required to the spray and spread rates

If any changes are required, the Contractor shall carry out further trials as instructed by the Engineer.

Payment for binder and chippings will be based on the instructed spray and spread rates used which may not necessarily be those specified. The Engineer will specify the spray rates of bitumen as residual bitumen per square metre.

Actual bitumen spray and chippings spread rates shall be instructed by the Engineer, following site trials. Actual spray rates used by the Contractor must be adjusted to compensate for any cutback added.

1505C PRECOATED CHIPPINGS

Chippings used for surface dressing work shall be precoated in accordance with clause 1501C of the cutback bitumen emulsion.

The amount of bituminous binder used to precoat chippings will be instructed by the Engineer and will normally be between 0.4% and 1.0 % residual bitumen as percentage of the dry weight. Prior to laying any precoated chippings, the contractor shall prepare trial mixes of bitumen and chippings in the presence of the Engineer. After completion of trial mixes, the Engineer shall issue written instructions to the Contractor indicating the amount of binder to be added in precoated chippings. The Contractor shall maintain this proportion unless the surface or nature of the chippings changes when the Contractor shall repeat the trials and the Engineer will issue revised instruction.

1511C MEASUREMENT AND PAYMENT

Payment for surface dressing shall be in accordance with direction 15 of the directions for measurement and pricing. The rates inserted by the Contractor for precoated chippings in the Bills of Quantities shall include provision of chippings, spreading and rolling the precoated chippings on the carriageway.

The rate inserted for bleeding 80/100 penetration grade bitumen with kerosene shall be the amount of cutter in litres used for the cut-back.

SECTION 16 - BITUMINOUS MIX BASES, BINDER COURSES AND WEARING COURSES

This section covers different types of bituminous mixes for surfacing (wearing and binder courses) and is divided into the following parts:-

PART A: GENERAL

PART B: ASPHALT CONCRETE FOR SURFACING

PART A - GENERAL

Part A comprises all the general requirements for bituminous mixes which apply to Part B as well.

1602A REQUIREMENTS FROM OTHER SECTIONS

The following sections of this Specification apply to Part B of this section and shall be read in conjunction therewith:-

Section 2 Materials and Testing of Materials

Section 3 Setting Out and Tolerances

Section 6 Quarries, Borrow Pits, Stockpile and Spoil Areas

Section 15 Bituminous Surface Treatments and Surface Dressing

1603A CONSTRUCTION PLANT

a) General

The Contractor shall submit to the Engineer in accordance with Section 1 of its Specification, full details of the construction plant he proposes to use and the procedures he proposes to adopt for carrying out the permanent Works.

The Engineer shall have access at all times to construction plant for the purposes of inspection. The Contractor shall carry out regular calibration checks in the presence of the Engineer and shall correct forthwith any faults which are found.

All construction plant used in the mixing, laying and compacting of bituminous mixes shall be of adequate rated capacity, in good working condition, and shall be acceptable to the Engineer. Obsolete or worn-out plant will not be allowed on the work.

b) Mixing Plant

Bituminous materials shall be mixed in a plant complying with ASTM Designation D995 and shall be located on the Site unless otherwise agreed by the Engineer. It shall be equipped with at least three bins for the storage of heated aggregates and a separate bin for filler. All bins shall be covered to prevent the ingress of moisture.

The plant may be either the batch-mix type or the continuous-mix type and shall be capable of regulating the composition of the mixture to within the tolerances specified in Clause 1614A of this Specification.

The bitumen tank shall be capable of maintaining its contents at the specified temperature within a tolerance of 5°C and a fixed thermometer easily read from outside the tank. Any bitumen which has been heated above 180°C or has suffered carbonization from prolonged heating shall be removed from the plant and disposed of.

c) Laying Plant

Bituminous materials shall be laid by a self-propelled spreader finisher equipped with a hopper, delivery augers and a heated adjustable vibrating screed. It shall be capable of laying bituminous materials with no segregation, dragging, burning or other defects and within the specified level and surface regularity tolerance. Delivery augers shall terminate not more than 200mm from the edge plates.

d) Compaction Plant

The Contractor shall provide sufficient rollers of adequate size and weight to achieve the specified compaction. Prior to commencing the laying of bituminous mixes in the permanent Works the Contractor shall carry out site trials in accordance with Section 2 of this Specification to demonstrate the adequacy of his plant and to determine the optimum method of use and sequence of operation of the rollers.

It is important to achieve as high a density as possible at the time of construction and it is expected that vibrating rollers will be required to produce the best results. However, it is essential that thorough pre-construction trials are carried out to ensure that: -

- (a) The roller is set up to have the optimum amplitude and frequency of vibration for the particular material being laid
- (b) That the roller does not cause breakdown of the aggregate particles.
- (c) That the optimum compaction temperatures are established which allow compaction without causing ripple effects or other distortions of the surfacing.

1604A PREPARATION OF SURFACE

Immediately before placing the bituminous mix in the pavement, the existing surface shall be cleaned of all material and foreign matter with mechanical brooms or by other approved methods. The debris shall be deposited well clear of the surface to be covered.

Any defect of the surface shall be made good and no bituminous mix shall be laid until the surface has been approved by the Engineer.

If instructed by the Engineer a tack coat shall be applied in accordance with Section 15 of this Specification. If the Engineer considers a tack coat is required prior to laying the bituminous mix or between layers of the bituminous mix, due solely to the Contractor's method of working, then such tack coat shall be at the Contractor's expense.

1605A DESIGN AND WORKING MIXES

At least two months prior to commencing work using a bituminous mix, the Contractor shall have demonstrated that he can produce aggregates meeting the grading requirements of the Specification, submit samples of each constituent of the mix to the Engineer. The Engineer will

then carry out laboratory tests in order to decide upon the proportion of each constituent of the initial design mix or mixes to be used for site trials to be carried out in accordance with Clause 1606A of this Specification.

Should the Engineer conclude from the site trials that the mix proportion or aggregate grading are to be changed, the Contractor shall submit further samples of the constituents and carry out further site trials all as directed by the Engineer.

The Engineer may instruct the alteration of the composition of the -75 micron fraction of the aggregates by the addition or substitution of mineral filler. The Engineer may also instruct the alteration of all or part of the -6.3mm fraction of the aggregates by the addition or substitution of natural sand.

The Contractor shall make the necessary adjustments to his plant to enable the revised mix to be produced.

Following laboratory and site trials the Engineer will determine the proportions of the working mix and the Contractor shall maintain this composition within the tolerances given in Clause 1614A.

Should any changes occur in the nature or source of the constituent materials, the Contractor shall advise the Engineer accordingly. The procedure set out above shall be followed in establishing the new mix design.

1606A SITE TRIALS

Full scale laying and compaction site trials shall be carried out by the Contractor on all asphalt pavement materials proposed for the Works using the construction plant and methods proposed by the Contractor for constructing the Works. The trials shall be carried out with the agreement, and in the presence of the Engineer, at a location approved by the Engineer. The trials shall be carried out to:-

- a) Test materials, designed in the laboratory, so that a workable mix that satisfies the specification requirements can be selected.
- b) To enable the Contractor to demonstrate the suitability of his mixing and compaction equipment to provide and compact the material to the specified density and to confirm that the other specified requirements of the completed asphalt pavement layer can be achieved.

Each trial area shall be at least 100 metres long and to the full construction width and depth for the material. It may form part of the Works provided it complies with this Specification. Any areas that do not comply with this Specification shall be removed.

The Contractor shall allow in his program for conducting site trials and for carrying out the appropriate tests on them. The trial on any pavement layer shall be undertaken at least 21 days ahead of the Contractor proposing to commence full-scale work on that layer.

The Contractor shall compact each section of trial over the range of compactive effort the Contractor is proposing and the following data shall be recorded for each level of compactive effort at each site trial:-

- i. The composition and grading of the material including the bitumen content and type and grade of bitumen used.
- ii. The moisture content of aggregate in the asphalt plant hot bins.
- iii. The temperature of the bitumen and aggregate immediately prior to entering the mixer, the

temperature of the mix on discharge from the mixer and the temperature of the mix on commencement of laying, on commencement of compaction and on completion of compaction. The temperature of the mixture is to be measured in accordance with BS 598. Part 3, Appendix A.

b. The type, size, mass, width of roll, number of wheels, wheel load, tyre pressures, frequency of vibration and the number of passes of the compaction equipment, as appropriate for the type of roller.

i. The target voids and other target properties of the mix together with the results of the laboratory tests on the mix.

ii. The density and voids achieved.

iii. The compacted thickness of the layer.

Any other relevant information as directed by the Engineer.

At least eight sets of tests shall be made by the Contractor and the Engineer on each 100 metres of trial for each level of compactive effort and provided all eight sets of results over the range of compactive effort proposed by the Contractor meet the specified requirements for the material then the site trial shall be deemed successful. The above data recorded in the trial shall become the agreed basis on which the particular material shall be provided and processed to achieve the specified requirements.

