

ROAD AND BRIDGE WORKS



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

**ROAD
MAINTENANCE
MANAGEMENT MANUAL**



January 2010

PREAMBLE

This **Road Maintenance Management Manual** is one of a series of Engineering Specifications, Standards, Manuals and Guidelines issued by Ministry of Works and Transport. It gives guidance and recommendations to the Engineers responsible for the maintenance of roads in Uganda. It complements the Ministry's efforts in providing guidance to the construction industry by setting uniform standards to be used in the construction and maintenance of infrastructure facilities that meet the needs of the users.

The purpose of this Manual is to serve as nationally recognized document, the application of which is deemed to serve as a standard reference and ready source of good practice for the preparation and implementation of road maintenance works.

Further, this Manual is a technical document, which, by its very nature, requires periodic updating from time to time arising from the dynamic technological developments and changes. The Ministry, therefore, welcomes proposals on areas for further development and revision stemming from the actual field experience and practice. It is hoped that the comments will contribute to future revisions of the Manual expected to lead to better and more economical designs.

Ministry of Works and Transport
P.O. Box 10
Entebbe

January 2010

TABLE OF CONTENTS

	Page
1. INTRODUCTION	1
1.1 Road Maintenance Management Guidelines 1993.....	1
1.2 Road Maintenance Management Manual 2004.....	1
1.3 Training	1
1.4 Financing.....	1
 2 ROAD MAINTENANCE MANAGEMENT MANUAL	 2
2.1 Management Principles	2
2.2 Routine Maintenance System Description.....	3
2.2.1 Priorities, Condition Evaluation and Quality Inspection Systems.....	3
2.2.2 Independent Road Inspector (RI).....	4
2.2.3 Condition Rating	4
2.2.4 Routine Maintenance Requirements and Specifications.....	4
2.2.5 Condition Rating for Paved Roads	5
2.2.6 Condition Rating for Gravel Roads.....	7
2.2.7 Drainage Condition Rating	10
2.2.8 Roadside Condition Rating.....	11
2.2.9 Litter Control Requirements	12
2.2.10 Traffic Sign Routine Maintenance Requirements.....	12
2.2.11 Safety Rail Routine Maintenance Requirements	12
2.2.12 Removal of Deposits and Obstructions on Carriageway and Shoulders Requirements.....	12
2.2.13 Erosion Repair Requirements	13
2.2.14 Material Requirements	13
2.2.15 Work methods	13
2.2.16 Heavy Grading and Regravelling Requirements.....	13
2.2.17 Maintenance Priorities	13
2.2.18 Standards and Specifications.....	13
2.3 Selected Terms Used in this Manual.....	13
2.4 Works management and safety	14
2.4.1 Safety	15
2.4.2 Manpower.....	15
2.4.3 Organisation	17
 3 LABOUR-BASED CONTRACTS	 18
3.1 Introduction.....	18
3.2 Packaging of Work.....	18
3.3 Prequalification of Labour-Based Contractors.....	18
3.4 Contracts	19
3.5 Supervision.....	19
3.5.1 District Engineer	19
3.5.2 Supervisor	19
3.5.3 Road Inspector	20
3.6 Measurement of Work.....	20
3.7 Obligations of the Contractor	20
3.8 Mode of Payment.....	21
3.9 Monitoring Mechanism.....	21
 4 MECHANISED ROAD MAINTENANCE CONTRACTS	 22

ANNEX 27

SITE MEETING NO..... DATED.....

Contract Name:.....
 Contract No.:.....
 Contractor:.....
 Contract Period:.....
 Extension Period:.....

1. CONTRACTORS SET UP
 - a. Campsite

- 2 STAFF & EQUIPMENT
 - Equipment
 - Staff

- 3 WORK PROGRESS

- 4 CONTRACTUAL ISSUES
 - Work Programmes
 - Extension of Contract Time
 - Claims

- 5 TECHNICAL ISSUES
 - Record of works
 - Drainage

- 6 SITE ISSUES

- 7 FINANCIAL ISSUES

- 8 ENVIRONMENTAL ISSUES

- 1.

