

MURANG'A COUNTY GOVERNMENT



TENDER DOCUMENT

FOR

PROPOSED CONSTRUCTION OF KIANYEKI BRIDGE
– KIGUMO SUBCOUNTY.

TENDER No. MC/006/2021-2022.

Closing Dates Thursday 7th April 2022.
NEGO NO:948407

SECTION I INVITATION TO TENDER

TENDER REF NO: MCG/006/2021-2022

TENDER NAME: PROPOSED CONSTRUCTION OF KANYEKI BRIDGE – KIGUMO SUBCOUNTY.

The Murang'a County Government invites sealed tenders from eligible candidates for **PROPOSED CONSTRUCTION OF KANYEKI BRIDGE – KIGUMO SUB COUNTY.**

Interested eligible candidates may obtain further information from and inspect the tender documents at Murang'a County Government Offices, P.O Box 52-10200, Murang'a during normal working hours.

- 1.1 A complete set of tender documents may be obtained by interested candidates upon payment of non-refundable fees of Kshs 1,000 in cash or Bankers cheque payable to Murang'a County Government.
- 1.2 Prices quoted should be net inclusive of all taxes, must be in Kenya Shillings and shall remain valid for 90 days from the closing date of the tender.
- 1.3 Submission of documents will be manual and online. Completed tender documents are to be enclosed in plain sealed envelopes marked with tender reference number and be deposited in the Tender Box at Murang'a County Government Offices, Ground floor or be addressed to Murang'a County Government, 52-10200 Murang'a so as to be received on or before **January 2022** at **10.00 a.m.**
- 1.4 Tenders will be opened immediately thereafter in the presence of the Candidates or their representatives who choose to attend at Conference room 1st Floor.

C.O Roads & Public Works.

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/Schedule of Rates for the execution of the above 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 on the commencement date and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix.
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.
4. 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 Tenderer]
_____ [Address of Tenderer]

Witness: Name _____

Address _____

Signature _____

Date _____

INSTRUCTIONS TO TENDERERS.

General

- 1.1 The Employer as defined in the Appendix to Conditions of Contract invites Tenders

for the Works Contract as described in the Tender Documents.

- 1.2 Tenderers shall include the following information and documents with their Tenders, unless otherwise stated:
 - (a) Certificate of incorporation.
 - (b) Certificate of Registration with ministry of Roads as a Contractor – NCA 8 and above.
 - (c) Valid Tax Compliance Certificate from Kenya Revenue Authority (KRA)
 - (d) Properly filled, signed / stamped form of tender and confidential business questionnaire.
 - (e) Properly filled anti-corruption Pledge.
- 1.3 The Tenderer shall bear all costs associated with the preparation and submission of the Tender.
- 1.4 The Tenderer, at the Tenderer's own expense, responsibility and risk, shall visit and examine the Site of the Works and its surroundings, to obtain all information that may be necessary for the preparation of the Tender and entering into a Contract for the Works as defined in the Specifications. Attendance at a pre-tender site meeting arranged by the Engineer shall be mandatory for the submission of an eligible tender.
- 1.5 Eligible Tenderers
 - a) The Invitation to Tender is open to all Tenderers qualified in accordance with the conditions of the Press Advertisement or otherwise indicated by the Employer. Only Tenders from qualified Tenderers will be accepted.
 - b) A Tenderer debarred from participating in Public Procurement by the Public Procurement Directorate shall not be eligible to submit a Tender.
 - c) If the Employer has not undertaken the prequalification of Tenderers, all Tenderers shall include the information required to satisfy the qualification criteria as determined by the Employer.
- 1.6. The Tender Security shall be; **Bid Security of Kshs. 300,000** from a reputable bank or Insurance firm

Tender Documents

- 2.1 The complete set of Tender documents comprises the documents listed below and any addenda issued in accordance with paragraph 2.4
 - (i) Instructions to Tenderers
 - (ii) Form of Tender
 - (iii) Conditions of Contract and Appendix to Conditions of Contract
 - (iv) Specifications
 - (v) Drawings and Road Improvement Plan
 - (vi) Bills of Quantities/Schedule of Rates (whichever is applicable)
 - (vii) Other documents/materials required by the Employer to be completed and submitted in accordance with these Instructions and Conditions
- 2.2 The Tenderer shall examine all Instructions, Forms and Specifications in the

Tender documents. Failure to furnish all information required by the Tender documents may result in the rejection of the Tender.

- 2.3 A Tenderer requiring any clarification of the Tender documents may notify the Employer in writing or by electronic means at the address indicated in the letter of Invitation to Tender. The Employer shall respond to any request for clarification received earlier than seven days prior to the deadline for submission of Tenders. Copies of the Employer's response will be forwarded to all persons issued with Tender documents, including a description of the inquiry, but without identifying its source.
- 2.4 Before the deadline for submission of Tenders, the Employer may modify the Tender documents by issuing addenda. Any addenda thus issued shall be part of the Tender documents and shall be communicated in writing or by electronic means to all Tenderers. Tenderers shall acknowledge receipt of each addendum in writing to the Employer.
- 2.5 The Employer may extend, as necessary, the deadline for submission of Tenders in accordance with paragraph 4.5 below, to take account of any addenda issued.
- 2.6 The timescale given for the Completion of Works has been based on the optimum use of labour-based construction.

Preparation of Tenders

- 3.1 All documents relating to the Tender and any correspondence shall be in the English Language.
- 3.2 The Tender submitted shall comprise the following:-
 - (a) The Form of Tender;
 - (b) Tender Security (as instructed in the Form of Invitation to Tender)
 - (c) Priced Bill of Quantities initialed on each page, or Schedule of Rates (whichever is applicable)
 - (d) Any other documents/materials required by the Employer to be completed and submitted by Tenderers.
- 3.3 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities/Schedule of Rates. Items for which no rate or price is entered shall be deemed covered by the other rates and prices in the Bill of Quantities/Schedule of Rates. **The rates should include all duties, taxes and levies payable by the contractor**
- 3.4 The unit rates and prices shall be in Kenya Shillings.
- 3.5 Tenders shall remain **valid for a period of 90 days** from the date of submission. However, the Employer may request the Tenderers to extend the period of validity

for a specified additional period. Such a request and the Tenderers' responses shall be made in writing.

- 3.6 The Tenderer shall prepare one original of the Tender documents as described in these Instructions to Tenderers, and copies if required by the Invitation to Tender.
- 3.7 The original shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Tenderer who shall initial all pages of the Tender where alterations or additions have been made.

Submission of Tenders

- 4.1 The Tender duly completed and sealed in an envelope shall;
 - (a) be addressed to the Employer at the address provided in the Invitation to Tender;
 - (b) bear the name and identification number of the Tenderer as defined in the Invitation to Tender; and
 - (c) Provide an instruction not to open before the specified time and date for Tender opening.
- 4.2 Tenders shall be delivered to the Employer at the address specified not later than the time and date specified in the Invitation to Tender.
- 4.3 The Tenderer shall not submit alternative offers unless they are specifically required in the Tender documents.

Each Tenderer may submit only one Tender. Any Tenderer who fails to comply with this requirement will be disqualified.
- 4.4 Any Tender received after the deadline for submission will be returned to the Tenderer un-opened.
- 4.5 The Employer may extend the deadline for submission of Tenders by issuing an amendment in accordance with paragraph 2.5 in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline.

Tender Opening

- 45.2 The Tenders shall be opened in the presence of those Tenderers' representatives who choose to attend at the time and in the place specified in the Invitation to Tender.
- 45.2 The name of the Tenderer, the total amount of each Tender and the status of the Tender Security shall be read out and recorded in a Tender Opening register, a copy of which may on request be made available to any Tenderer. Minutes of the Tender opening, including the information disclosed to those present shall also be prepared by the Employer.

Tender Evaluation

- 6.1 Information relating to the examination, clarification, evaluation and comparison of Tenders and recommendations for the award of the Contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's officials, processing of Tenders or award decisions will result in the rejection of the Tender.
- 6.2 Prior to the detailed evaluation of Tenders, the Employer shall determine if each Tender:-
- a) **Meets the eligibility criteria defined in paragraphs 1.2 and 1.5.**
 - b) Has been properly signed;
 - c) Is accompanied by the required Securities;
 - d) Is substantially responsive to the requirements of the Tender Documents.
- The Employer will reject any Tenders deemed to be non-responsive on the above criteria.
- 6.3 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 the one:-
- a) which affects in any substantial way the scope, quality or performance of the Works;
 - b) which limits in any substantial way, inconsistent with the Tender documents, the Employer's rights or the Tenderer's obligations under the Contract;
 - c) Whose rectification would affect unfairly the competitive position of other Tenderers presenting substantially responsive Tenders.
- 6.4 Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows:
- (a) where there is a discrepancy between the amount in figures and the amount in words, the amount in words shall prevail;
 - (b) Where there is a discrepancy between the arithmetically correct line item Amount, resulting from the multiplication of the Unit Rate and the Quantity, and the Amount entered, the latter shall prevail and the Unit Rate shall be adjusted accordingly.
 - (c) For Lump sum items, only the Amount will be considered, disregarding any filled in unit rate.
 - (d) Where there is a discrepancy between the Tender Price as stated in the Form of Tender and the Tender total in the main Summary of the Bills of Quantities, the Tender Price shall prevail. The Employer shall notify the

Tenderer and request that the Tenderer agrees to the Tender Price. The Unit Rate for the Items where the discrepancy occurs shall be adjusted by the Engineer. If the Tenderer fails to accept the corrected figure the Tender shall be rejected and the Tender Security shall be forfeit. Any discrepancy greater than 15% of the corrected figure shall result in rejection of the Tender and the forfeit of the Tender Security.

- 6.5 The Employer at his discretion may request any Tenderer for clarification of the Tender, including a breakdown of Unit Rates. The request for clarification and the response shall be in writing or electronic means.

Evaluation procedure.

STAGE 1:- PRELIMINARY & MANDATORY REQUIREMENTS.

At this stage bidders were supposed to submit the following documents as outlined in the tender document.

1. Certificate of incorporation.
2. Valid tax compliance.
3. Properly filled anti-corruption pledge and Confidential Business questionnaire
4. Properly filled form of tender
5. Serialization/pagination of the document.
6. CR12 certificate/Form.
7. Bid-bond valid for 120 days. (copy of the bid should be scanned and attached to the document submitted and the original to be submitted to the procuring entity before the tender close date)
8. NCA Certificate for road works Category 6 and above.

Bidders who will not comply with above criteria shall be considered non – responsive at this point and disqualified from further evaluation.

STAGE 2:- TECHNICAL EVALUATION

At this stage bidders were subjected to the following technical criteria as listed in the tender document. Maximum percentage score is as indicated in the table below.

| TECHNICAL EVALUATION | | |
|---|--|--------------------|
| Criteria | Description | Max Score % |
| Valid N.C.A Certificate for Road works. | Certificate of N.C.A Registration on Road Works – Category 6 and above | 5 |
| Proof of relevant past experience | Experience in construction of road works, attach copies of completion certificates of similar nature. Each project will be awarded 5%. | 20 |

| | | |
|---------------------------------|--|-----|
| Qualified Personnel | Foreman with at least 3 years' experience in works of an equivalent nature and volume. <ul style="list-style-type: none"> • Minimum Certificate in Building Construction – 15 Mks. • Attach certified copies of C.Vs and certificates – 10 Mks. | 25 |
| Methodology | Methodology for implementing of works (Submit proposals of works methods and schedule in sufficient detail to demonstrate the adequacy of the bidders' proposals to meet the technical specifications and completion time. | 25 |
| Construction Equipment Capacity | Proof of essential roads construction equipment ownership or proposal for timely acquisition. Attach evidence of (owned, leased, hired etc.) including Models, photos, capacities, current working conditions – <ul style="list-style-type: none"> • Site Equipment (Earth moving) Roller, Excavators, Grader - 5 Mks each upto a max. of 3 equipment's. • Transport Equipment Tipper, water bowser etc. - 5 Mks each upto a max. of 2 | 25 |
| | Total | 100 |

A minimum technical score of **70%** shall be required for a bidder to proceed to financial evaluation.

STAGE 3:- FINANCIAL EVALUATION.

The winning bidder will be the lowest evaluated and substantially responsive bidder among those who will have passed the preliminary and technical evaluation.

Award of Contract

- 7.1 The award of the Contract will be made to the Tenderer who has offered the lowest evaluated Tender Price. The works is estimated to cost **Kshs. 25,000,600.00**
- 7.2 The Employer reserves the right to accept or reject any or all Tenders and to cancel the Tendering process at any time prior to the award of the Contract without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer(s) of the grounds for the action.
- 7.3 The Tenderer whose Tender has been accepted will be notified of the award prior to the expiration of the Tender validity period in writing or by electronic means. This notification (called the "Letter of Acceptance") will state the sum (called the "Contract Price"] which the Employer will pay the Tenderer in consideration of the execution, completion, and maintenance of the Works as set out in the Contract. The Letter of Acceptance will constitute a binding Agreement, prior to the Tenderer signing the Contract Agreement.
- 7.4 The Contract Agreement will incorporate all agreements between the Employer and the Tenderer. It will be signed by the Tenderer, not earlier than 21 days following

the date of the Letter of Acceptance, and thereafter returned to the Employer within 14 days for signature.