1607A MIXING OF AGGREGATES AND BITUMEN

The bitumen shall be heated so that it can be distributed uniformly and care shall be taken not to overheat it. The temperature shall never exceed 170°C for 80/100 or 60/70 bitumen,

The aggregates shall be dried and heated so that they are mixed at the following temperatures: 125-165°C when 80/100 bitumen is used

The dried aggregates shall be combined in the mixer in the amount of each fraction instructed by the Engineer and the bitumen shall then be introduced into the mixer in the amount specified.

The materials shall then be mixed until a complete and uniform coating of the aggregate is obtained.

The mixing time shall be the shortest required to obtain a uniform mix and thorough coating. The wet mixing time shall be determined by the Contractor and agreed by the Engineer for each plant and for each type of aggregate used. It shall normally not exceed 60 seconds.

1608A TRANSPORTING THE MIXTURE

The bituminous mix shall be kept free of contamination and segregation during transportation. Each load shall be covered with canvas or similar covering to protect it from the weather and dust.

1609A LAYING THE MIXTURE

Immediately after the surface has been prepared and approved, the mixture shall be spread to line and level by the laying plant without segregation and dragging.

The mixture shall be placed in widths of one traffic lane at a time, unless otherwise agreed by the Engineer. The compacted thickness of any layer shall be at least 2.5 times the maximum size

of the aggregate for wearing course and at least 2 times for binder course. The minimum thickness shall be 25mm.

Only on areas where irregularities or unavoidable obstacles make the use of mechanical laying impracticable, may the mixture be spread and compacted by hand.

1610A COMPACTION

Immediately after the bituminous mixture has been spread, it shall be thoroughly and uniformly compacted by rolling. The layer shall be rolled when the mixture is in such a condition that rolling does not cause undue displacement or shoving.

The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition. The sequence of rolling operations shall be as agreed with the Engineer and proved during site trials. Initial rolling with steel tandem or three-wheeled roller shall follow the laying plant as closely as possible. The rollers shall be operated with the drive roll nearest the laying plant, at a slow and uniform speed (not exceeding 5 Km/Hr).

Rolling shall normally commence from the outer edge and proceed longitudinally parallel to the centerline, each trip overlapping one half of the roller width. On super elevated curves, rolling shall begin at the low side and progress to the high side. Where laying is carried out in lanes care must be taken to prevent water entrapment.

Intermediate rolling with a pneumatic tyred or vibratory roller shall follow immediately. Final rolling with a steel-wheeled roller shall be used to eliminate marks from previous rolling.

To prevent adhesion of the mixture to the rollers, the wheels shall be kept lightly moistened with water.

In areas too small for the roller, a vibrating plate compactor or a hand tamper shall be used to achieve the specified compaction.

1611A FINISHING, JOINTS AND EDGES

Any mixture that becomes loose and broken, mixed with dirt or foreign matter or is in any way defective, shall be removed and replaced with fresh hot mixture, which shall be compacted to conform to the surrounding area.

Spreading of the mixture shall be as continuous as possible. Transverse joints shall be formed by cutting neatly in a straight line across the previous run to expose the full depth of the course. The vertical face so formed shall be painted lightly with hot 80/100 penetration grade bitumen just before the additional mixture is placed against it.

Longitudinal joints shall be rolled directly behind the paving operation. The first lane shall be placed true to line and level and have an approximately vertical face. The mixture placed in the abutting lane shall then be tightly crowded against the face of the previously placed lane. The paver shall be positioned to spread material overlapping the joint face by 20-30mm. Before rolling, the excess mixture shall be raked off and discarded.

When the abutting lane is not placed in the same day, or the joint is destroyed by traffic, the edge of the lane shall be cut back as necessary, trimmed to line and painted lightly with hot 80/100 penetration grade bitumen just before the abutting lane is placed.

Any fresh mixture spread accidentally on the existing work at a joint shall be carefully removed by brooming it back on to uncompacted work, so as to avoid formation of irregularities at the joint. The finish at joints shall comply with the surface requirements and shall present the same uniformity of finish, texture and-density as other sections of the work.

The edges of the course shall be rolled concurrently with or immediately after the longitudinal

joint. In rolling the edges, roller wheels shall extend 5Q to 100mm beyond the edge.

1612A SAMPLING AND TESTING OF BITUMINOUS MIXTURES

The sampling of bituminous mixtures shall be carried out in accordance with AASHTO T168 (ASTM Designation D979).

1613A QUALITY CONTROL TESTING

During mixing and laying of bituminous mixtures, control tests on the constituents and on the mixed material shall be carried out in accordance with Clause 1612A and Section 2 of this Specification

If the results of any tests show that any of the constituent materials fail to comply with this Specification, the Contractor shall carry out whatever changes may be necessary to the materials or the source of supply to ensure compliance.

If the results of more than one test in ten on the mixed material show that the material fails to comply with this Specification, laying shall forthwith cease until the reason for the failure has been found and corrected. The Contractor shall remove any faulty material laid and replace it with material complying with this Specification all at his own expense,

1614A TOLERANCES

Surfacing courses and base shall be constructed within the geometric tolerances specified in Section 3 of this Specification. The Contractor shall maintain the composition of the mixture as determined from the laboratory and site trials within the following tolerances, per single test: - Bitumen Content: $\pm 0.3\%$ (by total weight of total mix) Passing 10mm sieve and

larger sieves: $\pm 6\%$ (by total weight of dry aggregate including mineral filler)

Passing sieves

between 10mm and 1.0mm sieves: $\pm 4\%$ (by total weight of dry aggregate including mineral filler)

Passing sieves

between 1.0mm and 0.075mm sieve: $\pm 3\%$ (by total weight of dry aggregate including mineral filler)

Passing 0.075mm sieve: $\pm 2\%$ (by total weight of dry aggregate including mineral filler)

The average amount of bitumen in any length of any layer, calculated as the product of the bitumen contents obtained from single tests and the weight of mixture represented by each test, shall not be less than the amount ordered.

The average amount of bitumen for each day's production calculated from the checked weights of mixes shall not be less than the amount ordered.

The average amount of bitumen in any length of any layer, calculated as the product of the bitumen contents obtained from single tests and the weight of mixture represented by each test, shall not be less than the amount ordered.

The final average overall width of the upper surface of a bituminous mix layer measured at six equidistant points over a length of 100m shall be at least equal to the width specified. At no point shall the distance between the centerline of the road and the edge of the upper surface of a bituminous mix layer be narrower than that specified by more than 13mm.

1615A MEASUREMENT AND PAYMENT

No separate measurement and payment shall be made for complying with the requirements of Clauses 1601A to 1614A inclusive and the Contractor shall be deemed to have allowed in his rates in Part B of Section 16 of this Specification for the costs of complying with the requirements of Part A of Section 16 of this Specification.

PART B - ASPHALT CONCRETE FOR SURFACING

DEFINITION

Asphalt concrete means a thoroughly controlled, hot-mixed, hot-laid, plant mixture of well graded dried aggregate and penetration grade bitumen, which, when compacted forms a dense material.

A distinction is drawn between asphalt concrete Type I (High Stability) and asphalt concrete Type II (Flexible). The asphalt concrete type will be Type I.

MATERIALS FOR ASPHALT CONCRETE

a) Type of bituminous material

The type of material to be used on severe sites will be of the continuously graded type similar to Asphaltic Concrete or Close Graded Macadam. It is essential that these materials are sealed with a single or double surface dressing or a Cape seal.

b) Penetration Grade Bitumen

Bitumen shall be 80/100 penetration grade.

c) Aggregate

Coarse aggregate (retained on a 6.3mm sieve) shall consist of crushed stone free from clay, silt, organic-matter and other deleterious, substances. The aggregate class will be specified in the Special Specification-and it shall comply with the requirements given in Table 16B-

l(b):-

The coarse aggregate shall be entirely crushed rock from a source which is known to give high values of stability (> 9kN) in the Marshall test. Crushed river gravel should not be used.

TABLE 16B-l(b) - REQUIREMENTS FOR COARSE AGGREGATE

Coarse (Retained on a 6.3mm Sieve) Maximum

Aggregate Value

Test

LAA 30

ACV 25

SSS 12

FI 20

Fine aggregate (passing a 6.3mm sieve) shall be free from clay, silt, organic and other deleterious matter and shall be non-plastic. Unless otherwise specified in the Special Specification it shall consist of entirely crushed rock produced from Los Angeles Abrasion of not more than 40. The Sand Equivalent of the fine aggregate shall not be less than 40 and the SSS not more than 12.

d) Mineral Filler

Mineral Filler shall consist of Ordinary Portland Cement

1603B GRADING REQUIREMENTS

The grading of the mixture of coarse and fine aggregate shall be within and approximately parallel to the grading envelopes given in Table 16B-l(a), for 0/20mm as specified for binder course, as described below.