4.1	Introduction.....	22
4.2	Procurement.....	22
4.3	Bidding Documents.....	22
4.4	Award of Contract.....	22
4.5	Contractor's Obligations.....	22
4.6	Certificates and Payment.....	23
4.7	Supervision.....	23
4.8	Materials, Plant and Workmanship.....	23
5	FORCE ACCOUNT OPERATIONS	24
5.1	Road Maintenance Operations	24
5.2	Routine Manual Maintenance	24
5.3	Routine Mechanised Maintenance	24
5.4	Periodic Maintenance	24
5.5	Cost Accounting.....	25
5.6	Monitoring Mechanism.....	25
5.7	Proposed Performance Allowances	25
5.8	Fuel issues	25
6	USEFULL READING AND SOURCE OF INFORMATION	26

Date:

The Chairperson [District]
 The Area MP [Constituency of Project Area]
 The Resident Commissioner [District]
 The Chief Administrative Officer [District]
 Local Authorities [Project Area]

NOTIFICATION OF AWARDED CONTRACT

Project Name:
 Length:
 Contract No:
 Contractor:

EMPLOYER: Ministry of Works, Housing and Communications

Contract Sum:
 Project Duration: [Weeks/months]
 Commencement date:
 Completion date:

Scope of Works

1. Grading: From km..... to km.....
 Length:km
 Width:m
2. Re-gravelling/Spot Re-gravelling:
 Location: From..... To
 Width:m
 Thickness:mm
3. Paved Roads
 Areas to be worked on:
 [Activity] Location: From..... To
 Area:m2
4. Drainage Improvement and/or Culvert Installation works:

Location	Type and Size (Cross /Access)

The information given herein is intended to make you aware of the scope of the project and to request you and your constituents and all those concerned to render maximum co-operation as well as giving any necessary assistance/support for the smooth implementation of this road project.

.....
District Engineer/Project Manager

cc : ACE/RM
 PXE (Operations)

M/S
.....
.....

CERTIFICATE OF COMPLIANCE WITH ENVIRONMENTAL OBLIGATIONS ON THE MINISTRY’S PROJECTS

Project/Contract:

EMPLOYER: MoWHC

Main Project activities:

- i).....
- ii).....
- iii).....
- iv).....
- v).....

Assessment of environmental compliance

In accordance with Clause 60.3 of the General Conditions of Contract, I hereby certify that the Contractor has/has not satisfactorily complied with all the environmental obligations on the project.

The Contractor is therefore entitled/is not entitled to the balance of the retention money under the Contract at the end of the Defects Liability Period:

.....
District Engineer/Project Manager

District Engineer’s stamp

Principal Environment Officer’s comments

.....
.....

Signature

ELU stamp

Head, Environmental Unit

PXE’S comments

.....
.....

1. INTRODUCTION

1.1 Road Maintenance Management Guidelines 1993

The previous Road Maintenance Management Guidelines is from 1993. It includes guidelines of organising and packaging the works, supervising, monitoring and measuring of activities, payments and accounting, work method statements, labour-intensive and mechanised based maintenance contracts for different tasks of maintenance, and many other things. This note gave the Road Maintenance Management Guidelines in respect to Labour-Based contracts and Force Account maintenance operations.

This Road Maintenance Management Guidelines included the statement that private contracting will be resorted to if this alternative proves to be more appropriate and viable.

1.2 Road Maintenance Management Manual 2004

This Road Maintenance Management Manual focuses on management issues for road maintenance measures. The year 2004 Road Maintenance Specifications are to be used parallel to this Manual.

“The Works Contract Agreement” for Labour-Based Contracts included in Annex 3 “Specifications”, which have been revised and introduced in Road Maintenance Specifications, 2004 to be used for Labour-Based Contracts.