- 7.5 This work is measured on site as per the construction Drawings.
- 7.6 The successful tenderer should commence the works within 14 days upon issuance of the commencement letter failure to which the employer might terminate contract.
- 7.7 No additional works shall be given e.g. Culvert installation or gravelling onsite without the employers written instructions or approval.

PART I: GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract are the FIDIC Short Form of Contract, First Edition, 1999, published by the International Federation of Consulting Engineers (FIDIC).

The General Conditions of Contract are linked with the Conditions of Particular Application, referred to as Part II, by the consecutive numbering of the Clauses, so that Part I and II together comprise the Conditions governing the rights and obligations of the Parties. In case of any inconsistency between the Conditions contained in Part I and those in Part II, the Conditions contained in Part II shall prevail.

The Tenderer is deemed to have read and fully complied with the General Conditions of Contract.

PART II: CONDITIONS OF PARTICULAR APPLICATION

The Conditions of Particular Application amplify the FIDIC Short Form of Contract so as to be, together, applicable to the Contract.

1 GENERAL PROVISIONS

1.1 Definitions

Add new Paragraph to sub-clause 1.1.8

1.1.8 (a) **“Week”** means a period of seven (7) consecutive days

1.1.8 (b) **“Month”** means calendar month

Add new paragraph to sub-clause 1.1.20 to 1.1.25

1.1.20 **“Appendix”** as referred to in the Conditions of Contract means Appendix to Form of Agreement.

1.1.21 **“Labour-Based Methods”** means work methods whereby activities are carried

out using labour where technically and economically viable and appropriate equipment is only used when labour alone will not achieve the required standards.

1.1.22 **"Task "** means the amount of work to be done by one individual worker or a gang in order to earn one day's wage.

1.1.23 **"Young Person"** means an individual male or female, who has attained the age of 16 years but has not attained the age of 18 years.

1.1.24 **"R2000 Strategy"** means an initiative by the Government of Kenya to improve the maintenance of the country's Road Network by giving priority to maintenance through network approach, using appropriate technology, labour-based methods, local resources and increased usage of small-scale entrepreneurs.

1.2 Interpretation

Add sub-clause 1.2.1 as follows

1.2.1 Words having the same meaning

In the Contract Documents the Employer's Representative is generally designated as the Engineer.

4 THE CONTRACTOR

4.1. General Obligations

Works to be in accordance with standard specification of civil works and bridges. The Contractor shall have the Defect liability period of 12 months after substantial completion.

Add the following new sub-Clauses:

4.1.1. R2000 Strategy

The Works shall generally be carried out using the R2000 Strategy and work approach, with its predominant emphasis on the use of labour-based construction methods where they are technically and economically viable. Intermediate equipment, as agreed by the Engineer may be used in other appropriate circumstances.

4.1.2.

4.1.3. Approval of Equipment

The Contractor shall submit for the Engineer's approval within seven days prior to the commencement date a list of equipment, which is intended for use on site. He shall notify the Engineer prior to bringing in equipment and shall further obtain the Engineer's approval prior to removing any equipment from site.

4.1.4. Recruitment of Labour

4.1.3.1 The Contractor shall ensure that there is a sufficient and suitable deployment of labour at all times throughout the Contract.

4.1.3.2 All general workers employed by the Contractor shall, to the extent possible, be recruited from the surrounding population. Exceptions may be made if sufficient local labour cannot be recruited and only with the approval of the Engineer. There shall be no discrimination in recruitment based on tribe, religion, political affiliation, age, disability or gender, and the recruitment system shall be fair and transparent.

4.1.3.3 The Contractor shall take particular note of the Government policy regarding the employment of women and youth in the recruitment process and shall take all possible steps to attain the targets of 30% of the labour force for each group.

4.1.4. Employment of Young Persons and Children

The Contractor shall comply with the Employment Act Chapter CAP 226 concerning the Employment of Young Persons and Children.

4.1.5. Conditions of Employment of Labour

The Contractor shall observe and fulfil the following conditions in respect of all persons employed by him in the execution of the Contract: -

- a) Where possible, labour shall be employed on a daily task basis. The size of the daily task shall be that which can reasonably be expected of a worker during a normal working day (8 hours), and all task rates shall be approved by the Engineer.
- b) The Contractor shall pay wage rates and observe hours and conditions of employment of labour as established by Kenyan Labour Laws and by agreement between Employers or other recognized authorities and trades unions for similar trades or industries in the District where the Contract Works are to be carried out.
- c) The Contractor shall recognize the freedom of employees to be members of trades unions. The Contractor's attention is drawn to the requirements of the Trade Unions Act (CAP 233), which states that if at least 25% of the employees are members of a particular Trade Union Organization, then the Contractor is legally bound to recognize and negotiate with the Organization.

4.1.6. Reporting Requirements

The Contractor shall, when required by the Engineer, submit labour returns in such form and detail and at prescribed intervals showing the staff and the number of the several classes of labour employed by the Contractor.

4.1.7. Non-payment of Wages by Contractor

- (a) The Employer may demand from the Contractor reasonable proof of payment of wages to the employees.
- (b) The Employer may, upon the Contractor defaulting in payment, pay the money due, out of any funds due or which may become due to the Contractor under the Contract.
- (c) In such an event, the Contractor shall co-operate with the Employer in processing the payment of the correct amounts of money due to the labourforce by submitting the relevant muster rolls, workday reports and pay-sheets, and the Contractor shall be represented at the time payments are made.
- (d) Direct payment to workers by the Employer shall attract a penalty as stated in the Appendix to cover expenses incurred in the administration of such labour payments.

4.1.8. Contract with Employees

(i) Working days

The Contractor shall recognize gazetted non-working days and allow in the Works Programme for those days on which labour is not expected to work.

(ii) Provision of Hand Tools

The Contractor shall provide his labour force with a sufficient number of hand tools of good quality and shall make the necessary provisions to maintain the tools in a good and safe working condition. The Engineer may instruct the Contractor to replace worn out, faulty or unsafe hand tools.

(iii) Safety and Health

- (a) The Contractor shall be responsible for the safety of all workers. In collaboration with, and to the requirements of the local health authorities, the Contractor shall ensure that first aid equipment and medical stores are available on the Site at all times throughout the period of the Contract, and shall also designate a Health and

Safety Officer from amongst the staff.

- (b) The Contractor shall be responsible for the provision of potable water for the workers at appropriate locations on the Site.
- (c) In the event of any outbreak of illness of an epidemic nature the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of dealing with and overcoming the same.
- (iv) Contractor to Preserve Peace

The Contractor shall take all reasonable measures to ensure that all personnel on site comply with the Statutes, Ordinances, Laws, Regulations and By-Laws in force in Kenya, and to prevent accidents or any riotous or unlawful behaviour by or amongst the employees on or in connection with the Works, and for the preservation of the peace.

4.1.9. Water for the Works

The Contractor shall supply all water for the Works.

4.1.10. Environment

The Contractor shall take all reasonable measures to protect the environment on the Site and to avoid damage or nuisance to persons and property. In particular, the Contractor shall carry out all activities in a manner that ensures:-

- a) Minimum soil erosion on slopes and sedimentation deposition in the drainage works;
- b) Maximum preservation of trees and shrubbery;
- c) No entrance or accidental spillage of solid matters, debris and other pollutants and waste into water courses
- d) The safe disposal of rubbish and waste.

4.1.11. HIV/AIDS

The Contractor shall institute on-site HIV/AIDS awareness and prevention campaigns for the duration of the Contract. This shall include the siting of information posters, the issue of condoms and also informatory meetings on site for the employees. The meetings shall be arranged with the assistance of the local health authorities and AIDS Campaign personnel, and shall be during working hours without loss of pay.

4.2. Performance Security

Add the following at the end of this clause.

The Performance Security shall be valid until the date of issue of the Employer's notice under sub-Clause 8.2 (Taking Over Notice). The Employer shall return the Security to the Contractor within 14 days thereafter.

A Performance Security in the form an Insurance Bond shall only be allowed from an Insurance Company approved by the Public Procurement Oversight Authority (PPOA) and in a Form also approved by the PPOA.

7. TIME FOR COMPLETION

7.1 Execution of the Works

The time of Completion shall be agreed during the time of the signing of the Contract. The contractor to submit programme of works which shall be approved by the Employer's Representative.

Progress Review Meetings

Regular progress review meetings between the Employer and the Contractor shall be held at times decided by the Engineer.

7.2 Programme

Programme to be submitted 14 days after receiving the letter of ward.

Intended Construction Procedures, Order and Methods

The Contractor shall show in the Programme of Works, the procedure, order and methods proposed for carrying out Works with specific emphasis on the labour requirements, equipment utilisation and productivity.

Programme Updating

Within the intervals stated in the Appendix or as required by the Engineer the Contractor shall submit an updated Programme of Works.

10. VARIATIONS AND CLAIMS

Add the following sub-clauses:

10.2 Permitted Variations

- (d) The Engineer shall not be permitted to issue Variations to a value greater than the Tender Sum without approval from the Procurement Entity. The limit of approved Variations shall be $\pm 15\%$ of the Tender Sum.

11. CONTRACT PRICE AND PAYMENT

11.1. Valuation of the Works

Add the following sub-clauses:

11.1.1. Price Adjustment

The Contract shall not normally be subject to Price Adjustment. However, in exceptional and clearly identifiable economic circumstances, the Employer may consider a request from the Contractor for Price Adjustment where taxes, duties and/or basic costs for labour and specified materials have significantly increased since the commencement of the Works, as set out below,

(a) Local Labour

For the purpose of this Sub Clause:

- (i) “Local Labour” means skilled, semi-skilled workers of all trades engaged by the Contractor on the Site for the purpose of or in connection with the Contract or engaged full time by the Contractor off the site for the Purpose of or in connection with the Contract (by way of illustration but not limitation: workers engaged full time in any office, store, workshop or quarry).
- (ii) “Basic Rate” means the applicable basic minimum wage rate prevailing on the date 28 days prior to the latest date for submission of Tenders, by reason of any National or State Statute or Ordinance.
- (iii) “Current Rate” means the applicable basic minimum wage rate for Local Workers by reason of any National or State Statute or Ordinance, prevailing on any date subsequent to the date 28 days prior to the latest date set for submission of Tenders.

b) Specified Materials

For the purpose of this Sub-Clause

- (i) “Specified Materials” means the basic materials required on the Site for the execution and completion of Works, which shall include fuel and lubricants; cement; aggregates; steel reinforcement; timber and gravel.
- (ii) “Basic Prices” means the prices for the specified materials prevailing on the date 28 days prior to the latest date for submission of Tenders.

The Engineer shall compile a Schedule of Basic Prices, upon which any claim for Variation shall be based, prior to the award of the Contract. The Contractor shall be entitled to a copy of the Schedule upon request to the

Engineer.

(iii) "Current Prices" means the prices for the specified materials prevailing on any date subsequent to the date 28 days prior to the latest date set for the submission of the Tenders, by reason of any National or State Statute or Ordinance,

(c) Overheads and Profits Excluded

In determining the amount of any adjustment to the Contract Price pursuant to this Sub-Clause no account shall be taken of any overheads or profits.

(d) Adjustments

The net amount of difference between the basic price and the current price payable by the Contractor when the specified services are provided or materials are bought shall, as the case may be, be paid to the Contractor.

(e) Notice and Records

The Contractor shall keep such books, accounts, invoices, receipts, time sheets and other documents and records as are necessary to enable any adjustment under this Clause to be made and shall at the request of the Employer furnish these duly verified in such a manner as the Employer may require for examination and checking.

11.1.2. Exclusion of Price Adjustment for Late Completion of Works

In the event of the Contractor failing to complete the Works within the Time of Completion as defined under Clause 7, or extension of the Contract period granted, the provisions of Clause 11 shall cease to apply.

Any part of the Works executed after the expiry of the Time for Completion shall be valued at a price levels prevailing at the contractual date of Completion.

11.1.3. Day works

The Contractor shall not execute any work on a Day works basis except by written order of the Engineer

Unless otherwise adjusted, payments for Day works shall be subject to price adjustment in accordance with the provisions of Clause 11.1.1

11.3. Interim Payments

Interim payment will be made once the works has been inspected, certified and approved by the Employer's representative:

11.4. Final Payments

Final payment shall be made after the works has been jointly inspected by the Employer's representative, Representative from procurement, Accounts and the supervision team. The Regional Manager Kerra has been delegated to carry out the supervision role in the interim

as we awaiting the restructure of the roads sector. Any other person may be delegated to him by the Employer Representative and the communication shall be in writing.