To arrive at a suitable design it is necessary to investigate a number of gradings so that a workable mix which also retains a minimum of 3 % voids at refusal density is identified. The recommendations given in the SHRP SUPERPAVE system are provided in Tables 16B-l(c) and 16B-l(d) as guidance towards identifying a suitable grading.

TABLE 16B-l(c) - SUPERPAVE AGGREGATE GRADING CONTROL POINT

Nominal	Sieve Size (mm)	Control Point (% Passing)	
		Minimum	Maximum
37.5	0.075	0	6
	2.36	15	41
	25.0	-	90
	37.5	90	100
	50.0	100	-
25.0	0.075	1	7
	2.36	19	45
	19.0	-	90
	25.0	90	100
	37.5	100	-
19.0	0.075	2	8
	2.36	23	49

	12.5		90
		-	
	19.0	90	100
	25.0	100	-
12.5	0.075	2	10
	2.36	28	58
	9.5		90
		-	
	12.5	90	100
	19.0	100	-

TABLE 16B-l(d) - SUPERPAVE BOUNDARIES OF AGGREGATE RESTRICTED ZONE

Sieve size Minimum and Maximum boundaries of sieve size for nominal maximum aggregate size

within	37.5	25.0	19.0	12.5
4.75	34.7-34.7	39.5-39.5	-	-
2,35	23.3-27.3	26.8-30.8	34.6-34.6	39.1-39.1
1,18	15.5-21.5	18.1-24.1	22.3-28.3	25.6-31.6
0.6	11.7-15.7	13.6-17.6	16.7-20,7	19.1-23.1
0.3	10.0-10.0	11.4-11.4	13.7-13.7	15.5-15.5

The SUPERPAVE definition of Nominal Maximum Size of Aggregate is one sieve size larger than the first sieve to retain more than ten per cent of the aggregate. The largest particle size used should not be more than 25mm so that the requirements of the Marshall test method can be complied with.

Although the complete range of nominal maximum particle sizes is shown in the Tables, the total thickness of material laid should not be less than 75mm.

1604B REQUIREMENTS FOR ASPHALT CONCRETE

The mixture shall comply with the requirements given in Table 16B-2 as specified in the Specification. In addition, minimum Marshall Stability for 2 * 75 blows shall be 9 kN and maximum 18 kN and at compaction to refusal shall have 3% VIM.

The proportion, by weight of total mixture, of bitumen shall be 6%. This shall be termed the nominal binder content. The binder content of the working mix will be instructed by the Engineer following laboratory and site trials.

In order to determine the suitability of a coarse aggregate source a Marshall test program shall be carried out. It will be advantageous to use a crushed rock which is known from past experience to give good results in this test procedure. A grading conforming to the Type I Binder Course detailed in Table 16B-1(a) 0/20 of this Specification should be tested (but with 100% passing the 25mm sieve) and it shall meet the requirements of Table 16B-2 of this Specification.

Having established the suitability of the aggregate source several gradings shall be tested in the laboratory, including that used for the Marshall test, to establish relationships between - bitumen content and VIM at refusal density. For each mix, samples will be made up to a range of bitumen contents and compacted to refusal using a gyratory compactor and a vibratory hammer in accordance with the procedure described in BS 598 (Part 104 : 1989), with one revision.

It should first be confirmed that compaction on one face of the sample gives the same refusal density as when the same compaction cycle is applied to both faces of the same sample. The procedure which gives the highest density must be used.

From the bitumen content-VIM relationship it will be possible to identify a bitumen content which corresponds to a VIM of 3%. If it is considered that the workability of the mix may be difficult then compaction trials should be undertaken. It is advisable to establish two or more gradings for compaction trials.

The mixes identified for compaction trials should be manufactured to the laboratory design bitumen content and to two other bitumen contents of +0.5% and +1% additional bitumen. Cores will be cut to determine the density of the compacted material, having completed this the core will then be reheated to $145 \pm 5^\circ\text{C}$ in the appropriate mould and compacted to refusal in the vibrating hammer test. To be acceptable the cores cut from the compaction trial must have a density equivalent to at least 95% of refusal density.

The compaction trials will identify a workable mix which can be made to a bitumen content which gives 3% VIM at refusal density.

1605B MIXING AND LAYING HEAVY DUTY ASPHALT

The temperature of the bitumen and aggregates when mixed shall be $110 \pm 3^\circ\text{C}$ above the softening point (R&B) of the bitumen.

Compaction should commence as soon as the mix can support the roller without undue displacement of material and completed before the temperature of the mix falls below 90°C , The minimum thickness of individual layers should be as follows:-

- a) For the 37.5mm mix 65mm

- b) For the 25.0mm mix 60mm
- c) For the 19.0mm mix 50mm
- d) For the 12.5mm mix 40mm

1606B COMPACTION

Rolling shall be continued until the voids measured in the completed layer are in accordance with the requirement for a minimum density of 98% of Marshall optimum, or, a minimum mean value of 95% of refusal density (no value less than 93%) as appropriate.

1607B MEASUREMENT AND PAYMENT

Item : Asphalt Concrete

Unit : m³

Asphalt concrete shall be measured by the cubic metre compacted on the road calculated as the product of the length instructed to be laid and the compacted cross-sectional area shown on the Drawings or instructed by the Engineer

The rate for asphalt concrete shall include for the cost of providing, transporting, laying and compacting the mix with the nominal binder content and complying with the requirements of Parts A and B of Section 16 of this Specification.

SECTION 17 - CONCRETE WORKS

1703 BEDDING MATERIALS FOR CONCRETE

This work shall consist of placing selected approved material of 250 mm minimum diameter on the foundation put after excavation to receive levelling concrete in accordance with these specifications and in conformity with the lines, grades and cross sections shown on the Drawings as directed by the Engineer.

(a) Materials

Selected rock: The selected rock boulders to be placed for this work shall be hard, sound, durable quarry stones as approved by the Engineer. Samples of the stone to be used shall be submitted to and approved by the Engineer before any stone is placed. The maximum size of the stone boulders shall be 300 mm.

(b) Construction Method

After completion of the structural excavation the surface of the loose soil shall be levelled and compacted. Then the stone of the above sizes shall be placed in one layer of 250 mm over the compacted bed where the bottom slab will rest. Coarse sand shall be spread to fill up the voids in the stone boulders and compaction with vibratory compactors should be performed to make this layer dense whereon a concrete of levelling course shall be placed.

(c) Measurement and payment

Measurement for the bedding materials shall be made in cubic metres for the completed and accepted work, measured from the dimension shown on the Drawings, unless otherwise directed by the Engineer.

Payment for the bedding materials for Levelling Concrete Works shall be full compensation for furnishing and placing all materials, all labour equipment, tools and all other items necessary for proper completion of the work in accordance with the Drawings and Specifications and as directed by the Engineer.

1703A LEVELLING CONCRETE (CLASS 15/20) FOR BOTTOM SLAB INCLUSIVE OF COST OF FORM WORKS

This work shall consist of placing and levelling lean concrete class 15/20 over the prepared bed of stone boulders in the foundation for bottom slab and wing walls in accordance with these specifications and with conformity with the lines, grades, thickness and typical cross-sections shown on the drawings unless otherwise directed by the Engineer.

(a) Materials for Levelling Concrete

Requirement for the concrete class 15/20 is specified as follows: -

Design compressive strength (28) days : 15N/mm

Maximum size of coarse aggregate : 20 mm

Maximum cement content : 300 kg/m .

Maximum water/cement ration of 50% with slump of 80 mm.

(b) Construction Method

The bed of stone boulders upon which the levelling concrete will be placed shall be smooth, compacted and true to the grades and cross-section and shall be set to the required lines and grades.

(c) Measurement and payment

Item : Levelling Concrete

Unit : m³

Measurement for levelling concrete (class 15/20) shall be made in cubic metres of completed and accepted levelling concrete work measured in place, which is done in accordance with the Drawings and the Specifications.

Payment for this work shall be the full compensation for furnishing and placing all materials, labour, equipment and tools and other incidentals including any formworks to Specifications and as directed by the Engineer.

1703B REINFORCING BARS OF WALLS AND SLABS

This work shall consist of furnishing, fabricating and placing in the concrete of the bottom slab, top slab, median wall, sidewalls, wing walls and aprons, reinforcing bars of the quality, type and size in accordance with these Specifications and in conformity with the requirements shown on the Drawings.

(a) Material

Deformed reinforcing bars shall meet the requirements of British standard BS 4461, mild steel bars to BS 4449 and fabric reinforcement to BS 4483 unless otherwise called for in the drawings or approved by the Engineer.

No reinforcing bar shall be delivered without a certificate guaranteeing the yield stress. The reinforcing bars shall be kept off the ground, free from dirt, oil, grease, or avoidable rust and stored within a building or provided with suitable covers.

If it is necessary for the Engineer to ascertain the quality of the reinforcing bars, the Contractor shall test the reinforcing bars, at his own expense, by means as directed by the Engineer.

(b) Construction Method

(i) Bar bending Schedule

The Engineer shall provide the Contractor with bending schedule showing the location, types, sizes, bending dimensions and cut lengths of the reinforcing bars required to be fixed in the works.