The previous Road Maintenance Specifications for both Manual Maintenance and Mechanised Maintenance tasks and Quarry, Borrow Pit and Environmental requirements have been revised to be used for Road Maintenance Contracts. The Manual Maintenance Specifications are complete. The Mechanised Maintenance Specifications are intended to complement MoWT’s General Specifications for Road and Bridge works and should therefore be read in conjunction with them.

Routine maintenance prioritisation system is introduced in this manual. Quality inspection system is fixed to the priority classification. In order to discuss routine maintenance quality in concrete terms, the manual also introduces a road condition rating system. ROMAPS (Roughton International Maintenance Planning System) survey and programming tools shall be used in determining what kinds of periodic maintenance operations will be needed and when and where.

1.3 Training

Maintenance requirements must be met in a timely manner. The staff responsible for managing or implementing routine maintenance measures must be available, well motivated, well trained and efficiently managed. It is therefore a vitally important task to train the contents of this Road Management Manual and the Road Maintenance Specifications to those who will be involved in the practical implementation.

1.4 Financing

Planning and implementation of maintenance activities must be according to the allocated budgets.

2 ROAD MAINTENANCE MANAGEMENT MANUAL

2.1 Management Principles

Road maintenance aims at keeping the road conditions as close to its original (design) standard as possible as long as possible without any major investments. That enables uninterrupted traffic in a safe and efficient manner. Generally, also environmental effects of routine maintenance activities are much smaller than those of construction or re-construction. Even though costs needed for routine maintenance are very small compared with other costs, the impact of maintaining good conditions can be significant. Also, vehicle operation costs on good condition roads are much lower than on poor condition roads. In addition, keeping roads open at all times has a great positive influence on economy of any country.

Road management activity involves the following tasks

- Defining activities
- Planning
- Allocating resources
- Organising and motivating personnel
- Controlling work
- Monitoring and evaluating performance
- Feeding back results to seek improvements.

A total maintenance management system normally utilises data from several management systems, for instance as listed below:

- Maintenance management system
- Project management system
- Management information system
- Pavement management system
- Traffic management system
- Gravel road management system
- Cost accounting system
- Human resource management
- Quality assurance system / finance management
- Contract management
- Equipment management system.

Environmental protective measures should be incorporated in individual management systems. Also, maintenance management includes efficient ways to restrict the traffic over temporary periods when road capacity is insufficient or the road is incapable in bearing normal traffic loads.

Road management and road maintenance management are large and complicated issues. The statement of the MoWT defines that the mission of the Sector is to promote a reliable, safe and efficient infrastructure in Transport, Housing and Communications that will sustain ably deliver timely, adequate, quality and cost effective services. The major maintenance programmes include:

- Routine Maintenance; these are cyclic maintenance activities that are conducted using manual labour only. They include vegetation control at road verges, clearing of side drains and culverts.
- Routine Mechanised Maintenance; these are recurrent or reactive maintenance activities that are undertaken at least once every year and they include pothole patching, edge repairs, shoulder recharging and drainage repairs for paved roads and grading, spot-gravelling and drainage repair for gravel roads.
- Periodic Maintenance activities are preventive and undertaken on a road after a number of years, to improve surface and structural integrity, waterproofing, skid

Telegram: "MINIWORKS"
Telephone: MASINDI 20013
Telex: WORKS UGA.
Fax:



Ministry of Works and
Transport,
P.O. Box 36,
MASINDI,
UGANDA.

In any correspondence on
this subject please quote No. FF/

THE REPUBLIC OF UGANDA

Date:.....

M/s
P. O. Box
.....

SUBSTANTIAL COMPLETION CERTIFICATE

PROJECT/CONTRACT:

EMPLOYER: Ministry of Works and Transport

The Date on which in my opinion you fulfilled your obligations to complete and maintain the works in accordance with the contract having carried out all outstanding work under Clause of the General Conditions of Contract and all work of repair amendment, reconstruction rectification and making good of defects imperfections and other facilities referred to under Clauses of the General Condition of Contract is stated below.