11.4.1. Advance Payment

The Employer will not make Advance Payment to the Contractor not unless is request

FORM OF AGREEMENT

AGREEMENT BETWEEN THE GOVERNMENT OF THE REPUBLIC OF KENYA AND
.....

This **AGREEMENT** is made on the ----- day of ----- between the MURANGA COUNTY GOVERNMENT, represented by the Director General of P.O Box 48151-00100, Telephone 020-801346 (Hereinafter called the Employer) acting through his representative MURANG'A COUNTY EXECUTIVE MEMBER P.O BOX 52-10200 MURANG'A of one part and -----
----- (Hereinafter called the Contractor) of P.O. Box -----
----- of the other part.

WHEREAS the Employer is desirous of Rehabilitating/Improving —

.....
...

..... And has accepted a Tender by the Contractor to execute the Improvement/Rehabilitation Works on the road sections as defined at a tender sum of Ksh

.....
..... (Words)..... (Figures),

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract.

The following documents form part of this Agreement, viz:

- (a) Letter of Acceptance;
- (b) Form of Tender
- (c) Appendix to the Form of Agreement
- (d) Conditions of Contract; Parts I and II
- (e) Specifications;
- (f) Drawings;
- (g) Priced Bill of Quantities;
- (h) Other Documents/Materials/Conditions agreed and documented.

In consideration of the payment to be made by the Employer to the Contractor, the Contractor covenants with the Employer to execute and complete the Works in conformity with the provisions

of the Contract.

The Employer covenants to pay the Contractor in consideration of the execution and completion of the Works, the Contract Price or such other sum as may become payable under the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed the day and year first before written at...MURANG'A, Kenya

Signed and dated for and on behalf of the Employer

.....

Designation

Date

.....

(Name of the Employer's Representative)

In the Presence of

Designation.....

Date.....

.....

(Name of witness)

(Address of Witness)

Signed for and on behalf of the Contractor

.....

(Name of the Contractor's Representative)

In the Presence of

.....

(Signature of witness)

(Date)

.....

(Name of witness)

.....

(Address of Witness)

Countersigned: - (if required)

.....

.....

Designation.....

(Date)

.....

(Name of the Counter signatory))

APPENDIX TO FORM OF AGREEMENT

This Appendix to Form of Agreement forms part of the Agreement.

(Note: with the exception of the items for which the Employer's requirements have been inserted, the Contractor shall complete the following information before submitting his offer.)

| Item | Sub-clause | Data |
|---|------------|--|
| Time for Completion | 1.1.9 | 3..Months, |
| Priority of Documents | 1.3 | The documents forming the Contract shall be interpreted in the following order of priority: <ul style="list-style-type: none"> ● the Contract Agreement and Appendix ● the Letter of Acceptance ● the Form of Tender ● the Conditions of Contract, Part II - Conditions of Particular Application ● the Conditions of Contract, Part I - General Conditions of Contract ● the Specifications ● the Drawings, ● the Priced Bill of Quantities |
| Law of Contract | 1.4 | Laws of the Republic of Kenya |
| Language | 1.5 | English |
| Provision of Site | 2.1 | On Commencement Date |
| Authorized Person | 3.1 | |
| Name and Address of Employer's Representative | 3.2 | County Executive Member, Roads & Public works. P. O. Box 52 - 10200 MURANG'A. |
| Penalty to the Contractor for Employer paying workers on his behalf | 4.1.8 | 10% of the amount paid to the workers. |
| Tender Security | 4.4 | The Tender Security shall be; Bid Security of Kshs 200,000.00 from a reputable bank or insurance firm. |
| Requirements of Contractors Design | 5.1 | Not applicable |
| Programme | | |
| ⇒ Time of Submission | 7.2 | Within 14 days of Commencement Date |
| ⇒ Form of Programme | 7.2 | |

| Item | Sub-clause | Data |
|--|----------------------|--|
| ⇒ Interval Updates | 7.2.2 | |
| Liquidated Damages Amount payable due to failure to complete | 7.4 | 0.01% of Contract Price per Day to a limit of 1% of Contract Price. |
| Percentage of Retention | 11.4 and 11.5 | N/A |
| Maximum Amount of Advance Payment | 11.3.1 | None. |
| Form of Guarantee for Advance Payment | 11.3.1 | N/A |
| Valuation of Works | 11.1.3 | Re measurements with Bills of Quantities |
| Repayment Schedule for Advance Payment | 11.3.2 | N/A |
| Minimum Amount of Interim Payment | 11.3.3 | N/A* |
| Currency of Payment | 11.7 | Kenya Shilling |
| Rate of Interest | 11.8 | Simple Interest at a rate of 2% above mean Base Lending Rate as issued by the Central Bank of Kenya. |
| Insurance | 14.1 | Not required |
| Insurance ⇒ The Works, materials plants & fees ⇒ Contractor's Equipment ⇒ Third party injury to persons and damage to property ⇒ Workers compensation ⇒ Other cover | 14.1 | N/A |
| Arbitration ⇒ Rules ⇒ Appointing Authority ⇒ Place of Arbitration | 15.3 15.3 15.3 | CAP 49 of the Laws of Kenya Chairman Chartered Institute of Arbitrators, Kenya Branch. District Headquarters |

Contractor Representative.....

Date.....

Signature.....

Employer Representative.....

Date.....

Signature.....

NOTIFICATION OF AWARD

1. Letter of Acceptance

Date:

To:

Contractor:
.....

Address:

This is to notify you that your Bid dated..... for

execution of the

for the accepted contract amount of Kenya Shillings

.....

as corrected and modified in accordance with the instructions to Bidders, is hereby accepted by our Authority.

Authorized Signature:

Name and Title of the Signatory:

Name of Agency:

Attachment: Contract Agreement

DECLARATION BY CONTRACTOR

We underscore the importance of a free, fair and competitive procurement process that precludes fraudulent use. In respect, we have neither offered nor granted directly or indirectly any inadmissible advantages to any public servants or other persons in connection with our bid, nor will we offer or grant any such incentive or conditions in the present procurement process or in the event that we are awarded the contract, in the subsequent execution of the contract.

We also underscore the importance of adhering to minimum social standards ("Core Labour standards") in the implementation of the project. We undertake to comply with the core labour standards ratified by the Government of Kenya.

We will inform our staff about our respective obligations and about their obligation to fulfil this declaration of understanding to obey the law of Kenya.

Name of the Contractor: _____

Authorised Signature: _____

Date: _____

QUALIFICATION INFORMATION

TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full name 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. Facsimile 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 (name, address, telephone, telefax);

.....

.....

Signature of Tenderer

Make copy and deliver to: _____(Name of Employer) (The Tenderer shall leave one copy at the time of purchase of the Tender documents)

CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a) or 2 (b) 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 Licensee No..... Expiring date.....

Maximum value of business which you can handle at any time: Kshs

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) – Limited Company Give details of directors as follows:

| | <i>Name in full</i> | <i>Nationality</i> | <i>Citizenship Details</i> | <i>Shares</i> |
|---|---------------------|--------------------|----------------------------|---------------|
| 1 | | | | |
| 2 | | | | |



Adjudicator's Agreement

Identification of Project:

.....
(the "Project")

Name and address of the Employer:

.....
(the "Employer")

Name and address of the Contractor:

.....
(the "Contractor")

Name and address of the Adjudicator:

.....
(the "Adjudicator")

Whereas the Employer and the Contractor have entered into a Contract ("the Contract") for the execution of the Project and wish to appoint the Adjudicator to act as adjudicator in accordance with the Rules for Adjudication ["the Rules"].

The Employer, Contractor and Adjudicator agree as follows:

1. The Rules and dispute provisions of the Contract shall form part of this Agreement.

2. The Adjudicator shall be paid:

A retainer fee ofper calendar month
(where applicable)

A daily fee of

Expenses (including the cost of telephone calls, courier charges, faxes and telexes incurred in connection with his duties; all reasonable and necessary travel expenses, hotel accommodation and subsistence and other direct travel expenses).

Receipts will be required for all expenses.

3. The Adjudicator agrees to act as Adjudicator in accordance with the Rules and has disclosed to the Parties any previous or existing relationship with the Parties or others concerned with the Project.

4. This Agreement shall be governed by the laws of.....

5. The Language of this Agreement shall be

SIGNED BY

For and on behalf of the Employer in the presence of

Witness
Name
Address
Date

SIGNED BY

For and on behalf of the Contractor in the presence of

Witness
Name
Address
Date

SIGNED BY

For and on behalf of the Adjudicator in the presence of

Witness
Name
Address
Date

CERTIFICATE OF BIDDER'S VISIT TO SITE

This is to certify that

[Name/s].....
.....

Being the authorized representative/Agent of [Name of bidder]
.....
.....

participated in the organised inspection visit of the site of the works for the

PROCUREMENT OF ROADWORKS ON:

ANNEX 1 THE WORKS

The Contractor shall in carrying out the maintenance Works undertake the specific tasks set out by the Engineer in this Annex. The Work shall be carried out in accordance with the Specification which are attached and form part of the Contract.

(The Engineer will list the tasks specific to each Contract which may include, among others, the following;

- inspect road, identify and remove all obstructions
- clear side drains/miter drains/cut-off drains
- repair/replace scour checks
- repair eroded ditches
- clean culverts/outlets/inlets
- clear stream channels
- fill potholes and minor gullies
- grub to reinstate road camber
- reinstate eroded shoulders and ditch slopes
- bush clearing and tree pruning
- carriageway edge repairs
- tree planting and nursing
- light or heavy grading
- headwall repairs
- drift de-silting
- road furniture maintenance and repair
- Spot gravelling including processing and compaction in accordance with specifications
- Manual Reshaping

The Engineer shall prepare a Work plan for the Contractor, see example in Annex 2.

The specific items will then be included in the Bill of Quantities, see the example in Annex3.

ANNEX 2 TENTATIVE WORK PLAN

Road Link Name:..... Contract No:.....

Financial Year:..... Location From: km, to km

| ACTIVITY/ITEM NO. | MONTHS | | | | | | | | | | | | Total Quantity | |
|-------------------|--------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------|----------|-----------|---------------|----------------|----------------|
| | Unit | 1 Ju l | 2 Au g | 3 Sep t | 4 Oc t | 5 No v | 6 De c | 7 Ja n | 8 Fe b | 9 Mar | 10 Apr | 11 Ma y | | 12 Jun e |
| | | | | | | | | | | | | | | |

SECTION 03: SETTING OUT

Scope

This section covers the activities required in the re-establishment of the horizontal alignment of the road including setting out the centre line, cross section widths, drains and structures.

03-50-001 Setting Out the Horizontal Alignment

The Contractor shall set out the centreline to follow the existing road alignment unless instructed otherwise by the Engineer.

The minimum standards as shown in Table 2.1 shall apply

Table 2.1 Alignment Standards

| Standard | Flat and Rolling Terrain | Hilly Terrain |
|--------------------------|--------------------------|---------------|
| <i>Horizontal Curves</i> | | |
| Desirable Minimum radius | 100m | 50m |

The cross section details of the road shall be as shown on the Drawing or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** methods to carry out this item.

Quality Control

- o Centreline pegs shall be set at 10m intervals on straight sections and 5m on curves
- o Chainage or reference pegs shall be set out and marked at 20m intervals and located at one metre outside the cleared width and on both sides of the road.
- o Cross section widths shall be checked at 10m intervals and shall have maximum tolerances of +/- 25mm

Measurement Unit: m

The measurement shall be the linear metres of the road

Payment

The unit rate shall be the full compensation for labour, tools, materials and incidental costs required for carrying out the work.

SECTION 04: SITE CLEARANCE

Scope

This section covers the clearance of bushes, shrubs, grasses, trees, stumps, boulders, stripping and grubbing of the topsoil, removal of anthills and other unsuitable materials for the specified widths of the road, quarry and borrow areas. The distinction between light and heavy bush shall be decided by the Engineer.

The minimum site clearing widths for each of the activities shall be as shown in Table 4.1

Table 4.1: Site Clearing Widths

| Road Category | Running Surface | Stripping and Grubbing | Trees, Stumps, Boulders | Bush Clearing |
|--|-----------------|------------------------|-------------------------|---------------|
| A/B/C + Secondary Roads | 7.0 m | 14.0 m | 14.0 m | 20.0 m |
| D/E + Minor Roads | 7 m | 14.0 m | 14.0 m | 16.0 m |
| RAR Roads | 4.5 m | 7.9 m | 8.0 m | 11.0 m |
| Minor / RAR roads with insufficient widths or Temporary Sections | 3.5 m | 6.9 m | 7.0 m | 9.0 m |

04-50-002 Grass Cutting (Manual)

Grass shall be defined as any form of plant growth including small shrubs having a girth of not more than 100mm measured at height of 200mm above ground level.