(ii) Cutting and Bending

Qualified men shall be employed for the cutting and bending and proper application shall be provided for such work.

Bars shall be cut and bent cold to the dimensions indicated and with equipment and methods approved by the Engineer.

Stirrups and tie bars shall be bent around a pin having a diameter not less than 15 times the minimum diameter of the bar. Bends of other bars, where full tension in the bar may occur, shall be made around a pin having a diameter not less than 7.5 times the bar diameter as shown on the Drawings.

Reinforcing bars shall be accurately formed to the shapes and dimensions indicated on the Drawings, and shall be fabricated in a manner that will not injure the materials.

(c) Placing

Reinforcing bars shall be accurately placed in proper positions such that they are firmly held during placing of concrete.

Bars shall be tied at all intersections by using annealed iron wire 0.9 mm or larger diameter, or suitable clips.

Distances from the forms shall be maintained, corrected by means of metal hangers, metal blocks, metal supports or other supports approved by the Engineer.

The Engineer shall inspect reinforcing bars after placing. When a long time has elapsed after placing reinforcing bars, they shall be cleaned and inspected again by the Engineer before placing concrete.

(d) Splicing and Joints

When it is necessary to splice reinforcing bars at points, position and methods of splicing shall be determined based on strength calculations and approved by the Engineer.

In lapped splices, the bars shall be lapped by the required length and wired together at several points by using annealed iron wire larger than 0.9 mm.

Exposed reinforcing bars intended for bonding with future extensions shall be effectively protected from injury and corrosion.

Oxyacetylene welding joint of reinforcing steel shall be done only if authorised by the Engineer in writing.

(e) Measurement and Payment

Bending and installation of reinforcing bar of walls and slabs shall be measured in terms of tons. The length of steel bar of each size will be shown on the drawings in which the bar length for splicing is excluded. In computing the weight to be measured, the theoretical weights of bars of the cross-section shown on the Drawings or authorised shall be used.

These weights are given in the following table: -

Bar type and length of bar	the crosssection in millimetre	Weight of Bar in Kilogram per 12m
Y10	7.40	
Y12	10.66	
Y16	18.95	

Y20 29.60

Y25 46.30

1703C FORMWORK FOR CULVERT WALLS AND SLABS

This work shall consist of all temporary moulds for forming the concrete for culvert walls and slabs together with all temporary construction required for their support. Unless otherwise directed by the Engineer, all formworks shall be removed on completion of the walls and slabs.

(a) Materials

Forms shall be made of wood or metal and shall conform to the shape, lines and dimensions shown on the Drawings.

All timber shall be free from holes, loose material, knots, and cracks, splits and warps or other defects affecting the strength or appearance of the finished structure.

Release Agents - Release agents shall be either neat oils containing a surface activating agent, cream emulsions, or chemical agents to be approved by the Engineer.

(b) Construction Method

(i) Formworks

Formworks shall be designed to carry the maximum loads, which may be imposed, and so be rigidly constructed as to prevent deformation due to load, drying and wetting, vibration and other causes. After forms have been set in correct location, they shall be inspected and approved by the Engineer before the concrete is placed.

If requested, the contractor shall submit to the Engineer working drawings of the forms and also, if requested, calculations to certify the rigidity of the forms.

Unless otherwise described in the Contract, all form joints for exposed surfaces of concrete shall form a regular pattern with horizontal and vertical lines continuous throughout each structure and all construction joints shall coincide with these horizontal and vertical lines. PVC pipes of 50 mm diameter for weep holes shall be arranged as shown on the Drawings.

Unless otherwise specified, formwork shall be designed to form chamfers at all external corners whether or not such chamfers are shown on the Drawings to prevent cracks and other damage from arising.

The inside surface of forms shall be cleaned and coated with a releasing agent to prevent adhesion of the concrete. Release agents shall be applied strictly in accordance with the manufacturer's detailed instructions. The release agent shall be applied to the formwork prior to erection. Release agent must not come into contact with reinforcement. Immediately before concrete is placed, the forms shall be thoroughly cleaned and freed from sawdust, shavings, dust, mud or other debris by hosing with water. Temporary openings shall be provided in the forms to drain away the water and rubbish.

(ii) Scaffolding

All scaffolding required to support the forms should be designed and constructed to provide necessary rigidity and support the loads without appreciable deflection or deformation.

Details, plans and structural and flexural calculations for scaffolding shall be submitted to the Engineer for approval, but in no case shall the Contractor be relieved of his responsibility for the results obtained by use of these plans, etc.

(iii) Removal of Formwork

The time at which the formwork is struck shall be the Contractor's responsibility and the forms shall not be removed until the concrete strength has reached 20 N/mm .

(c) Measurement and Payment

(d)

Formwork shall be measured as the net area, in square metres, in contact with the finished concrete surface of the walls and slabs. No measurement shall be allowed for formwork of temporary construction joints.

Payment for the formworks shall be full compensation for furnishing, erecting, jointing all the forms for the concrete including furnishing and applying release agent, and construction of the required scaffolding to support the forms, all conforming to the shape, lines, grade and dimensions of the structure as shown on the Drawings, all in accordance with the Drawings and as directed by the Engineer.

1703D CONCRETE WORKS (CLASS 30/20) OF CULVERT WALLS AND SLABS

This work shall consist of furnishing, mixing, delivering and placing of the concrete for the construction of culvert walls and slabs, in accordance with these Specifications and in conformity with the requirements shown on the Drawings.

Concrete class 30/20 shall be used for culvert walls and slabs.

Concrete Materials

A. Cement

Cement shall be of ordinary Portland cement complying with KS 1725:2001 CEM 1 42.5N or equivalent subject to Engineer's approval.

The Contractor shall select only one type or brand of cement or other. Changing of type or brand of cement will not be permitted without a new mix design approved by the Engineer. All cement is subject to the Engineer's approval, however, approval of cement by the Engineer shall not relieve the Contractor of the responsibility to furnish concrete of the specified compressive strength.

Conveyance of cement by jute bags shall not be permitted. Storage in the Contractor's silo or storehouse shall not exceed more than two (2) months and age of cement after manufacture at mill shall not exceed more than four (4) months. The Contractor shall submit to the Engineer for his approval the results of quality certification tests undertaken by the manufacturer.

Whenever it is found out that cement has been stored for too long, moist, or caked, the cement shall be rejected and removed from the project.

B. Aggregates

Fine and coarse aggregates must be clean, hard, strong and durable, and free from absorbed chemicals, clay coating, or materials in amounts that could affect hydration, bonding, strength and durability of concrete.

Grading of aggregates shall conform to the following requirements:

(i) Grading of Fine Aggregates

Sieve Size Percentage by Weight Passing

10 mm	100
5 mm	89-100
2.5 mm	60-100
1.2 mm	30-100
0.6 mm	15 -54
0.3 mm	5 - 40
0.15 mm	0 - 15

(ii) Grading of Coarse Aggregates

Size of Amounts finer than each standard sieve percentage by weight

Coarse	40	30	25	20	15	10	5	2.5
Aggregate	100	-	-	90-100	-	30-69	0-10	-

Other requirements for aggregates are as follows:

(iii) Fine Aggregates

2.3 - 3.1

Max. 10% loss

Max 1% by weight

Min. 75

(iv) Coarse Aggregate

Fitness Modulus, AASHTO M-6

Sodium Sulphate Soundness, AASHTO T104

Content of Friable Particles AASHTO 112

Sand Equivalent, AASHTO T176

Abrasion, AASHTO T96

Max. 405 loss

Soft Fragment and shale, AASHTO M80 : Max. 5% by weight

Thin and elongated Pieces, AASHTO M80 : Max. 15%

C. Water

The Engineer shall approve all sources of water to be used with cement. Water shall be free from injurious quantities of oil, alkali, vegetable matter and salt as determined by the Engineer.

D. Admixture

Only admixture, which have been tested and approved in the site laboratory through trial mixing for design proportion shall be used.

Before selection of admixture, the Contractor shall submit to the Engineer the specific information or guarantees prepared by the admixture supplier.

The contractor shall not exclude the admixture from concrete proportions.

Concrete class 25/20

Concrete class 25/20 shall be used for culvert walls and slabs. The requirements of Concrete class 25/20 are provided as follows unless otherwise the Engineer designates any alteration.

Design compressive strength (28 days) : 25N/mm

Maximum size of coarse aggregates : 20 mm

Maximum water/cement ratio of 50% with slump of 100 mm

(a) Proportioning Concrete

The Contractor shall consult with the Engineer as to mix proportions at least thirty (30) days prior to beginning the concrete work. The actual mix proportions of cement, aggregates, water and admixture shall be determined by the Contractor under supervision of the Engineer in the site laboratory.

The Contractor shall prepare the design proportions, which has 120% of the strength requirement, specified for the designated class of concrete.

No class of concrete shall be prepared or placed until the Engineer has approved its job-mix proportions.