The snag list is below:

- (a)
(b)

Completion date:.....

The Beginning of Defects Liability Period is, therefore.....

.....
DISTRICT ENGINEER/PROJECT MANAGER.

c.c. ACE (RM)
c.c. PXE(.....)

ANNEX 23

Telegram: "MINIWORKS"
 Telephone: MASINDI 20013
 Telex: WORKS UGA.
 Fax:



Ministry of Works & Transport,
 P.O. Box

In any correspondence on
 this subject please quote No. EE/

THE REPUBLIC OF UGANDA

M/s

P. O. Box.....

.....

MAINTENANCE CERTIFICATE

PROJECT/CONTRACT:

EMPLOYER: MoWT

I hereby certify that the works comprised in the above contract have been completed and maintained to my satisfaction and that the contractor is entitled to be paid the sum of UGX.....being the balance of the retention money under the contract and any other monies due to you in accordance with the provisions of the contract.

The date for the end of the Defects Liability period is stated below.

End of Defects Liability Period:.....

.....
DISTRICT ENGINEER/PROJECT MANAGER.

c.c. ACE(RM)
 PXE(....)

resistance and to increase the strength of the pavement (paved roads) and regravelling (gravel roads).

- Road safety; Road signs, road marking and guardrails are provide on roads to guide and assist drivers and other road users and promote safety. They include installation of signs, replacement of road furniture and road marking.
- Maintenance of Bridges and Drainage Structures; the major types of maintenance that shall be carried out on bridges and drainage structures include cyclic, equipment replacement, minor, major and emergency repair works.

2.2 Routine Maintenance System Description

Routine maintenance Instructions are given in the Road Maintenance Management Manual and in the Road Maintenance Specifications.

The Road Maintenance Specifications include a selection of most essential routine maintenance activities (task is defined below) and some periodic maintenance measures. Periodic maintenance (task is defined below) is to be implemented by Maintenance Contracts or as Force Account tasks. Periodic maintenance shall be programmed using tools such as the ROMAPS.

It should be kept in mind that these instructions are suitable for engineered roads that are in maintainable condition. When performing activities on non-engineered roads or on heavily deteriorated roads, the work methods have to be adjusted according to the specific needs, circumstances and funding possibilities.

Routine maintenance activities are conducted on the roads on daily basis responding to the needs and it can be seen as process with no clear start and end. Routine maintenance activities may be divided into cyclic and reactive work types. Cyclic works like vegetation control and drainage cleaning are dependent on environmental effects rather than traffic amounts and composition. Reactive works like pothole patching and edge repair are carried out as response to the combination of traffic and environmental effects.

Periodic maintenance activities are carried out periodically, with intervals of several years. Periodic maintenance can be seen as project with clear start and end. Typical periodic maintenance works include overlay works on paved roads and re-gravelling on unpaved roads.

2.2.1 Priorities, Condition Evaluation and Quality Inspection Systems

Routine maintenance is operating on all engineered roads. However, significance of roads differs from each other. Level of Service (LOS) must be according to the needs in order to optimise the road traffic services to the tax payers and to contribute to the traffic safety. The LOS is usually determined using factors like; traffic volume, vehicle operation costs, road user costs, time costs, accident costs and maintenance costs. The ROMAPS or HDM (Highway Development & Management) systems are used to optimise LOS by comparing input of maintenance activities and achieved quality of road. The biggest and fastest efforts must be given to the roads and road sections that carry high traffic volumes. Routine maintenance is to be carried out following the priorities described below.

All countermeasures must be implemented in a good, safe and environmentally accepted manner without damaging the road formation pavement or structures or adjacent public/private property in any way and to all satisfaction of the Employer /Engineer.