The grass shall be cut to height of not more than 50 mm above the ground. The width limits shall be as instructed by the Engineer. All cut grass shall be removed from the carriageway, side drains, mitre drains and inlets and outlet drains of structures/culverts and deposited in approved spoil dumps

Burning of the grass shall not be allowed and care shall be taken not to damage roadside fixtures such as signs and marker posts.

This activity shall be carried out twice, each time before the rainy season or as shall be instructed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work.

Quality Control

The road width for grass cutting shall be measured at 50-m intervals and shall be free of grass after the operation.

Measurement: m²

The measurement shall be area of grass cut, based on the standard width and measured length of clearing.

Payment

The unit rate shall be full compensation, for labour, materials, tools, and incidental costs required to carry out the work.

04-50- 003 Bush Clearing (Heavy)

Where the Engineer designates an area as Heavy Bush (based on the undergrowth density) the Contractor shall clear all vegetation including small trees, shrubs and undergrowth, and their root systems, and shall salvage any re-useable timber or other material by cutting into logs and stacking. Other cleared material shall be collected and disposed of off-site as directed by the Engineer.

Work Method

The Contractor shall use **Labour** methods for this item

Quality Control

The Engineer shall check the cleared widths at 50 metre intervals

Measurement Unit: m²

The measurement shall be the area cleared to the specified width over the length as instructed by the Engineer.

Payment:

The unit rate shall be the full compensation for all labour, tools and incidental costs required to complete the work.

04-50- 004 Bush Clearing (Light)

The Contractor shall clear all vegetation including small trees, and shrubs with their root systems. Grasses and any undergrowth shall be cut to a height of not more than 100mm.

The cleared material shall be collected and disposed of away from the side drains and in a manner that causes no visibility obstruction to traffic.

Work Method

The Contractor shall use **Labour** methods for this item

Quality Control

The Engineer shall check the cleared widths at 50 metre intervals.

Measurement Unit: m²

The measurement shall be the area cleared to the specified width over the length as instructed by the Engineer.

Payment:

The unit rate shall be the full compensation for all labour, tools and incidental costs required to complete the work.

04-50-005 Pruning Tree Branches

Where instructed by the Engineer, the Contractor shall trim tree branches to improve visibility. Cut material shall be collected and disposed of as directed by the Engineer and burning of waste material shall not be permitted.

Work Method

The Contractor shall use **Labour** for this item.

Quality Control

The Engineer shall check for visibility improvement.

Measurement and Payment

A Provisional Sum shall be allowed for this item, the works shall be paid under Dayworks.

04-50- 006 Trees Removal (200-450mm girth)

The contractor shall remove trees having a trunk girth of between 200-450mm at a point 600mm above the ground within 14m construction width.

The Contractor shall excavate around any trees to be removed to a depth not less than 0.5 m before cutting the roots. All holes left by the removal of trees shall be back-filled with approved material and compacted to existing ground level. Cut material and stumps shall be collected and disposed of as directed by the Engineer. Burning of waste material shall not be permitted.

Work Method

The Contractor shall use **Labour** methods for this item.

Quality Control

The Engineer shall approve the removal, backfilling and satisfactory disposal of all waste material.

Measurement Unit: No

The measurement shall be the number of trees removed.

Payment

The unit rate shall be the full compensation for all labour, tools and incidental costs required to complete this item.

04-50-007 Trees Removal (>450 mm girth)

All the requirements of item 04-50-006 shall apply for trees of girth above 450 mm including their stumps. In addition any re-useable timber from trees removed shall be cut into logs not more than 1.5 metres long and stacked as directed by the Engineer.

Work Method

The Contractor shall use **Labour** methods, with appropriate sawing tools and equipment for this item.

Quality Control

The Engineer shall approve the removal, backfilling and satisfactory disposal of all waste material.

Measurement Unit: No

Measurement shall be the number of trees removed

Payment:

The unit rate shall be the full compensation for all labour, tools, equipment and incidental costs required to complete this item.

04 -50-008 Rock/Boulders Removal

The Contractor shall remove in a manner agreed by the Engineer, rocks, boulders using labour and appropriate equipment as necessary. Boulders shall be disposed of outside the road area.

Work Method

The Contractor shall use **Labour** and appropriate equipment methods for this item.

Quality Control

The Engineer shall approve the removal and satisfactory disposal of the boulders.

Measurement Unit: Provisional Sum

A Provisional Sum shall be included for this item

Payment:

Payment shall be made on a Dayworks basis.

04-50-009 Stripping and Grubbing

The Contractor shall remove, over the widths shown in **Table 4.1**, topsoil including anthills, loose boulders up to 1.5m girth and other unsuitable material and deposit the debris outside the cleared area as directed by the Engineer.

Work Method

The Contractor shall use **Labour** methods for this item

Quality Control

The Engineer shall approve the stripped and grubbed area and the satisfactory disposal of waste material.

Measurement Unit m^2

The measurement shall be the area cleared as directed by the Engineer

Payment

The unit rate shall be the full compensation for all labour, tools and incidental expenses required to complete this item.

04 -50-010 Excavate remove & disposal of concrete structures

The Contractor shall **excavate remove & disposal of concrete structures** in a manner agreed by the Engineer, using labour and appropriate equipment as necessary. Debris shall be disposed of outside the road area.

Work Method

The Contractor shall use **Labour** and appropriate equipment methods for this item.

Quality Control

The Engineer shall approve the removal and satisfactory disposal of the debris.

Measurement Unit: Provisional Sum

A Provisional Sum shall be included for this item

Payment:

Payment shall be made on a Day works basis.

04-50-011 Stumps Removal (500- 1500mm girth)

The contractor shall remove stumps with girth between 500 and 1500mm, within 14m construction width or as instructed by the Engineer:

The Contractor shall excavate around any stumps to be removed to a depth not less than 0.5 m before cutting the roots. All holes left by the removal of stumps shall be back-filled with approved material and compacted to existing ground level. Cut roots and stumps shall be collected and disposed of as directed by the Engineer. Burning of waste material shall not be permitted.

Work Method

The Contractor shall use **Labour** methods for this item.

Quality Control

The Engineer shall approve the removal, backfilling and satisfactory disposal of all waste material.

Measurement Unit: No

The measurement shall be the number of stumps removed.

Payment

The unit rate shall be the full compensation for all labour, tools and incidental costs required to complete this item.

04-50-012 Stumps Removal (> 1500mm girth)

All the requirements of item 04-50-008 shall apply for removing stumps with girth greater than 1500mm, within 14m construction width or as instructed by the Engineer:

Work Method

The Contractor shall use **Labour** methods for this item.

Quality Control

The Engineer shall approve the removal, backfilling and satisfactory disposal of all waste material.

Measurement Unit: No

The measurement shall be the number of stumps removed.

Payment

The unit rate shall be the full compensation for all labour, tools and incidental costs required to complete this item.

SECTION 05: EARTHWORKS

Scope

This section covers the earthworks required to widen the road and reshape the subgrade formation to attain the required width and excavation of side drains. . The contractor is expected to supply all the control tools such as templates, camber board prior to commencing the earthworks.

05-50- 001: Re -Establishment of the Vertical Alignment

The Contractor shall re-establish the vertical alignment of the road section which includes the setting out excavation of horizontal slots marking the level road platform.

The width of the slots shall be 0.5 m and they shall be set out at 10m intervals along the straight section and 5m on the curve sections of the road. Each slot shall be compacted using hand rammers until no more imprints of the rammer on the surface of the slot can be seen. The length of each slot shall be equal to the formation width of the road.

Vertical alignment standards shall be those set out in Table 5.1

Table 5.1 Vertical Alignment Standards

| Standard | Flat & Rolling Terrain | Hilly Terrain |
|-------------------|------------------------|---------------|
| Gradients | | |
| Desirable Minimum | 2% | 2% |
| Desirable Maximum | 8% | 10% |
| Absolute Maximum | 10% | 12% |

Work method

The Contractor shall apply **Labour** methods to carry out this item work.

Quality Control:

- o The hand rammer shall be not less than 5kg
- o The level of the slot shall have a tolerance of ± 50 mm
- o The longitudinal profile of the road shall be checked at every third slot and shall have a maximum tolerance of ± 50 mm

Measurement Unit: m

The measurement shall be linear metres of road alignment set out

Payment:

The unit rate shall be the full compensation for labour, tools, materials and incidental costs required for carrying out the work.

05-50-002: Side-drain Excavation (Soft Material)

The Contractor shall excavate side drains to the profiles shown on the drawings or as directed by the Engineer.

Locations of the side drains shall be as shown on the drawings or as directed by the Engineer, and the Contractor shall use the appropriate ditch template to control the excavations.

Work method

The Contractor shall apply **Labour** methods to carry out this item.

Approved material from the side drains shall be used in the benches to raise the levels of the road. Excess materials or any materials found to be unsuitable for filling shall be spoiled within 50m of excavated area as directed by the Engineer.

Quality Control

- o The dimensions of the side drains shall be checked at 50m intervals and shall have a tolerance of $\pm 50\text{mm}$
- o The longitudinal profile of the side drains shall be checked at 30m intervals and shall have a tolerance of $\pm 50\text{mm}$.

Measurement Unit m^3

Measurement shall be the volume of material excavated to form the side drains.

Payment

The unit rate shall be the full compensation for labour, tools and incidental costs required for carrying out the work.

05-50-003: Side-drain Excavation (Hard material)

The Engineer shall classify the excavated material as hard if the daily task rate falls below 1.5m^3 , with evidence that the works were done by a consistent worker for 6 to 8 hours. The contractor shall carry out the excavation in accordance with 05-50-002 and shall be compensated under this item.

Work Method:

The Contractor shall apply **Labour** methods with appropriate **Equipment** to carry out this item.

The material from the side drains may be used for filling or deposited and spread on the lower side of the road or transported to an approved dumping site as directed by the Engineer.

Quality Control:

- o The dimensions of the side drains shall be checked at 50m intervals and shall have a tolerance of $\pm 50\text{mm}$
- o The longitudinal profile of the side drains shall be checked at 30m intervals and shall have a tolerance of $\pm 50\text{mm}$.

Measurement Unit: m^3

The Engineer shall measure the volume of the excavation classified as hard material

The measurement shall be the volume of material excavated and deposited as directed by the Engineer

Payment:

The unit rate shall be the full compensation for all labour, tools, equipment and incidental costs required to complete the work.

SECTION 07: EXCAVATION AND FILLING FOR STRUCTURES

Scope

This section covers all Works in connection with the excavation for concrete pipe culverts; inlet and outlet structures; drifts and drainage protection Works;

07-50- 001 Excavation for Drainage Structures in Soft Material

The Contractor shall excavate trenches for culverts; foundations for head walls, wing walls; inlet and outlet aprons and other drainage structures to the dimensions and levels shown on the Drawings or as directed by the Engineer. The excavations shall be kept free of water and shall be compacted with hand rammers of not less than 5kg.

The Engineer shall approve all excavations before the Contractor shall be permitted to proceed with the construction.

The Contractor shall take all necessary precautions to safeguard the stability and safety of the excavations.

Work Method

The Contractor shall apply **Labour** methods to carry out this item.

Quality Control

- o The dimensions of the excavations shall have a tolerance of $\pm 50\text{mm}$
- o The invert levels shall have a tolerance of $\pm 50\text{mm}$
- o The trench bottom gradients shall have a tolerance of $\pm 20\text{mm}$ over the length of the trench

Measurement Unit m3

The measurement shall be volume of material excavated measured net according to the Drawings.

Payment

The unit rate shall be the full compensation for labour, tools, and any incidental costs required for carrying out the work.

07-50- 002 Excavation for Drainage Structures in hard Material

The Engineer shall classify the excavated material as hard if the daily task rate falls below 1.5m³, with evidence that the works were done by a consistent worker for 6 to 8hours. The contractor shall carry out the excavation in accordance with 07-50-001 and shall be compensated under this item.

Work Method

The Contractor shall apply **Labour** methods to carry out this item.

Quality Control

- o The dimensions of the excavations shall have a tolerance of + / - 50mm
- o The invert levels shall have a tolerance of + / - 50mm
- o The trench bottom gradients shall have a tolerance of + / - 20mm over the length of the trench

Measurement Unit m3

The measurement shall be volume of hard material excavated measured net according to the Drawings.

Payment

The unit rate shall be the full compensation for labour, tools, and any incidental costs required for carrying out the work.

SECTION 08: CULVERT AND DRAINAGE WORKS

Scope

This section covers all Works in connection with the installation of concrete pipe culverts; inlet and outlet structures; drifts and drainage protection Works; and the construction of Scour Checks

08- 50-002: Ditch Cleaning (Manual)

i. Partially silted

Partially silted drains are those that are less than half silted and require only cleaning.