(b) Concrete Work

(i) Batching

Batching shall be done by weight with accuracy of:

Cement : 54 percent

Aggregate : 4 percent

Water and Admixture : 1 percent.

Equipment should be capable of measuring quantities within these tolerances for the smartest batch regularly used, as well as for larger batches.

The accuracy of batching equipment should be checked every month in the presence of the Engineer and adjusted when necessary.

(ii) Mixing and delivery

Slump of mixed concrete shall be checked and approved at an accuracy of +25mm against designated slump in these specifications.

(iii) Concrete in hot weather

No concrete shall be placed when the ambient air temperature is expected to exceed thirty-three degrees Celsius (33 c) during placement operations).

(iv) Concreting at night

No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate approved artificial lighting system is operated; such night work is subject to approval by the engineer.

(v) Placing

In preparation of the placing of concrete, the interior space of forms shall be cleaned and approved by the engineer prior to placing concrete. All temporary members except tie bars to support forms shall be removed entirely from the forms and not buried in the concrete. The use of open and vertical chute shall not be permitted unless otherwise directed by the engineer.

The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms.

(c) Measurement and Payment

Measurements for the concrete works Class 25/20 of culvert walls and slabs shall be made in cubic metres for the walls and slabs actually constructed, measured from their dimensions shown on the Drawings. Payment for the concrete works (Class 25/20) of culvert walls and slabs shall be the full compensation for furnishing all materials of the concrete mixing, delivering, placing and curing the concrete, equipment and tools, labour and other incidental necessary for the completion of the work in accordance with the Drawings and these Specifications and as directed by the Engineer.

SECTION 20 - ROAD FURNITURE

ROAD RESERVE BOUNDARY POSTS

Road reserve boundary posts shall be provided as directed by the Engineer and in compliance with Standard Specification clause 2001. They shall be placed at 100m intervals along the boundary of the road reserve.

EDGE MARKER POSTS

Edge marker posts shall be Verge Master MK 111 plastic posts manufactured by Glasdon Ltd. of Blackpool UK. They shall be provided as directed by the Engineer and in compliance with the requirements of Standard Specification clause 2003

PERMANENT ROAD SIGNS

Permanent Road Signs shall be provided as directed by the Engineer and in compliance with the requirements of the "Manual for Traffic Signs in Kenya" Part II and standard Specification clause 2004.

The posts for the signs shall be cylindrical galvanized wrought iron tubes of minimum 75mm diameter and vandal-proofed by in-filling with concrete class 15/20.

The sign plates shall be made from approved metal or plastic sheet 3mm thick and vandal-proofed by the drilling of 3mm diameter holes at 100mm centres

The rate inserted for the signs shall include for all the costs of complying with this clause.

EXISTING ROAD SIGNS

Where directed by the Engineer, the Contractor shall take down road signs including all posts, nuts, bolts and fittings, and remove and dispose of the concrete foundation and backfill the post holes. The signs shall be stored as directed by the Engineer.

Measurement and payment for taking down road signs shall be made by the number of signs of any type and size taken down, cleaned and stored as directed.

ROAD MARKING

Paint for road marking shall be internally reflectorized hot applied thermoplastic material in accordance with Clause 219 of the Standard Specification.

The rates inserted in the Bills of Quantities for road marking shall include for prior application of approved tack coat.

GUARDRAILS

Guardrail posts shall be concrete 210 x 210 mm set vertically at least 1.2m into the shoulder as per the drawings and as directed by the Engineer.

Beams for guardrails shall be "Armco Flexbeam" or similar obtained from a manufacturer approved by the Engineer.

‘Swareflex’ ART 3240 or similar approved guardrail reflectors two way reflective one side red and another white shall be installed on the flex beams every 4m.

The rate inserted shall include for provision of the flex beams, posts, swarflex reflectors, flex beam end bits and installation in accordance with the standard specifications and drawings.

KERBS

(a) Vertical Joints

Vertical joints between adjacent kerbs shall not be greater than 5 mm in width and shall mortar consisting of 1:3 cement: sand by volume.

(b) Transition between flush and raised kerbs

The transition between flush and raised kerbs (e.g. at bus bays) shall be termed as ramped kerbs and shall occur within a length of 2.0m

KILOMETRE MARKER POSTS

Kilometre marker posts shall be provided as directed by the Engineer and in compliance with Standard Specification Clause 2008.

BOLLARDS

Where directed by the Engineer, the contractor shall provide and install class 20/20 200mm diameter reinforced concrete bollards concreted 300mm into the ground.

RETRO-REFLECTIVE ROAD STUDS ‘cat eyes’

All retro-reflective road studs shall comply with BS 873: Part 4. The contractor shall provide details and the manufacturer’s certificate of the studs he proposes to use in the works to the Engineer for approval. The studs shall be installed at locations shown on drawings or instructed by Engineer.

SECTION 22-DAYWORKS

2202 MEASUREMENTS AND PAYMENT

(a) Plant

Where items of major plant listed in the schedule of Dayworks are specified by type (e.g. Concrete mixer etc.) the power rating of such items of plant provided by the Contractor shall not be lower than the power ratings of such plant manufactured within the last two years prior to the date of BID. Any item of major plant employed upon Dayworks that has a power rating lower than specified above shall be paid for at rates lower than those in the schedule of Dayworks. The reduction in the rate payable shall be in proportion to the reduction in power rating below that specified above.

SECTION VI-DRAWINGS

Note

iii. A list of Contract drawings should be inserted here

iv. The actual Contract drawings including Site plans should be annexed in a separate booklet.

SECTION VII – BILLS OF QUANTITIES

Notes for preparing Bills of Quantities

1.0 Preamble To Bill of Quantities

- m) The Bill of Quantities shall form part of the Contract Documents and is to be read in conjunction with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications and Drawings.
- n) The brief description of the items in the Bill of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the conditions of Contract and Specifications for the full direction and description of work and materials.
- o) The Quantities set forth in the Bill of Quantities are estimated and provisional, representing substantially the work to be carried out, and are given to provide a common basis for tendering and comparing of Tenders. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities. The basis of payment shall be the Contractor's rates and the quantities of work actually done in fulfillment of his obligation under the Contract.
- p) The prices and rates inserted in the Bills of Quantities will be used for valuing work executed, and the Engineer will measure the whole of the works executed in accordance with this Contract.
- q) A price or rate shall be entered in ink against every item in the Bill of Quantities with the exception of items, which already have provisional sums, affixed thereto. The Tenderers are reminded that no "nil" or "included" rates or "lump-sum" discounts will be accepted. The rates for various items should include discounts if any. Tenderers who fail to comply will be disqualified.
- r) Provisional sums (including Day works) in the Bill of Quantities shall be expended in whole or in part at the discretion of the Engineer in accordance with Sub-clause 52.4 and Clause 58 of part of the Conditions of Contract.
- s) The price and rates entered in the Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional plant to be used, labour, insurance, supervision, compliance, testing, materials, erection, maintenance or works, overheads and profits, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the Contract by the Engineer and his staff.

- t) Errors will be corrected by the Employer for any arithmetic errors in computation or summation as follows:
 - (d) Where there is a discrepancy between amount in words and figures, the amount in words will govern; and
 - (e) Where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in the unit price, in which event the total amount as quoted will govern and the unit rate will be corrected.
 - (f) If a Tenderer does not accept the correction of errors as outlined above, his Tender will be rejected.
- u) The Bills of Quantities, unless otherwise expressly stated therein, shall be deemed to have been prepared in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement (CESMM).
- v) “Authorised” “Directed” or “Approved” shall mean the authority, direction or approval of the Engineer.
- w) Unless otherwise stated, all measurements shall be net taken on the finished work carried out in accordance with the details shown on the drawings or instructed, with no allowance for extra cuts or fills, waste or additional thickness necessary to obtain the minimum finished thickness or dimensions required in this Contract. Any work performed in excess of the requirements of the plans and specifications will not be paid for, unless ordered in writing by the Engineer.
- x)
 - (a) Hard material, in this Contract, shall be defined as the material which, in the opinion of the Engineer, require blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a dozer tractor of at least 150 brake horse power (112 kilowatt) with a single, rear-mounted, hydraulic ripper. Boulders of more than 0.2m³ occurring in soft material shall be classified as hard material.
 - (b) Soft material shall be all material other than hard material.

2.0 The objectives of the Bills of Quantities are;

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

In order to attain these objectives, Works should be itemized in the Bills 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 Bills of Quantities should be as simple and brief as possible.

3.0 The Bills of Quantities should be divided generally into the following sections:

(c) Preliminaries.

The preliminaries should indicate the inclusiveness of the unit prices, and should state the methods of measurement which have been adopted in the preparation of the Bills of Quantities and which are to be used for the measurement of any part of the Works.

The number of preliminary items to be priced by the tenderer should be limited to tangible items such as site office and other temporary works, otherwise items such as security for the Works which are primarily part of the Contractor's obligations should be included in the Contractor's rates.