Quality control of routine maintenance is a very challenging task and its character differs radically from that of construction. In order to avoid disputes between the Employer and the Contractor, quality must be discussed in concrete terms. To minimise subjectivity of

quality control, an independent Inspector would pay. The independent Inspector should represent a Client organisation.

2.2.2 Independent Road Inspector (RI)

RI is authorised to give notices and other sanctions to the contractors or force account crews, if the conditions of roads do not meet the requirements. RI would authorise the payments to the contractor for the satisfactory work. If requirements are not met on a continuous basis RI may demand the contractor (or other person in-charge) be changed. Inspection Intervals shall be as described below in this Annex. Defects observed during the previous inspection must be corrected by the next inspection. Inspection log-book must be filled-in each time and signed by the RI and the Contractor or a corresponding person who also will receive a copy of it. If the conditions are satisfactory, the form will be used as a Payment Permission Document (PPD) for the site management of the Client (no objection to payment). The person responsible for payments must receive one copy of PPD.

2.2.3 Condition Rating

Below there are condition ratings for some most important road parts. Intervention levels refer to the rating system. For some maintenance measures condition rating has not been planned, but the intervention level is described in a simple way. When rating is given the Inspector utilises it and observes conditions in 1 to 2 km sections (one of these must be selected as standard procedure) giving each section the rating (scores) that best illustrates average condition of the section for each variable. The variable that represents the lowest rating for the section shall be the condition rating for that road section. The average condition rating for the whole road or for longer sections of road are calculated by summing up the data of neighbouring basic sections.

Condition survey is based either on measurement or on visual inspection. The overall condition of a road or section of the road is determined by the lowest value of one of the above-mentioned five parameters.

Quality reports shall be created after each inspection. The Basic Quality Report shall include all gathered data by basic sections with summaries by road and by maintenance priority class. It shall also include notes given to the Contractor for correcting the observed defects and remarks about corrections. The Summary Report shall be prepared each month by contract area. It shall include average condition rating by road and by maintenance class. The report shall be distributed to the site managers and the maintenance manager of the region. "No objection" letters for payments for the sections that have been properly maintained shall be delivered monthly to the person in-charge.

2.2.4 Routine Maintenance Requirements and Specifications

Maintenance Priority Classes and Inspections

The purpose of routine maintenance is to provide continuous acceptable condition to allow for uninterrupted, safe and economic travel and transport on the roads. Properly planned and timely maintenance interventions ensure the least long-term costs for the road agency, because by avoiding premature deterioration high rehabilitation costs will be saved.

Priority classification is described below means that the functional class 1 roads are to be treated first and then the class 2 through 4 roads. The Allowed Response Time (ART) for implementing required countermeasures would be the same as the Inspection Interval. ART means the period during which observed defects must be corrected.

Annex

Materials Test Data

- 7.1 Overall Physical Achievement:.....% Contract
- 7.2 Overall Time Progress:.....% Contract Period
- 7.3 Quality of Work:
- 8. Quality Control and Materials Tests:**
(See Annex for details of test data)
- 9. Financial Performance:**
 - Construction Cost:
 - Supervision Cost:.....
 - TOTAL COST UGX:.....
- 10. Major Constraints/Set backs Encountered and how they were handled:**
.....
- 11. Recommendation for Future Maintenance/Interventions**
.....
- 12. Conclusion and Comments:**
.....

.....
OFFICER-IN-CHARGE/PROJECT MANAGER

PXE'S Comments

ACE(RM)'s Comments

Maintenance Priority Classes and Inspection Intervals

Traffic volume	Priority class	Inspection Interval and ART, weeks
> 3000	1	1
1000 - 2999	2	2
300 - 999	3	3
< 300	4	4

Example:

Traffic volume is 3000 vpd, Priority Class is 1 and the Inspection Interval is one week (roads are inspected once a week).