All deposited material, debris, and vegetation shall be removed and the drain shaped to the original cross-section and left in a free-draining condition. Suitable material may be used to fill depressions and potholes on the carriageway. All debris and other unsuitable material removed from the side drains shall be disposed of well clear of the drainage system in approved spoil dumps where it will not cause any obstruction or be washed back.

The side drains, mitre drains and catchwater drains shall be cleaned before the onset of the rains or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

- o Appropriate drain templates shall be used to check and control the dimensions of the drains.
- o The longitudinal profile of the drains shall be checked using boning rods, to ensure free flow.

Measurement Unit: m

The measurement shall be the length of drain desilted or cleaned to the specified cross-section.

Payment

The unit rate shall be full compensation, for labour, tools, and incidental costs required to carry out the work.

ii. Fully silted

Fully silted drains shall be those that are greater than half-silted and require re-excavation or reshaping.

All deposited material, debris, and vegetation shall be removed and the drain shaped to the original cross-section and left in a free-draining condition. Suitable material may be used to fill depressions and potholes on the carriageway. All debris and other unsuitable material removed from the side drains shall be disposed of well clear of the drainage system in approved spoil dumps where it will not cause any obstruction or be washed back.

The side drains shall be desilted or re-excavated before the onset of the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

- o Appropriate drain templates shall be used to check and control the dimensions of the drains.
- o The longitudinal profile of the drains shall be checked using boning rods, to ensure free flow.

Measurement Unit: m

The measurement shall be the length of drain re-excavated or re-shaped to the specified cross-section.

Payment

The unit rate shall be full compensation for labour, tools, and any incidental costs required to carry out the work.

08-50- 005: Ditch/ Mitre Drains/Catchwater Drains Excavation

- i. Labour
- ii. Equipment

The Contractor shall excavate mitre drains and catchwater drains to the dimensions shown on the Drawings and at locations as directed by the Engineer. They shall be excavated in a manner to minimise erosion at the discharge point. The material excavated from the drains shall be used to form the side drain bund directing water to the mitre-drain, and a bund on the lower side of the cut-off drain, or disposed of as directed by the Engineer.

Work Method

The Contractor shall use either **Labour** or **Equipment** as directed by the Engineer to carry out this work.

Quality Control

- o The longitudinal profile shall have a gradient of maximum 4%.
- o The dimensions of the mitre drains shall have maximum tolerances of

+20mm

- o The location of the mitre drains shall be approved by the Engineer.

Measurement Unit: m³

The measurement shall be the volume of material excavated as measured on site in approved drains.

Payment

The unit rate shall be full compensation for labour, tools, equipment and incidental costs required for carrying out the work.

08-60-001-005 Culvert Cleaning (partially blocked)

| | |
|-----------|-------------|
| 08-60-001 | 300mm dia |
| 08-60-002 | 450mm dia |
| 08-60-003 | 600mm dia |
| 08-60-004 | 900mm dia |
| 08-60-005 | 1200 mm dia |

This activity involves the cleaning of culverts of specified sizes including pipe barrels, the outlet/inlet structures, and the outlet drains, keeping them free of all debris, weed, silt and any obstruction to ensure free passage of water at all times. The debris shall be deposited in approved spoil dumps as directed by the Engineer

Partially blocked culverts shall be those with less than half of the barrel blocked.

Correct widths and slopes of the outlet drains shall be maintained. The gradient of the outlet drain shall be not less than 2 %.

All broken culvert barrels discovered in the course carrying out this activity shall be reported to the Engineer.

This activity shall be carried out before the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

The culverts shall be checked as free of debris to the satisfaction of the Engineer.

Measurement Unit: m

The measurement shall be the length of culvert, including the outlet drain, cleaned

Payment

The unit rate shall be full compensation for labour, tools and incidental costs required to carry out the work.

08- 60-006-10 Culvert Cleaning (Fully blocked)

08 - 60 - 007 450mm dia;

08 - 60 - 008 600mm dia;

08 - 60 - 009 900mm dia;

This activity involves the cleaning of culverts of specified sizes including pipe barrels, the outlet/inlet structures, and the outlet drains, keeping them free of all debris, weed, silt and any obstruction to ensure free passage of water at all times. The debris shall be deposited in approved spoil dumps as directed by the Engineer

Fully blocked culvert shall be those with greater than half of the barrel blocked.

Correct widths and slopes of the outlet drains shall be maintained. The gradient of the outlet drain shall be not less than 2 %.

All broken culvert barrels discovered in the course of carrying out this activity shall be reported to the Engineer.

This activity should be carried out before the onset of the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work.

Quality Control

The culverts shall be checked as free from debris, to the satisfaction of the Engineer.

Measurement Unit: m

The measurement shall be the length of culvert, including the outlet drain cleaned.

Payment

The unit rate shall be full compensation for labour, tools and incidental costs required to carry out the work.

08-60-016/035 Supply and Install Concrete Pipe Culverts

08-60-025 600mm haunched (Type IV)

08-60-027 900mm haunched (Type IV)

The Contractor shall supply, lay and joint concrete pipes to form culverts, including the concrete bedding; haunching or surrounds; and backfilling, in accordance with the Drawings for the Type and diameter specified in the Contract or directed by the Engineer.

The pipes shall be of Class 20/20 concrete, at least 28 days cured, and manufactured on site or procured from a supplier approved by the Engineer. The pipes shall be laid on a bedding of Class 15/20 concrete of dimensions as shown on the Drawings and jointed with cement mortar 1:4.

The culvert gradient including the outlet shall be a minimum 2%.

The pipes shall be haunched or surrounded, according to the Type specified, with Class 15/20 concrete to the dimensions shown on the Drawings or as directed by the Engineer. All concrete works will be batched using gauge box made from either steel, timber or plywood with inside dimensions of 400mm by 300mm by 300mm deep, the volume of the box is 0.036m³.

Backfilling shall be carried with approved material and compacted in layers not exceeding 150 mm loose depth and placed evenly on each side of the pipe. Ramps shall be shaped to achieve a minimum overfill of 75% of the pipe diameter, and shall be tapered back on the carriageway to provide a gradual approach, as directed by the Engineer.

If the Contractor wishes to construct culverts in-site, using inflatable or collapsible forms the Engineer's approval shall first be sought for the proposed working method.

On completion the inside of the culvert shall be smooth, without displaced joints or other obstructions and true to line and level.

Work Method

The Contractor shall use **Labour** and appropriate **Equipment** to carry out this item work

Quality Control

- o Before mixing, all materials such as water, cement, sand and ballast used for concrete production and the Contractor's working method shall be approved by the Engineer.
- o the compressive strengths of concrete will be tested using cube crushing method;
- o In addition, the concrete quality shall be checked for cracks, honey combing, and other defects.
- o Before the pipes are laid, the gradient of the concrete bedding shall be checked and shall not be less than 2%;
- o The joints shall be checked to see that they have been properly made.

Measurement Unit: m

The measurement shall be in linear metres of the installed Type and size of culvert specified, measured net according to the Drawings.

Payment

The unit rate shall be the full compensation for labour, tools, materials, equipment and any other incidentals that may be required in carrying out the work.

08- 60- 017 Head Wall Repair - Masonry

This activity involves the repairs to damaged head walls and wing walls built in 200mm thick masonry stones.

Where directed by the Engineer, the masonry walls shall be inspected and loose or missing stone re-secured or replaced. Damaged pointing shall be repaired with cement mortar 1:4 and finished flush with the stonework.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

The stability of the walls and the pointing shall be to the satisfaction of the Engineer.

Measurement Unit: No

The measurement shall be the number of walls repaired as directed by the Engineer.

Payment

The unit rate shall be full compensation for labour, materials, tools, and incidental costs required to carry out the work.

08-60-018 Headwall Repair - Concrete

The activity involves the repairs to damaged concrete headwalls and wingwalls, and to inlet/outlet concrete aprons. Concrete walls shall be inspected and repair works carried out as instructed by the Engineer to include breaking out and replacement of damaged concrete with similar material, and the rendering of open texture areas with cement mortar 1:4. Broken wall sections shall be re-built in 20/20 (1:2:4) concrete within formwork erected on the correct lines and levels in accordance with the Standard Drawings. Areas of new concrete and mortar shall be protected from direct sunlight and kept moist for 3 days.

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: No

The measurement shall be the number of walls/aprons repaired.

Payment

The unit shall be full compensation for labour, materials, tools, and incidental costs required to carry out the work.

08-60-019 200mm thick dressed masonry walling to culverts' wingwalls and headwalls.

The Contractor shall construct inlet and outlet structures for culverts including headwalls, wingwalls in stone masonry or concrete block, and aprons in concrete to the dimensions and levels shown on the Drawings or as directed by the Engineer. The walls shall be built on foundations of class 15/20 concrete and jointed with cement mortar 1:4. The aprons shall be in Class 20/20 concrete and after laying the surface shall be kept moist for 3 days.

Work Method

The Contractor shall use **Labour** to carry out this item.

Quality Control

- o The dimensions of the structures shall have a tolerance of + / - 10mm
- o The levels shall have a tolerance of + / - 10mm
- o The mortar joints shall be finished flush with the face of the walls.

Measurement Unit: m²

The measurement shall be the area of the structures constructed, in whichever material, measured net according to the Drawings.

Payment

The unit rate shall be the full compensation for labour, tools, materials and any other incidentals that may be required in carrying out the work.

08-60-020 Provide, place and compact class 20/20 concrete to culverts' headwalls, wingwalls, aprons and toe beams including form work.

The Contractor shall construct inlet and outlet structures for culverts in concrete to the dimensions and levels shown on the Drawings or as directed by the Engineer.

Concrete shall be Class 20/20 unless otherwise specified. The formwork for the walls shall be erected on the concrete foundations, to the correct dimensions, and shall be approved by the Engineer before concrete is poured. Concrete shall be poured in a single lift and the top surface shall be kept moist for 3 days. Formwork may be struck after 2 days or as directed by the Engineer.

The Contractor shall use a concrete vibrator or other means approved by the Engineer to ensure full compaction of the concrete.

Work Method

The Contractor shall use both **Labour** and appropriate **Equipment** to carry out this item.

Quality Control

- o The dimensions of the structures shall have a maximum tolerance of + 20mm / - 10mm
- o Before mixing, all materials such as water, cement, sand and ballast used for concrete production and the Contractor's working method shall be approved by the Engineer.
- o the compressive strengths of concrete will be tested using cube crushing method;
- o The workability and mix of concrete shall be checked using the slump test and shall have a slump limit as directed by the Engineer.
- o In addition the concrete shall be checked for cracks, honey combing and other defects at the time of striking the formwork.

Measurement Unit: m³

The measurement shall be the volume of concrete in the completed structure, measured net in accordance with the Drawings.

Payment

The unit rate shall be the full compensation for labour, tools, materials, formwork, equipment and other incidentals that may be required in carrying out the work.

08-70- 001: Provide Stone Pitching using 150mm dressed masonry stones

The Contractor shall lay stone pitching at locations shown on the Drawings or as directed by the Engineer, which shall include levelling the area to be covered with stone pitching, collecting and laying masonry stones, applying mortar to the joints and constructing weep holes, if required.

The area to be covered with stone pitching shall be trimmed to the level and slope shown on the Drawings or as directed by the Engineer. The prepared surface shall be firm and well compacted, with hand rammers.

The stones shall have minimum dimensions of 150mm and maximum 300mm and shall be set on the flat side and securely bedded, with the largest dimensions at right angles to the flow of water, in an interlocking pattern so as to leave only a minimum of voids between the stones which shall be filled with suitably shaped and tightly wedged spalls. The top of the pitching shall be finished flush with the adjacent material.

The stones shall be placed in full contact with the surface and bedded into cement mortar 1:4 with a minimum thickness of 100 mm. The mortar shall be worked into the pitching so that the voids between the stones are filled to the full depth of the pitching. The mortar shall be finished flush with the surface of the stones.

Weep holes shall be provided to stone pitching on slopes as directed by the Engineer.

The surface of the stone pitching shall be protected from direct sunshine and kept moist for 2 days.

Work Method

The Contractor use **Labour** to carry out this item.

Quality Control

- The quality of pitching shall be checked for gaps and voids.
- The dimensions of the area of stone pitching shall have a tolerance of + / - 100mm

Measurement Unit: m²

The measurement shall be the total area of pitching calculated as the net area, measured on the slope.

Payment

The unit rate shall be full compensation, for labour, tools, materials, and incidental costs required for carrying out the work.

08- 70- 002: Stone Pitching Repair

This activity involves the repair of stone pitching on slopes, in inlet/outlet aprons and access drifts. The stone pitching shall be inspected and repairs carried out as directed by the Engineer, including the replacement and re-bedding of missing or loose stones; the repair of mortar jointing: and the cleaning out of weep holes, as required. All work shall be to the lines and levels of the original construction with new stonework and mortar being flush with the adjacent materials.