(d) Work Items

- (vi) The items in the Bills of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing or any other special characteristics may give rise to different methods of construction or phasing of the Works or considerations of cost. General items common to all parts of the Works may be grouped as a separate section in the Bills of Quantities.
- (vii) The brief description of the items in the Bill of Quantities should in no way modify or supersede the detailed descriptions given in the Contract drawings, Conditions of Contract and Specifications.
- (viii) Quantities should be computed net from the Drawings, unless directed otherwise in the Contract, and no allowance should be made for bulking, shrinkage or waste. Quantities should be rounded up or down where appropriate.
- (ix) The following units of measurement and abbreviations are recommended for use.

<i>Unit</i>	<i>Abbreviation</i>	<i>Unit</i>	<i>Abbreviation</i>
cubic meter	m ³ or cu m	millimeter	mm
hectare	ha	month	mon

hour	h	number	nr
kilogram	kg	square meter	m ² or sq m
lump sum	sum	square millimeter	mm ² or sq mm
meter	m	week	wk
metric ton (1,000 kg)	t		

- (x) The commencing surface should be identified in the description of each item for Work involving excavation, boring or drilling, for which the commencing surface is not also the original surface. The excavated surface should be identified in the description of each item for Work involving excavation for which the excavated surface is not also the final surface. The depths of Work should be measured from the commencing surface to the excavated surface, as defined.

(c) Daywork Schedule

A Daywork Schedule should be included if the probability of unforeseen work, outside the items included in the Bills of Quantities is relatively high. To facilitate checking by the Employer of the realism of rates quoted by the tenderers, the Daywork Schedule should normally comprise:

- (j) a list of the various classes of labour, and materials for which basic Daywork rates or prices are to be inserted by the tenderer, together with a statement of the conditions under which the Contractor will be paid for Work executed on a Daywork basis; and
- (iii) a percentage to be entered by the tenderer against each basic Daywork Subtotal amount for labour, materials and plant representing the Contractor's profit, overheads, supervision and other charges.

(d) Provisional Quantities and Provisional Sums

(i) Provision for quantity contingencies in any particular item or class of Work with a high expectation of quantity overrun should be made by entering specific "Provisional Quantities" or "Provisional Items" in the Bills of Quantities, and *not* by increasing the quantities for that item or class of Work beyond those of the Work normally expected to be required. To the extent not covered above, a general provision for physical contingencies (quantity overruns) should be made by including a "Provisional Sum" in the Summary of the Bills of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a "Provisional Sum" in the Summary of the Bills of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises.

- (iv) Provisional Sums to cover specialized works normally carried out by Nominated Sub Contractors should be avoided and instead Bills of Quantities of the specialised Works should be included as a section of the main Bill of Quantities to be priced by the Main Contractor. The Main Contractor should be required to indicate the name (s) of the specialised firms he

proposes to engage to carry out the specialized Works as his approved domestic sub-contractors. Only Provisional Sums to cover specialized Works by statutory authorities should be included in the Bills of Quantities.

- (v) Unless otherwise provided in the Contract, the Provisional Sums included in the Bills of Quantities should always be expended in whole or in part at the discretion of the Engineer after full consultation with the Employer.

(e) Summary

The Summary should contain a tabulation of the separate parts of the Bills of Quantities carried forward, with Provisional Sums for Dayworks, physical (quantity) contingencies, and price contingencies (upward price adjustment) where applicable.

SECTION VIII – STANDARD FORMS

*LIST OF
STANDARD FORMS*

- (i) Form of Invitation for Tenders
- (iii) Form of Tender
- (iii) Appendix to Form of Tender
- (xiv) Letter of Acceptance
- (xv) Form of Agreement
- (xvi) Form of Tender Security
- (xvii) Performance Bank
Guarantee(unconditional)
- (xviii) Bank Guarantee for Advance Payment
- (xix) Tender Questionnaire
- (xi) Confidential Business Questionnaire
- (xx) Statement of Foreign Currency
Requirement

- (xxi) Schedule of Materials;- Basic Prices
- (xxii) Schedule of Labour;- Basic Prices
- (xxiii) Schedule of Plant and Equipment
- (xv) Details of Sub-Contractors

- (xvi) Certificate of Tenderer's Site visit

- (xxiv) Form of Written Power of Attorney
- (xxv) Key Personnel
- (xxvi) Completed Civil Works
- (xxvii) Schedule of Ongoing Projects
- (xxviii) Other Supplementary Information
- (xxix) Declaration Form
- (xxx) Request for Review

FORM OF INVITATION FOR TENDERS

_____ [date]

To: _____ [name of Contractor]

_____ [address]

Dear Sirs:

Reference: _____ [Contract Name]

You have been prequalified to tender for the above project.

We hereby invite you and other prequalified tenderers to submit a tender for the execution and completion of the above Contract.

A complete set of tender documents may be purchased by you from _____

[mailing address, cable/telex/facsimile numbers].

Upon payment of a non-refundable fee of Kshs _____

All tenders must be accompanied by _____ number of copies of the same and a security in the form and amount specified in the tendering documents, and must be delivered to

[address and location]

at or before _____ (time and date). Tenders will be opened immediately thereafter, in the presence of tenderers' representatives who choose to attend.

Please confirm receipt of this letter immediately in writing by cable/facsimile or telex.

Yours faithfully,

_____ *Authorised Signature*

_____ *Name and Title*

FORM OF TENDER

TO: _____ [Name of Employer) _____ [Date]

_____ [Name of Contract]

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 _____ [Amount in words]
6. 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.
7. We agree to abide by this tender until _____ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date.
8. 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.
9. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____ day of _____ 20_____

Signature _____ in the capacity of _____

duly authorized to sign tenders for and on behalf of

_____ [Name of Employer]
of _____ [Address of Employer]

Witness; Name_____

Address_____

Signature_____

Date_____

APPENDIX TO FORM OF TENDER
(This appendix forms part of the tender)

CONDITIONS OF CONTRACT	CLAUSE	AMOUNT
Minimum National Construction	2.1	NCA 8
Tender Security (Bank or insurance)		Ksh 120,000.00
Amount of Performance Security (Unconditional Bank Guarantee)	10.1	5 %percent of Tender Sum in the form of Unconditional Bank Guarantee
Program to be submitted	14.1	Not later than 14 days after issuance of Order to Commence
Cashflow estimate to be submitted	14.3	Not later than __14_ days after issuance of Order to Commence
Minimum amount of Third Party Insurance	23.2	Kshs. 100000.00
Period for commencement, from the Engineer's order to commence	41.1	14 days
Time for completion	43.1	6 Months
Amount of liquidated damages	47.1	Kshs. 50,000 per day
Limit of liquidated damages	47.1	5% of Contract Value
Defect Liability period	49.1	6 Months
Percentage of Retention	60.5	10% of Interim Payment

		Certificate
Limit of Retention Money	60.5	20 % of Contract Price
Minimum amount of interim certificates	60.2	20% Contract value/Time for completion in months
Time within which payment to be made after Interim Payment Certificate signed by Engineer	60.8	28 days
Time within which payment to be made after Final Payment Certificate signed by Engineer	60.8	28 days
Appointer of Arbitrator	67(3)	Chief Justice of The Republic of Kenya
Notice to Employer and Engineer	68.2	The Employers address is: As indicated on cover page The Engineer's address is: Chief officer (T,I & PW), Ministry Of Roads Infrastructure,public works & EnergyP.O.Box36 <u>kakamega</u>

Signature of Tender..... Date.....

LETTER OF ACCEPTANCE

[letterhead 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

FORM OF AGREEMENT

THIS AGREEMENT, made the _____ day of _____ 20 _____
between _____ of [or whose registered office is
situated at] _____

(hereinafter called “the Employer”) of the one part AND

_____ of [or whose registered office is
situated at] _____

(hereinafter called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

(*name and identification number of Contract*) (hereinafter called “the Works”) located
at _____ [*Place/location of the Works*] and the Employer has accepted the
tender submitted by the Contractor for the execution and completion of such Works and the remedying of
any defects therein for the Contract Price of Kshs _____ [*Amount in
figures*], Kenya Shillings _____ [*Amount in words*].

NOW THIS AGREEMENT WITNESSETH as follows:

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

(viii) Letter of Acceptance

(ix) Form of Tender

(x) Conditions of Contract Part I

(xi) Conditions of Contract Part II and Appendix to Conditions of Contract

(xii) Specifications

(xiii) Drawings

(xiv) Priced Bills of Quantities

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
5. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

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

The common Seal of _____

Was hereunto affixed in the presence of _____

Signed Sealed, and Delivered by the said _____

Binding Signature of Employer _____

Binding Signature of Contractor _____

In the presence of (i) Name _____

Address _____

Signature _____

[ii] Name _____

Address_____

Signature_____

FORM OF TENDER SECURITY

WHEREAS(hereinafter called “the Tenderer”) has submitted his tender dated for the construction of
..... (name of Contract)

KNOW ALL PEOPLE by these presents that WE having our registered office at(hereinafter called “the Bank”), are bound unto(hereinafter called “the Employer”) in the sum of Kshs..... for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors and assigns by these presents sealed with the Common Seal of the said Bank this Day of20.....