Work Method

The Contractor shall use **Labour** to carry out this work

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: m²

The measurement shall be the net surface area of the repairs.

Payment

The unit rate shall be full compensation, for labour, tools, materials, and incidental costs required to carry out the work.

08-70- 004: Supply and Install Gabions

The Contractor shall provide and install Gabions as retaining walls and anti-erosion structures at locations shown on the Drawings or as directed by the Engineer.

Gabions shall include mattresses and boxes and for purposes of construction, measurement and payment, no distinction shall be made between them.

Gabions shall be 'Maccaferri' boxes or 'Reno' mattresses or equivalent approved by the Engineer.

The surfaces on which the Gabions are to be laid prior to being filled with rock shall be levelled to the depths and dimensions shown on the Drawings or as directed by the Engineer.

Gabion boxes shall be tied together with 3 mm galvanised binding wire securing all edges at 150mm intervals.

Work Method

The Contractor shall use **Labour** to carry out this item.

Quality Control

The placing and tying of the Gabions shall be approved by the Engineer before filling commences.

Measurement Unit No

The measurement shall be the number of Gabion boxes installed.

Payment

The unit rate shall be the full compensation for labour, materials, and any incidental item costs necessary to carry out the work.

08-70-005: Rockfill to Gabions

The Contractor shall provide selected rock, crushed if necessary, and carry out the packing and compacting of the rock inside the Gabion boxes.

The boxes shall be filled in layers from the sides towards the middle in an interlocking stone matrix to prevent deformation and bulging. The interior and top layers of the boxes shall be hand packed with smaller stone to form a tightly compact structure and rammed in place. Care shall be taken to ensure that each layer of boxes is filled evenly and to a level surface before the next course of boxes is placed.

Work method

The Contractor shall use **Labour** to carry out this activity.

Quality Control

The filling and compaction of the stones in the Gabion boxes shall be approved by the Engineer.

Measurement Unit m³

Rock fill to Gabions shall be the volume of Gabions filled.

Payment

The unit rate shall be the full compensation for labour, tools, materials and incidental costs required for carrying out the work.

08-70-006 Scour Checks (Concrete)

08-70-007 Scour Checks using 200mm thick dressed Masonry stones

08-70-008 Scour Checks (Wooden Stakes)

The Contractor shall construct scour checks using masonry stones, stakes, or concrete as instructed by the Engineer.

Construction of concrete scour checks shall be in class 20/20 concrete, unless otherwise specified, and to the details shown in the Drawings.

Spacing for scour checks shall be as shown in Table 8.1, or as directed by the Engineer.

Table 8.1: Scour checks spacing

| Gradient of Drain | Scour Check Spacing | Gradient of Drain | Scour Check Spacing |
|-------------------|---------------------|-------------------|---------------------|
| 4% or less | not required | 8% | 7.5m |
| 5% | 20m | 9% | 6m |
| 6% | 15m | 10% | 5m |
| 7% | 10m | >10% | 4m |

Work method

The Contractor shall use **Labour** to carry out this item.

Quality Control

The spacing of the scour checks shall have a tolerance of + / - 0.5m

The sizes of the stakes and stones used shall be in accordance with the Drawings

The shape of the scour check shall be checked using the scour check template.

Measurement Unit: No.

The measurement shall be the **number** of scour checks constructed.

Payment

The unit rate shall be full compensation, for labour, tools, materials and incidental costs required for carrying out the work.

08-70-009: Scour Check Repair - masonry

08-70-010: Scour Check Repair - wooden

08-70-011: Scour Check Repair - concrete

This activity involves the repair of Scour Checks using stones or wooden stakes or concrete. The construction details shall be shown in the Drawings or as instructed by the Engineer.

Scour checks shall be inspected and the repairs carried out as directed by the Engineer, which shall include replacement of missing or broken stonework and stakes; and the repair of damaged concrete, to the original lines, levels, and Specifications.

Work Method

The Contractor shall use **Labour** to carry out this item work.

Quality Control

The sizes of the stakes and stones used shall be as the original construction.

The shape of the scour check shall be checked using the scour check template.

Measurement: No.

The unit rate of measurement shall be the number of scour checks repaired.

Payment

The unit rate shall be full compensation, for labour, tools, materials, and incidental costs required for carrying out the work including excavations etc.

08-70-012 At-level Scour Checks

The Contractor shall select and place flat stones of minimum dimensions 0.10-0.15m in gently sloping channels. The stones shall be placed in a manner to ensure minimum voids within the structure. A trench 0.2m deep by 0.2m wide shall be excavated in the invert of the channel and extended 0.2m into the slopes. Stones shall be laid up to the level of the invert with the middle section lower than the sides to form a spill way. The spacing of the checks shall be 1-4 metres, as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item.

Quality Control

The construction and spacing of the scour checks shall be checked by the Engineer.

Measurement Unit: No

The measurement shall be the number of scour checks constructed.

Payment

The unit rate shall be full compensation for labour, tools, materials and incidental costs required to carry out the work.

Gully-head Protection

08-70-013(b) Stone Chute Stabilisation

08-70-014 Stone and Post Chute Stabilisation

The Contractor shall construct gully-head protection works as directed by the Engineer to the dimensions and details shown on the Drawings C28.

The dimensions of the stones shall not be less than 200mm and the volume not less than 0.01m³ for the smaller stones and pebbles to be used as the transition layer between the stone structure and the ground. No rounded stones shall be used. Posts shall be durable hardwood minimum 900mm in length and 15mm diameter.

The gully head shall be excavated as shown on the Drawings to form a firm base for the stone layers. The initial layer shall be the small stones and gravel to a depth of 150mm after which the larger stone shall be carefully placed to form a compact matrix. Posts shall be driven a minimum of 600mm into the ground at spacing as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item

Quality Control

The stone dimensions and construction shall be checked by the Engineer.

Measurement Unit: No

The measurement shall be number of units constructed

Payment

The unit rate shall be full compensation for labour, tools, materials and incidental costs required to carry out the work.

08-70-016 Stone and Post Check Dams

The Contractor shall construct check dams in erosion gullies to the dimensions and details shown on the Drawings No. C27 and as directed by the Engineer.

The dimensions of the stones in the main structure shall not be less than 200mm and the volume not less than 0.01 m³ for the stones and pebbles for the transition layer between the stone structure and the ground. No rounded stones shall be used.

Posts shall be durable treated hardwood of minimum diameter 0.10m, of minimum length 1.6m, driven at least 600mm into the ground. Stones shall be carefully hand-packed to provide a stable structure with a minimum of voids.

The spacing of the check dams shall be as shown in the table below:

| Check Dam Spacing | | | | | |
|--------------------------|------------------------------------|-------------|-------------|-------------|-------------|
| Gradient | Height of dam spill way (m) | | | | |
| % | 0.15 | 0.25 | 0.50 | 0.75 | 1.00 |
| 5 | 15.0 | 25.0 | | | |
| 7 | 5.0 | 8.7 | 17.5 | 25 | 35 |
| 10 | 2.5 | 4.2 | 8.4 | 12.6 | 16.8 |
| 15 | 1.4 | 2.3 | 4.6 | 6.9 | 9.2 |
| 20 | 0.9 | 1.6 | 3.2 | 4.8 | 6.4 |
| 25 | | 1.3 | 2.5 | 3.8 | 5.0 |
| 30 | | 1.0 | 2.0 | 3.0 | 4.0 |
| 40 | | | 1.6 | 2.4 | 3.2 |
| 50 | | | 1.2 | 1.8 | 2.0 |

Work Method

The Contractor shall use **Labour** to carry out this item

Quality Control

The Engineer shall check the workmanship and spacing of the check dams.

Measurement Unit: No

The measurement shall be the number of check dams constructed

Payment

The unit rate shall be full compensation for labour, tools, materials and incidental costs required to carry out the work, including excavations, compaction etc

08- 80-001 Access Drifts (Using 200mm thick Dressed Masonry Stones)

08-80-002 Access Drifts (Concrete)

The Contractor shall construct Access drifts in grouted masonry stone and watercourse drifts in concrete at locations, and to the dimensions, shown on the Drawings or as directed by the Engineer. This shall include the provision of stone and the levelling of the areas to be covered.

The stone pitching for Access drifts shall comply with the requirement of 08-70-016 with the addition of masonry toes at each end of the drift as shown on the Drawings.

Concrete drifts shall be constructed in Class 20/20 concrete to the lines and dimensions shown on the Drawings or as directed by the Engineer.

The area to be covered shall be trimmed to the line and slope shown on the Drawings or as directed by the Engineer, and the prepared surface compacted with hand rammers or appropriate equipment. The concrete shall be poured in bays of half road width and of length 10-15 metres, between construction joints, with steel mesh reinforcement mats laid 50mm below the finished surface level. Contraction joints if required shall correspond with the construction joints where directed by the Engineer expansion joints shall be installed at positions and to the details given by the Engineer.

The grouted stone pitching and the concrete shall be covered with wet sacking or other approved cover for not less than 4 days after laying and shall not be subject to loading until adequate strength has been developed as instructed by the Engineer.

Work Method

The Contractor shall use **Labour** and appropriate **Equipment** to carry out this item.

Quality Control

- i) Stone quality shall be as for 08-70-016
- ii) Concrete shall be checked by slump test to the standard as directed by the Engineer.

Measurement Unit m³

The measurement shall be the area of stone pitching or volume of concrete laid, measured net according to the Drawings.

Payment

The unit rate shall be full compensation for labour, tools, materials, equipment and incidental costs required for carrying out the work including excavations, compaction etc

08- 80-004 Drift Maintenance – desilting

This activity involves the removal of debris, silt and any vegetation from drifts and causeways. The debris shall be deposited away from the drift in approved spoil dumps.

This activity shall be carried before the rains, or as directed by the Engineer.

Work Method

The Contractor shall use Labour to carry out this item of work

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: m³

The measurement shall be the volume of debris or silt removed calculated as the product of length, width and measured depth of the affected section of drift.

Payment

The unit rate shall be full compensation for labour, tools, and incidental costs required to carry out the work.

08-80-005 Drift Repairs – Concrete

This activity involves the repair of concrete drifts, including the removal of loose or broken concrete, cutting back damaged areas to sound surfaces and repairing with concrete of similar Class to the original.

The drift shall be inspected and necessary repairs shall be instructed by the Engineer. Holes and voids shall be cleared of debris, loose material and dust, and shall be well watered before the new concrete is placed. The new concrete shall be firmly rammed against the existing surfaces and finished flush with the surrounding materials. The surface of the repair shall be protected from direct sunlight and kept moist for 3 days. Concrete shall be Class 20/20 unless otherwise directed by the Engineer.

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: m³

The measurement shall be the volume of concrete used for the repair.

Payment:

The unit rate shall be the full compensation for labour, tools, materials and incidental costs required to carry out the work.

SECTION 9: PASSAGE OF TRAFFIC

09-50- 004 Traffic Control

The Contractor shall provide warning signs, fences, barriers, detours, which shall be properly positioned in advance of the Works to ensure that traffic is well and safely accommodated for the duration of the Works.

Traffic signs and other traffic control facilities shall be kept in good condition and located in positions where they are visible to road users.

The contractor is directly responsible for the safety of the workers and road users. Whenever work is being carried out on or close to the carriageway, adequate measures have to be taken to warn and protect both road users and workers by ensuring that:

- The necessary temporary traffic signs and protection are provided and correctly located on site for the duration of the work;
- All equipment and vehicles are parked off the carriageway or behind protective barriers and signs, when not in use;
- No material is left in a dangerous location and that the road adjacent to the work site is kept clean and swept of any debris arising from the work;
- All excavations are protected for the benefit of all road users, equipment and workers;
- All operators are trained in the operation of their equipment;
- Operators and labourers are informed of the potential risks of and procedures for working with or close to machinery;
- Traffic control operations are carried out properly and that road users are not unnecessarily delayed;
- Where work on the carriageway or shoulder remains unfinished overnight, then proper warning lights re to be arranged and, if necessary protected;
- All sites are to be left tidy and cleared of debris when the work is completed.

Drawing No. C22 shows the type of signs to be availed for traffic control on site

Where a diversion has been provided: After the construction of diversion has been completed and before work starts, warning signs, barriers and cones must be placed around the work area. Signs must be placed in the following order:

- o ***"Men Working"*** signs should be placed 200 metres in front of the work area.
- o ***"Turn Left/Right"*** arrows should be placed 100 metres in front of the work area.
- o Cones should be placed diagonally across the road to lead into the diversion.

- o ***“Keep Left/Right”*** arrows should be placed at the ends of the lines of cones.
- o Barriers should be placed behind the lines of cones.
- o ***“End of Restriction”*** signs should be placed beyond the ends of the diversion
- o At night yellow lamps should also be used to mark the extent of the work at the diversions.

Drawing No.C-25 shows sign posting for diversions

Where no diversion has been provided and the works are supposed to be carried out on one side of the road at same time allowing traffic to pass on the other.

Before work starts, warning signs, barriers and cones must be placed around the work area in the following order:

- o ***“Men Working”*** signs should be placed 200 metres in front of the work area,
- o ***“Road Narrows”*** signs should be placed 100 metres in front of the work area,
- o ***“Speed Limit”*** signs should be placed at the start of the work area,
- o Barriers should be placed at each end of the work area
- o Cones should be placed in a taper at the approaches to the work area and at a maximum spacing of 10 metres along the middle of the road next to the work area.
- o ***“End of Restriction”*** signs should be placed 50 metres beyond the work area.

Drawing No.C-26 shows sign posting for diversions of traffic to one site of the road

Quality Control

The Engineer shall check regularly that traffic control measures are satisfactory.

Measurement and Payment

Measurement Unit: months as a percentage of the physical progress done monthly, upon the approval of the Engineer that satisfactory control measures are in place.

SECTION 10: GRADING AND GRAVELLING

Scope:

Grading covers the work of the reinstating of the road carriageway to the correct camber by removing the high points and filling gullies, corrugations, and wheel ruts to restore a smooth running surface.

Gravelling consists of the excavation, loading, hauling, dumping and spreading of gravel wearing course material on the formation of the road carriageway. Gravel shall include lateritic gravel, quartzitic gravel, calcareous gravel, decomposed rock, soft stone coral rag, clayey sand and crushed rock.

The material may be obtained from quarries, borrow pits or excavation in cuttings as directed by the Engineer. Gravel material shall conform to the requirement given in Table 10.1

Table 10.1: Requirement for Gravel Wearing Course

| GRADING REQUIREMENTS | | PLASTICITY INDEX REQUIREMENTS PI | | |
|---|---------------------|---|-----|-----|
| Sieve (mm) | % by Weight Passing | Zone | Min | Max |
| 40 | 100 | WET: Mean annual rainfall > 500mm | 5 | 20 |
| 28 | 95 - 100 | | | |
| 20 | 85 - 100 | DRY: Mean annual rainfall < 500mm | 10 | 30 |
| 14 | 65 - 100 | | | |
| 10 | 55 - 100 | | | |
| 5 | 35 - 92 | | | |
| 2 | 23 - 77 | CBR | 30 | |
| 1 | 18 - 62 | | | |
| 0.425 | 14 - 50 | | | |
| 0.075 | 10 - 40 | | | |
| For "Quarry Waste" gravel stones of maximum dimension 80mm may be permitted | | CBR at 95 % MDD, Modified AASHTO and 4 days soaking | | |

The Contractor shall be responsible for the acquisition of the quarry rights and shall conduct respective negotiations with landowners and affected communities. The Engineer shall approve quarries and the extent of their exploitation.

Alternative sources of gravel material whose quality can be shown to be in compliance with the specification requirements may be used, with the approval of the Engineer and at no extra cost to the Employer. The Contractor is deemed to have included in his rates for the provision of the

gravel material.

10-50-001 Carriageway Grading – Heavy Grading

The Contractor shall scarify the existing carriageway surface, cutting high spots and moving materials to fill potholes, corrugations and wheel ruts and reshape the surface to the specified camber, using a Motor grader unless otherwise directed by the Engineer. All loose rocks, roots and grasses shall be removed and disposed of well clear of the drains.

Pegs 300 to 400mm long shall be placed at 20 m intervals to mark edge of the carriageway.

The material shall be bladed toward the centre of the road starting from both edges until the specified camber is achieved. Suitable material from the side drains may be used as additional material. Any further material needed to achieve the correct camber shall be from an approved source. Compaction shall be carried out using appropriate equipment approved by the Engineer, from the carriageway edges to the centerline in overlapping passes.

No grading shall be carried out in dry conditions. Where additional moisture is required to achieve compaction it shall be added in an even manner without transverse or longitudinal flow.

Work Method

The Contractor shall use **Equipment** to carry out this item.

Quality Control

- The width of the carriageway shall be checked at every 50m intervals and have a tolerance of + 50mm or 20mm.
- The camber shall be checked with a camber board at 25m intervals and shall have a tolerance of +/- 1%

Measurement Unit: m²

The measurement shall be the area of carriageway graded, measured net according to the specified width and measured length graded.

Payment

The unit rate shall be the full compensation for labour, tools, equipment and incidental costs required for carrying out the work.

10-50- 003: Carriageway Grading - Light Grading

The Contractor shall grade the carriageway to control roughness and corrugations using either a Towed or a Motor grader. The width of the carriageway shall be as specified for the Road Class.

Pegs 200 to 300mm long shall be placed at 20 m intervals to mark edge of the carriageway

The material shall be bladed toward the centre of the road, starting from both edges, to the specified camber. Where instructed by the Engineer, suitable materials from the side drains may be used to fill potholes and gullies in the carriageway. Any further material needed to reform the camber shall be from an approved source. Compaction shall be achieved using the wheels of the equipment, tracked evenly over the full surface, or by other approved means. No grading shall be carried out in dry conditions.

Work Method

The Contractor shall use **Equipment** to carry out this item.

Quality Control

- The width of the carriageway shall be checked at every 50m intervals and have a tolerance of +50mm or -20mm

The camber shall be checked with a camber board at 25m intervals and shall have a tolerance of +/- 1%

Measurement Unit: m²

The measurement shall be the area of carriageway graded, measured net according to the specified width and measured length graded.

Payment

The unit rate shall be the full compensation for labour, tools, equipment and incidental costs required for carrying out the work.

10-60-001 Excavation, Free haul, Spreading and Compaction of Gravel - Labour/Equipment

- Excavation:** Gravel shall be excavated from quarries approved by the Engineer, and the Contractor shall inform the Engineer if the quality/availability of the gravel changes during the course of excavation.

Stones and boulders with one dimension greater than 80mm shall be removed from the excavated gravel and deposited outside the quarry at locations approved by the Engineer. Such stones and boulders may be reused in other parts of Works with the approval of the Engineer.

- Haulage:** The Contractor shall load the excavated gravel, haul by appropriate equipment and off-load on the road as directed by the Engineer. Where the quantity delivered in any load falls short of the equipment capacity, off-loading shall only be permitted after the agreed spacing is adjusted accordingly.

No vehicle with a capacity of greater than 10 tonnes shall be permitted to off-load gravel directly on the prepared formation. Any greater loads shall be dumped in stockpiles off-road and transported to the formation areas by appropriate means.

Where loads supplied are found to contain material other than from the approved quarry and are of unacceptable quality, the Contractor shall remove them from site at the Contractor's expense.

- iii. **Control of Heaps along the Road:** The spacing of the gravel heaps delivered by the trucks shall be such that the traffic flow is not unduly interrupted. The spacing for each heap shall be demarcated and enough material be placed to cover 60-80m half width pavement. Any greater loads shall be dumped in stockpiles off-road and transported to the formation areas by appropriate means.
- iv. Where loads supplied are found to contain material other than from the approved quarry and are of unacceptable quality, the Contractor shall remove them from site at the Contractor's expense.
- v. Unless otherwise instructed the moisture content of the material shall be within $\pm 2\%$ of optimum. Where additional moisture is required water, it shall be applied in an even manner and the rate of application shall be such that no transverse or longitudinal flows occur.
- vi. **Compaction:** Compaction of the gravel material shall be carried out from the carriageway edges to the centerline by overlapping passes of the compaction equipment. Any corrections to ensure lateral and longitudinal level finish is achieved shall be done immediately. The number of passes shall be dependent upon the equipment used and the material being compacted to achieve dry density of at least 95% MDD (AASHTO T180). The density tests will be carried out at 100m intervals along the road on the compacted material. The Engineer may instruct the Contractor to test any section of the road at random to ascertain the compaction.

Work Method:

The Contractor shall use both **Labour** and appropriate **Equipment** as instructed by the Engineer to carry out this item.

Quality Control:

- o The contractor will test the compaction of formation and seek the approval prior to dumping gravel.
- o Oversize stones (more than 80mm) and boulders shall not be loaded for haulage to the road.
- o Areas containing deleterious material shall not be excavated

- o No haulage equipment shall be used until its capacity has been ascertained by the Engineer
- o The quantity of material delivered in each load shall be checked before dumping is allowed
- o The quality of gravel dumped on the road shall be according to the Specifications. Testing of dumped material on site might be required as per the Engineer's instructions
- o The distance between the stacks shall be checked to ensure the sufficient material is available to fill the gravel shutters to the top.
- o The gravel surface width shall be checked at 100m intervals and shall have a tolerance of + / - 50mm
- o The compacted gravel will test at intervals of 100m along the road, all compacted sections must achieve dry density of at least 95% MDD (AASHTO T180)
- o Trial holes shall be dug as directed by the Engineer to check the gravel thickness and shall have a tolerance of + 5mm / - 0mm
- o The camber with a cross-fall of 8% (compacted) shall be checked at 50m intervals and the maximum tolerance shall be + / - 1 %
- o The longitudinal profile shall be checked after the compaction of each load to ensure a smooth surface with no corrugations or depressions

Measurement Unit: m³

- o The measurement shall be the volume of compacted gravel surfacing measured net according to the drawings and shall include the excavation and the cost of a 1.5km 'free' haul distance, measured from centre of volume of the source of material.

Payment

- o The unit rate shall be the full compensation for labour, tools, equipment and incidental costs required for carrying out the work.

10-60- 002 Haulage (Overhaul beyond 1.5km)

The Contractor shall load the excavated gravel, haul by appropriate equipment and off-load on the road as directed by the Engineer. Where the quantity delivered in any load falls short of the equipment capacity, off-loading shall only be permitted after the agreed spacing is adjusted accordingly.

No vehicle with a capacity of greater than 10 tonnes shall be permitted to off-load gravel directly on the prepared formation. Any greater loads shall be dumped in stockpiles off-road and transported to the formation areas by appropriate means.

Where loads supplied are found to contain material other than from the approved quarry and are of unacceptable quality, the Contractor shall remove them from site at the Contractor's expense.

Work Method:

The Contractor shall use both Labour and Equipment as instructed by the Engineer to carry out this Item.

Quality Control:

- o No haulage equipment shall be used until its capacity has been ascertained by the Engineer
- o The quality of gravel dumped on the road shall be according to the Specifications. Testing of dumped material on site might be required as per the Engineer's instructions
- o The distance between the stacks shall be checked to ensure the sufficient material is available to fill the gravel shutters to the top.

Measurement Unit: **m³km (Overhaul)**

The 'overhaul' shall be the distance, greater than 1.5km, to the centre point of the section where the gravel is being dumped and processed, measured along the shortest route as determined by the Engineer.

The measurement of overhaul shall be the product of the volume of the gravel compacted and the distance to the centre point as indicated above.

Payment

The unit rate shall include full compensation for labour, tools, equipment, and incidental costs necessary to carry out the work.

10-70- 002 (a) Removal of Overburden - Labour

10-70- 002 (b) Equipment

The Contractor shall remove overburden from quarries and borrow pits, which includes loading, hauling and stockpiling at approved locations. The thickness of the overburden layer to be removed shall be determined from trial pits dug on a 30 metre grid within the quarry area.

The overburden shall be deposited neatly for re-use to reinstate the quarry on completion of the Works, as directed by the Engineer.

Work Method:

The Contractor shall use Labour and appropriate Equipment to carry out this item

Quality Control

- The location and manner of stock piling of the overburden for the reinstatement of the quarry shall be to the approval of the Engineer.

Measurement Unit: m³

The measurement shall be the volume of overburden removed as calculated from the cleared area and the mean depth indicated from the trial pits.

Payment

The unit rate shall include full compensation for labour, tools materials and equipment, haulage, stockpiling and incidental costs required for carrying out the work

10-70-003 Restoration of Quarries and Borrow Pits

The Contractor shall level the ground, return the topsoil from the stockpiles, and uniformly spread the material over the full excavation area.

Adequate drainage provisions shall be made to protect the excavation areas, and where necessary appropriate protection measures shall be taken to avoid erosion of the spread topsoil layer. Grass and trees shall be replanted as directed by the Engineer.

Work Method

The Contractor shall use **Labour** and/or **Equipment** to carry out this item as agreed by the Engineer.

Quality Control

The Engineer shall check that the required measures have been satisfactorily taken.

Measurement and Payment: Provisional Sum

Payment shall be made on a Dayworks basis for the labour and equipment as directed by the Engineer

SECTION 17: CONCRETE WORKS

17-80-001-006: Bridge's Structural Concrete

Refer to chapter 17 of the Standard Specifications for Roads and Bridge Construction

17-80-007 Concrete Road Section

The Contractor shall construct the concrete road carriageway on the prepared, shaped and compacted road formation as approved by the Engineer.