THE CONDITIONS of this obligation are:

3. If after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers
Or
4. If the tenderer, having been notified of the acceptance of his tender by the Employer during the period of tender validity:
 - (d) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, if required; or
 - (e) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Tenderers;
 - (f) Rejects a correction or an arithmetic error in the tender.

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of tender validity, and any demand in respect thereof should reach the Bank not later than the said date.

[date]

[signature of the Bank]

[witness]

[seal]

(Amend accordingly if provided by the Insurance Company)

PERFORMANCE BANK GUARANTEE (UNCONDITIONAL)

To: _____(Name of Employer) _____(Date)
_____(Address of Employer)

Dear Sir,

WHEREAS _____(hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____(hereinafter called “the Works”);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognised bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Kshs. _____(amount of Guarantee in figures) Kenya Shillings _____(amount of Guarantee in words), and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of Kenya Shillings _____(amount of Guarantee in words) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change, addition or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any change, addition, or modification.

This guarantee shall be valid until the date of issue of the Certificate of Completion.

SIGNATURE AND SEAL OF THE GUARANTOR _____

Name of Bank _____

Address _____

Date _____

(Amend accordingly if provided by Insurance Company)

BANK GUARANTEE FOR ADVANCE PAYMENT

To: _____ *[name of Employer]* _____ *(Date)*
_____ *[address of Employer]*

Gentlemen,

Ref: _____ *[name of Contract]*

In accordance with the provisions of the Conditions of Contract of the above-mentioned Contract, We, _____ *[name and Address of Contractor]* (hereinafter called "the Contractor") shall deposit with _____ *[name of Employer]* a bank guarantee to guarantee his proper and faithful performance under the said Contract in an amount of Kshs. _____ *[amount of Guarantee in figures]* Kenya Shillings _____ *[amount of Guarantee in words]*.

We, _____ *[bank or financial institution]*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to _____ *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding Kshs _____ *[amount of Guarantee in figures]* Kenya Shillings _____ *[amount of Guarantee in words]*, such amount to be reduced periodically by the amounts recovered by you from the proceeds of the Contract.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between _____ *[name of Employer]* and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

No drawing may be made by you under this guarantee until we have received notice in writing from you that an advance payment of the amount listed above has been paid to the Contractor pursuant to the Contract.

This guarantee shall remain valid and in full effect from the date of the
advance payment under the Contract until

_____ *(name of Employer)* receives full payment of the
same amount from the Contract.

Yours faithfully,

Signature and Seal _____

Name of the Bank or financial institution _____

Address _____

Date _____

Witness: Name: _____

Address: _____

Signature: _____

Date: _____

2. TENDER QUESTIONNAIRE

Please fill in block letters.

7. Full names of tenderer

.....

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

.....

9. Telephone number (s) of tenderer

.....

10. Telex address of tenderer

.....

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

.....

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

.....

Signature of Tenderer

Make copy and deliver to : _____(*Name of Employer*)

CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2 (b) or 2 (c) and 2 (d) 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; Country/Town.....

Plot No..... Street/Road

Postal Address..... Tel No.....

Nature of Business.....

Current Trade Licence No..... Expiring date.....

Maximum value of business which you can handle at any time: K. pound.....

Name of your bankers.....

Branch.....

Part 2 (a) – Sole Proprietor

Your name in full..... Age.....

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

*Citizenship details

Part 2 (b) – Partnership

Give details of partners as follows:

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details</i>	<i>Shares</i>
1.				
2.				
3.				

Part 2(c) – Registered Company:

Private or public.....

State the nominal and issued capital of the Company-

Nominal Kshs.....

Issued Kshs.....

Give details of all directors as follows:

Name in full . Nationality. Citizenship Details*. Shares.

1.

.....

2.

.....

3.

.....

4.

.....

Part 2(d) – Interest in the Firm:

Is there any person / persons in(Name of Employer) who has interest in this firm? Yes/No.....(Delete as necessary)

I certify that the information given above is correct.

.....

(Title)

(Signature)

(Date)

* Attach proof of citizenship

STATEMENT OF FOREIGN CURRENCY REQUIREMENTS

(See Clause 60[5] of the Conditions of Contract)

In the event of our Tender for the execution of _____
_____ (*name of Contract*) being accepted, we
would require in accordance with Clause 21 of the Conditions of Contract,
which is attached hereto, the following percentage:

(Figures).....

(Words).....

of the Contract Sum, (Less Fluctuations) to be paid in foreign currency.

Currency in which foreign exchange element is required:

.....
.....

Date: The Day of 20.....

Enter 0% (zero percent) if no payment will be made in foreign currency.

Maximum foreign currency requirement shall be _____ (percent)
of the Contract Sum, less Fluctuations.

(Signature of Tenderer)

SCHEDULE OF MATERIALS;-BASIC PRICES**(Ref: Clause 70 of Conditions of Contract)**

MATERIAL	UNIT	ORIGIN AND PRICE			TRANSPORTATION COST FROM SOURCE OF ORIGIN	
		COUNTRY OF ORIGIN	SUPPLIER	PRICE	MODE	PRICE (KSHS)
Cement	Mg					
Lime	Mg					
Sand	Mg					
Aggregate	Mg					
Diesel	L					
Regular Petrol	L					
Super Petrol	L					
Kerosene	L					
Structural steel	Mg					
Gabion Mesh	M2					
Reinforcement Steel	Mg					
Explosives	Kg					
Oil and Lubricants	L					
Bitumen Emulsion A3	L					
Bitumen Emulsion A4	L					
Bitumen Emulsion K1	L					
Bitumen Emulsion K3	L					
Bitumen 80/100	Kg					
Bitumen MC 30	ML					
Bitumen MC 70	L					
Bitumen MC 3000	L					
Ammonium nitrate for blasting	Kg					

I certify that the above information is correct.

.....
(Title)

.....
(Signature)

.....
(Date)

The prices inserted above shall be those prevailing 30 days before the submission of Tenders and shall be quoted in Kenya Shillings using the exchange rates specified in the Appendix to Form of Tender.

Prices of imported materials to be quoted CIF Mombasa or Nairobi as appropriate depending on whether materials are imported by the tenderer directly or through a local agent.

Transportation costs for imported materials to be quoted from Mombasa or Nairobi as appropriate to _____ (Contract Site) depending on whether materials are imported directly by the tenderer or through a local agent.

SCHEDULE OF LABOUR: - BASIC RATES
(Reference: Clause 70 of Conditions of Contract)

LABOUR CATEGORY	UNIT (MONTH/SHIFT/HOUR)	RATES

Categories to be generally in accordance with those used by the Kenya Building Construction and Engineering and Allied Trades Workers' Union.

DETAILS OF SUB-CONTRACTORS

If the Tenderer wishes to sublet any portions of the Works under any heading, he must give below details of the sub-contractors he intends to employ for each portion.

Failure to comply with this requirement may invalidate the tender.

(1) Portion of Works to be sublet:

.....

[i] Full name of Sub-contractor
and address of head office:

.....

(iii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
Contract value:

.....

.....

.....

(2) Portion of Works to sublet:

(i) Full name of sub-contractor
and address of head office:

.....

.....

(iii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
contract value:

.....

.....

[Signature of Tenderer)

Date

CERTIFICATE OF TENDERER'S VISIT TO SITE

This is to certify that

[Name/s]

.....

Being the authorized representative/Agent of [Name of Tenderer]

.....

.....

participated in the organized inspection visit of the site of the works for the **(Name of Contract:**
.....)

..... day of.....20.....

Signed.....

(Employer's Representative)

.....

NOTE: This form is to be completed whether the site visit is made at the time of the organized site or privately organized.

FORM OF WRITTEN POWER-OF-ATTORNEY

The Tenderer consisting of a joint venture shall state here below the name and address of his representative who is authorized to receive on his behalf correspondence in connection with the Tender.

.....
(Name of Tenderer's Representative in block letters)

.....
(Address of Tenderer's Representative)

.....
(Signature of Tenderer's Representative)

KEY PERSONNEL

DESIGNATION	NAME	NATIONALITY	SUMMARY OF QUALIFICATIONS AND EXPERIENCE
Headquarters: 3. Director 4. 3. 4. 5. etc.			
Site Office: 2. Site Agent 2. Surveyor 3. Earthwork foreman 4. Concrete works foreman 5. Asphalt foreman etc.			

I certify that the above information is correct.

.....

(Title)

.....

(Signature)

.....

(Date)

**SCHEDULE OF COMPLETED CIVIL WORKS CARRIED OUT BY THE TENDERER
IN THE LAST EIGHT YEARS**

DESCRIPTION OF WORKS AND CLIENT	TOTAL VALUE OF WORKS (KSHS)	CONTRACT PERIOD (YEARS)	YEAR COMPLETED

--	--	--	--

I certify that the above Civil Works were successfully carried out and completed by ourselves.

.....

(Title)

.....

(Signature)

.....

(Date)

*Value in Kshs using Central Bank of Kenya mean exchange rate at a reference date 30 days before date of tender opening.

SCHEDULE OF ONGOING PROJECTS

DESCRIPTION OF WORK AND CLIENT	CONTRACT PERIOD	DATE OF COMMEN- CEMENT	DATE OF COMPLETION	TOTAL VALUE OF WORKS (KSHS.)	PERCENTAGE COMPLETED TO DATE

I certify that the above Civil Works are being carried out by ourselves and that the above information is correct.

.....

(Title)

.....

(Signature)

.....

(Date)

OTHER SUPPLEMENTARY INFORMATION

5. Financial reports for the last five years, balance sheets, profit and loss statements, auditors' reports etc. List them below and attach copies.

.....
.....
.....

6. Evidence of access to financial resources to meet the qualification requirements. Cash in hand, lines of credit etc. List below and attach copies of supporting documents

.....
.....
.....

7. Name, address , telephone, telex, fax numbers of the Tenderer's Bankers who may provide reference if contacted by the Employer.

.....
.....
.....

8. Information on current litigation in which the Tenderer is involved.

OTHER PARTY (IES)	CAUSE OF DISPUTE	AMOUNT INVOLVED (KSHS)

I certify that the above information is correct.

.....
.....

Title

Signature

Date

DECLARATION FORM

Date _____

To _____

The tenderer i.e. (name and address) _____

_____ declare the following:

- c) Has not been debarred from participating in public procurement.
- d) Has not been involved in and will not be involved in corrupt and fraudulent practices regarding public procurement.

Title

Signature

Date

(To be signed by authorized representative and officially stamped)

LETTER OF NOTIFICATION OF AWARD

Address of County Government of Kakamega

To: _____

RE: Tender No. _____

Tender Name _____

This is to notify that the contract/s stated below under the above-mentioned tender have been awarded to you.

4. Please acknowledge receipt of this letter of notification signifying your acceptance.
5. The contract/contracts shall be signed by the parties within 30 days of the date of this letter but not earlier than 14 days from the date of the letter.
6. You may contact the officer(s) whose particulars appear below on the subject matter of this letter of notification of award.

(FULL PARTICULARS) _____

SIGNED FOR INTERIM COUNTY SECRETARY CGK

REPUBLIC OF KENYA

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

.....APPLICANT

AND

.....RESPONDENT (*County Government of Kakamega*)

Request for review of the decision of the..... (*Name of the County Government of Kakamega*) of
.....dated the...day of20.....in the matter of Tender No.....of
.....20...

REQUEST FOR REVIEW

I/We.....,the above named Applicant(s), of address: Physical
address.....Fax No.....Tel. No.....Email, hereby request the Public Procurement
Administrative Review Board to review the whole/part of the above mentioned decision on the following
grounds , namely:-

1.

2.

etc.

By this memorandum, the Applicant requests the Board for an order/orders that: -

1.

2.

etc

SIGNED(Applicant)

Dated on.....day of/...20...

FOR OFFICIAL USE ONLY

Lodged with the Secretary Public Procurement Administrative Review Board on day of
.....20.....

SIGNED

Board Secretary

REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KAKAMEGA

MINISTRY OF ROADS, PUBLIC WORKS AND ENERGY

**BILLS OF QUANTITIES FOR PROPOSED ROUTINE MAINTANANCE
AND IMPROVEMENT OF LOT 4 ROADS IN MALAVA SUB – COUNTY**

FY2019/2020

PREPARED BY: ZAITUN AFANDEIBRAHIM

COUNTY GOVERNMENT OF KAKAMEGA.



P.O BOX 36 -M50100 KAKAMEGA

ITEM	ACTIVITY DESCRIPTION	UNIT	QTY	RATE	TOTAL
				(KSHS)	(KSHS)
	SHIANDA JUNCTION - EMATIHA ROAD (5KM) IN MALAVA SUB - COUNTY.				
1	<u>PRELIMINARIES</u>				
1.01	Fabricate to Engineers specification, public notice board to be situated at the beginning and end of the road	NO.	2		
1.02	Allow aprime cost sum for material testing as instructed by engineer.	ITEM	1		
1.03	E.O item 1.02 for contractors overhead and profit.	P.C SUM	15%		
2	Earthworks and bush clearing				
2.01	Form road by heavy grading to cross fall of 8% using motor grader to achieve 8m width of ditch to ditch. Cut slopes and back slopes to form V-shape	SM	35,000		
2.02	<u>Gravelling</u>				
	Excavate gravel material, transport to the road, spread in selected areas and compact to achieve 95% M.D.D	CM	2,000		
3	<u>Drainage Works.</u>				
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of such haulage shall be included in the rate or prices.				
3.01	Excavate for, provide lay and joint 600mm diameter pipe concrete culverts including bottom concrete class 20/25 in bed of 150mm, top slab of 150mm, apron, headwalls and wing walls as per the design and Engineers direction	LM	18		
3.02	Fabricate to Engineers specification, road signs and install as directed by the engineer.	No.	5		
	SUB-TOTAL CARRIED TO SUMMARY				

COUNTY GOVERNMENT OF KAKAMEGA.



P.O BOX 36 -M50100 KAKAMEGA

ITEM	ACTIVITY DESCRIPTION	UNIT	QTY	RATE	TOTAL
				(KSHS)	(KSHS)
	CHOMBELI - SAMITSI -SANGO BRIDGE ROAD (3KM) IN MALAVA SUB - COUNTY				
1	<u>PRELIMINARIES</u>				
1.01	Fabricate to Engineers specification, public notice board to be situated at the beginning and end of the road	NO.	2		
1.02	Allow aprime cost sum for material testing as instructed by engineer.	ITEM	1		
1.03	E.O item 1.02 for contractors overhead and profit.	P.C SUM	15%		
2	Earthworks and bush clearing				
2.01	Form road by heavy grading to cross fall of 8% using motor grader to achieve 8m width of ditch to ditch. Cut slopes and back slopes to form V-shape	SM	21,000		
2.02	<u>Gravelling</u>				
	Excavate gravel material, transport to the road, spread in selected areas and compact to achieve 95% M.D.D	CM	1,500		
3	<u>Drainage Works.</u>				
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of such haulage shall be included in the rate or prices.				
3.01	Excavate for, provide lay and joint 600mm diameter pipe concrete culverts including bottom concrete class 20/25 in bed of 150mm, top slab of 150mm, apron, headwalls and wing walls as per the design and Engineers direction	LM	21		
3.02	Fabricate to Engineers specification, road signs and install as directed by the engineer.	No.	3		
	SUB-TOTAL CARRIED TO SUMMARY				

COUNTY GOVERNMENT OF KAKAMEGA.



P.O BOX 36 -M50100 KAKAMEGA

ITEM	ACTIVITY DESCRIPTION	UNIT	QTY	RATE	TOTAL
				(KSHS)	(KSHS)
	LUBAO - CHEVOSO - INGAVIRA - MUTING'ONG'O - MALANGA - BUTALI ROAD (17KM) - MALAVA SUB - COUNTY.				
1	<u>PRELIMINARIES</u>				
1.01	Fabricate to Engineers specification, public notice board to be situated at the beginning and end of the road	NO.	2		
1.02	Allow aprime cost sum for material testing as instructed by engineer.	ITEM	1		
1.03	E.O item 1.02 for contractors overhead and profit.	P.C SUM	15%		
2	<u>Earthworks and bush clearing</u>				
2.01	Form road by heavy grading to cross fall of 8% using motor grader to achieve 8m width of ditch to ditch. Cut slopes and back slopes to form V-shape	SM	119,000		
2.02	<u>Gravelling</u>				
	Excavate gravel material, transport to the road, spread in selected areas and compact to achieve 95% M.D.D	CM	4,800		
3	<u>Drainage Works.</u>				
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of such haulage shall be included in the rate or prices.				
3.01	Excavate for, provide lay and joint 600mm diameter pipe concrete culverts including bottom concrete class 20/25 in bed of 150mm, top slab of 150mm, apron, headwalls and wing walls as per the design and Engineers direction	LM	46		
3.02	Fabricate to Engineers specification, road signs and install as directed by the engineer.	No.	8		
	SUB-TOTAL CARRIED TO SUMMARY				

SUMMARY

S/NO	DESCRIPTION	AMOUNT
1.	SHIANDA JUNCTION - EMATIHA ROAD (5KM	
2.	CHOMBELI - SAMITSI -SANGO BRIDGE ROAD (3KM)	
3.	LUBAO - CHEVOSO - INGAVIRA - MUTING'ONG'O - MALANGA - BUTALI ROAD (17KM)	
	TOTAL	
	ADD 16% VAT	
	GRAND TOTAL CARRIED TO FORM OF TENDER	