Concrete shall be class 20/20 and may be batched by volume, but shall be mixed in a mechanical mixer. The mix shall be as shown below.

| Concrete Class | Nominal Mix by Volume | Batch with 1 bag Cement | | |
|----------------|----------------------------|-------------------------|--------|--------------------|
| | | No. of boxes | | |
| | | Fine | Coarse | Yield (approx) |
| 20/20 | 1:2:4 (20mm max aggregate) | 2 | 4 | 0.16m ³ |

The water added shall be the minimum necessary to give sufficient workability for efficient consolidation of the concrete. For concrete placed by hand this shall be 23-27 litres per bag of cement. For mechanical mixing and compacting (poker vibrator) the water content shall be reduced to 20 litres per bag of cement.

The concrete shall be placed in formwork which is clean, smooth faced and secure from movement and leakage to the full depth of the carriageway in clearly marked out bays. Steel reinforcing mesh mats (6mm) shall be laid at a depth 50mm below the finished surface as the concrete is being poured. Compaction of the concrete shall be by hand ramming or poker vibrator. The surface shall be tamped with a timber tamping bar to produce a uniform, transverse ridged surface.

Concrete pours shall normally be over half the carriageway width and in lengths between construction joints as directed by the Engineer, of 10-15 metres. Contraction joints if required shall correspond with the construction joints.

Where directed by the Engineer expansion joints shall be formed in positions and in accordance with the details provided by the Engineer.

The surface of the concrete shall be covered and kept moist for at least 4 days to allow adequate curing.

The Contractor shall make cubes for testing as directed by the Engineer.

All materials used for concrete production and the Contractor's working method shall be approved by the Engineer before concreting is permitted.

Work Method

The Contractor shall use **Labour** and **Equipment** to carry out this item.

Quality Control

Slump test shall be to the standard specified by the Engineer in the range of 25-100mm. Cube strength shall be 27.5 N/mm² at 28 days on an average of 4 cubes

Measurement Unit: m³

The measurement shall be the volume of concrete measured net according to the Drawings

Payment

The unit rate shall include full compensation for labour, tools, equipment, materials and incidental costs necessary to carry out the work.

SECTION 20: ROAD FURNITURE

Scope:

This section comprises those items of Road Furniture to be erected and maintained as aids to road safety, including traffic signs and guardrails.

20- 50- 001/4 Installation of Marker Posts

This activity involves the installation of road reserve and culvert marker posts, the road reserve marker posts will be 150mmx150mmx1500mm high with 900mm ground above.

The Engineer shall determine the location of the posts. They shall be set in a simple excavation and backfilled with mass concrete. The depth of the excavation shall be determined on the site, depending on the size and shape of the posts.

Work Method

The Contractor shall use Labour to carry out this item.

Quality Control

- The posts shall be vertical and firmly bedded to the approval of the Engineer

Measurement Unit: No

The measurement shall be in number of marker posts.

Payment

The unit rate shall be the full compensation for labour, tools, posts, materials and incidental costs required to carry out the work.

20-50-005 Traffic Signs

The Contractor shall erect traffic signs of the type and at locations as directed by the Engineer. The signs materials and quality are shown on the Drawings. The signs shall be bedded in concrete Class 15/20 and shall be supported vertically until the concrete is set.

Work Method.

The Contractor shall use **Labour** to carry out this item

Quality Control.

The Engineer shall check the sign position before concrete is backfilled.

Measurement Unit: No

The measurement shall be the number of signs erected.

Payment

The unit rate shall be the full compensation for labour, tools, materials and incidental costs required for carrying out the work.

20-50-006 Provide and apply approved reflectronized paint, 100mm wide Road markings – White

Paint for road marking shall be internally reflectorised road marking paints manufactured in accordance with Clause 218 of the Standard Specification.

The rates inserted in the Bills of Quantities for road marking shall include preparation works.

Measurement Unit: m²

The measurement shall be the area of the surface painted

20-50-007 Provide and apply approved reflectronized paint, 100mm wide Road markings - Yellow

Paint for road marking shall be internally reflectorised road marking paints manufactured in accordance with Clause 218 of the Standard Specification.

The rates inserted in the Bills of Quantities for road marking shall include preparation works.

Measurement Unit: m²

The measurement shall be the area of the road surface painted

20-50-008: Guardrail Repair

This activity involves the repair of Guardrails (including rails, posts and fixings) to a properly aligned, vertical and secure condition. The repair shall include securing any loose posts by re-compaction or removal of any unsuitable material surrounding the post, importing and compaction of suitable materials to render the posts secure, and the re-fixing of the rails.

Work Method

The Contractor shall use Labour to carry out this item.

Quality Control

- The guardrails shall be checked as being properly aligned secure and in a vertical position
- The fixings shall be hand checked to be firmly fixed

Measurement Unit: m

The measurement shall be the length of Guardrail repaired

Payment

The unit rate shall be the full compensation for labour, material, tools, and incidental costs required to carry out the work.

20-50-010. Installation of Guard Rails

The Contractor shall erect guardrails at locations shown on the Drawings or as directed by the Engineer. The Beams for guardrails shall be "Armco Flexbeam" or similar obtained from a manufacturer approved by the Road Authority and shall be erected on concrete posts of top diameter not less than 150mm.

Posts shall be casted and shaped as shown on the Drawings and provided with the necessary bolts, nuts, washers and spacer blocks.

Holes excavated for the posts shall be spaced to suit the standard length of guardrail supplied, and shall be of sufficient size to permit the proper setting of the posts and to allow room for backfilling and compacting. At least 1 metre of a post shall be embedded in the ground. The backfilling shall be with 12:1 soil cement mixture, or as otherwise directed by the Engineer, after the erected rails have been approved by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item.

Quality Control.

The Engineer shall check the post and rail erection before final backfilling.

Measurement Unit: m

The measurement shall be the length of Guardrail erected.

Payment

The unit rate shall be the full compensation for labour, tools, materials and incidental costs required for carrying out the work.

BILL OF QUANTITIES

The Employer reserves the right to determine the magnitude of the work load over the Contract Period.

1. The Bills of Quantities form part of the Contract Documents and are to be read in conjunction with the instructions to Tenderers and these documents.
2. The prices and rates to be inserted in the Bill of Quantities are to be the full, inclusive value of the work described under the several items including all costs and expenses which may be required in and for the execution of the work described and for the Contractor's overheads and profits.
3. Each item in the B/Q contains only a brief description of the proposed work. Fuller details and directions of the work to be done, the materials to be used, the standards of workmanship, methods of measurement and payment are to be found in the various sections of the Specifications.
4. The Quantities set forth in the Bill of Quantities are estimated and representing substantially the work to be carried out. 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 Bills 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.

| PROPOSED CONSTRUCTION OF KIANYEKI BRIDGE -KIGUMO SUBCOUNTY BILL OF QUANTITIES (ALL PROVISIONAL) | | | | | |
|--|---|----------|-----|----------------|------------------|
| BILL ITEM | DESCRIPTION | UNIT | QTY | RATE (KShs) | AMOUNT (KShs) |
| Bill 1 | PRELIMINARIES AND GENERAL COSTS ITEMS | | | | |
| 1.01 | Prime cost sum for payment of wages and Allowances for Engineer's site staff including overtime. | PC Sum | 1 | 500,000 | |
| 1.02 | Include percentage of Prime Cost sum in item 1.01 for contractors overheads and profits. | % | | | |
| 1.03 | Prime cost sum for the Resident Engineer's miscellaneous account. | Lump Sum | 1 | 200,000 | |
| 1.04 | Include percentage of Prime Cost sum in item 1.03 for contractors overheads and profits. | % | | | |
| 1.05 | Prime cost Sum for off-site materials testing. | Lump Sum | 1 | 200,000 | |
| 1.06 | Include percentage of Prime Cost sum in item 1.05 for contractors overheads and profits. | % | | | |
| 1.15 | Provide and erect publicity signs as directed by the Engineer in accordance with MoR&PW drawing No. SS/234. | No. | 2 | | |
| 1.16 | Prime cost sum for off-road Environmental mitigation measures | Lump Sum | 1 | 100,000 | |
| 1.17 | Include percentage of Prime Cost sum in item 1.16 for contractor's overhead and profit. | % | | | |

| | |
|--|--|
| Total Carried Forward to Summary Sheet | |
|--|--|

| BILL ITEM | DESCRIPTION | UNIT | QUANTITY | RATE (KShs) | AMOUNT (KShs) |
|--------------|---|----------------|----------|----------------|------------------|
| | | | | | |
| Bill 4 | SITE CLEARANCE | | | | |
| 4.01 | Bush clear site for bridge construction | m ² | 8,000 | | |
| | | | | | |
| | | | | | |

| | | |
|--|-------------------------------|--|
| | Total Amount Taken to Summary | |
|--|-------------------------------|--|

| BILL ITEM | DESCRIPTION | UNIT | TENDER | RATE | AMOUNT (KShs) |
|---------------|---|----------------|--------------|--------|------------------|
| | | | QUANTIT Y | (KShs) | |
| Bill 7 | EXCAVATION AND FILLING FOR STRUCTURES | | | | |
| 7.01 | Excavation in soft material for major structures i.e. bridge foundation and gabion works.stockpile the excavated material or spoil as directed. | m ³ | 600 | | |
| 7.02 | As for item 7.01 but in hard material. | m ³ | 450 | | |
| 7.03 | Provide and place macaferri or equivalent gabion boxes and mattresses as specified | m ² | 500 | | |
| 7.04 | Provide and place rockfill to gabions. | m ³ | 120 | | |
| 7.05 | Provide, place and compact rockfill below structures as directed by the Engineer. | m ³ | 180 | | |
| 7.06 | Provide and place porous fill material behind wingwalls. | m ³ | 180 | | |

| | |
|---|--|
| Total Carried Forward to Summary Sheet | |
|---|--|

| BILL ITEM | DESCRIPTION | UNIT | TENDER QUANTITY | RATE (KShs) | AMOUNT (KShs) |
|---------------|--|--------|--------------------|----------------|------------------|
| | | | | | |
| Bill 9 | PASSAGE OF TRAFFIC | | | | |
| 9.01 | Construct and maintain 2 m wide temporary footbridge as directed by the Engineer | PC Sum | 1 | | |
| | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
| | Total Carried Forward to Summary Sheet | | | | |

| BILL ITEM | DESCRIPTION | UNIT | TENDER QUANTITY | RATE (KShs) | AMOUNT (KShs) |
|--------------|---|----------------|--------------------|----------------|------------------|
| | | | | | |
| Bill 12 | NATURAL MATERIAL FOR SUB-BASE/BASE | | | | |
| 12.01 | Provide, place, spread, water and compact natural gravel of CBR greater than 30% on Bridge approaches as specified and as directed by the Engineer. | m ³ | 250 | | |
| | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| | | | | | |
| | | | | | |
| Total Carried Forward to Summary Sheet | | | | | |

| BILL ITEM | DESCRIPTION | UNIT | TENDER QTY | RATE (KShs) | AMOUNT (KShs) |
|----------------|---------------------------|----------------|---------------|----------------|------------------|
| Bill 17 | CONCRETE WORKS | | | | |
| 17.01 | Class 15/20 for blinding. | m ³ | 90 | | |
| 17.02 | Class 25/20 concrete. | m ³ | 450 | | |
| | FORMWORK | | | | |
| 17.03 | Formwork class F1 finish. | m ² | 800 | | |

| | | | | | |
|---|---|----------------|-------|--|--|
| 17.04 | Formwork class F3 finish. | m ² | 1,420 | | |
| | REINFORCEMENT. | | | | |
| 17.05 | Reinforcement bars of high yield strength to BS 4461 (all sizes). | Ton | 85 | | |
| Total Carried Forward to Summary Sheet | | | | | |

| BILL ITEM | DESCRIPTION | UNIT | TENDER QUANTIT Y | RATE (KShs) | AMOUNT (KShs) |
|----------------|---|------|------------------------|----------------|------------------|
| Bill 20 | ROAD FURNITURE | | | | |
| 20.08 | Provide and place new flex-beam guardrails complete with pre-cast concrete flex-beam guardrail posts, spacers, nut, bolts and fittings as directed by Engineer. | m | 120 | | |
| 20.10 | Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:- (a) Warning signs. | No. | 4 | | |

| | | |
|----|---|--|
| 9 | PASSAGE OF TRAFFIC | |
| 12 | NATURAL MATERIAL FOR SUBBASE | |
| 17 | CONCRETE WORKS | |
| 20 | ROAD FURNITURE | |
| | SUBTOTAL | |
| | ADD 16% VAT | |
| | TOTAL AMOUNT TAKEN TO FORM OF TENDER | |