If considered sensible, exceptions in prioritising the activities may be used.

Inspector Training

Inspectors shall be trained/specialised for two categories. The first category inspectors will inspect the roads with the traffic volume more than 1000 vpd, and the second category inspectors the other roads.

Minimum LOS Requirements

Minimum LOS requirements determine when the road maintenance crew (contractor) must latest intervene with a remedial procedure. LOS rating and the minimum LOS requirements are described below. In rating 5 refers to excellent, 4 to good, 3 to fair, 2 to poor and 1 to very poor observed Level of Service.

2.2.5 Condition Rating for Paved Roads

Condition rating is based on measurement or visual inspection of various distresses along 1 km section of the road.

Paved road condition rating includes five different condition categories (see below), which are based on the following five parameters:

- Roughness
- Rutting
- Cracking
- Potholes
- Edge step

A. Distress Classification for Paved Roads

Distress classification is a tool to rank various distresses according to severity and extent of them.

Various distresses are classified as follows:

DISTRESS	SEVERITY				EXTENT				
	4	3	3	1	A	B	C	D	E
ROUGHNESS	IRI - value				% Length Effected in 1 km				
	<3.5	3.5-6.0	6.1-8.0	>8.0	<5	5-10	10-25	25-50	>50
RUTTING	Depth mm				% Area Effected				
	>20	21-30	31-40	>40	< 5	5-10	10-25	25-50	>50

CRACKING	Sum of cracks				% Area Effected				
	<5	6-20	21-40	>40	<5	5-10	10-25	25-50	>50
POTHOLES	Depth mm				% Area Effected				
	<20	21-30	31-40	>40	<5	5-10	10-25	25-50	>50
EDGE STEP	Height mm				% Length Effected in 1 km				
	< 30	30-50	50-100	>100	<5	5-10	10-25	25-50	>50

B. Condition Value for Paved Roads

DEFECT	SEVERITY	EXTENT				
		A	B	C	D	E
ROUGHNESS	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
	1	2	2	1	1	1
RUTTING	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
	1	2	2	1	1	1
CRACKING	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
POTHOLES	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
	1	2	2	1	1	1
EDGE STEP	4	5	4	3	2	1
	3	4	3	2	2	1

**MINISTRY OF WORKS AND TRANSPORT
P.O. BOX 10
ENTEBBE**

**Main Roads Improvement/Rehabilitation/Periodic Maintenance and Routine Maintenance
Contracts**

PROJECT COMPLETION REPORT

Date:.....

Reporting Period: From (.....) to (.....)

1. Description of the Project:

.....

2. Basic Contract Data:

- 2.1. Contract No:
- 2.2. Contract Name:.....
- 2.3. Employer: GOU Represented by MoWT
- 2.4. Contractor:.....
- 2.5. Contract Sum:.....
- 2.6. District Engineer/Project Manager:
- 2.7. Commencement date:.....
- 2.8. Substantial Completion:.....
- 2.9. End of Defects Liability Period:.....

3. Scope of Work:

.....

4. Key Plant Items Used

Description	Duration	Remarks

4.1 Contractor's Key Personnel

Name	Designation	Duration	Remarks

5. Supervisory Staff

Name	Designation	Remarks

6. Work Methodology and Skills:

.....

7. Physical Performance:

Telegram: "MINIWORKS"
 Telephone: 256-41- 320101/9
 Telex: 61313, WORKS UGA.
 Fax: 256-41-320135 EBB
 256-41-236369 K'LA
 E-mail: mowt@utlonline.co.ug



Ministry of Works & Transport,
 P.O. Box 10,
 Entebbe,
 Uganda.

In any correspondence on
 this subject please quote

ANNEX 21

M/S
 P.O. Box.....

ORDER OF COMMENCEMENT OF WORKS

Project :

MOWT Contract No.:

Contractor :

In accordance with Clause -----you of the General Conditions of Contract are hereby instructed to commence work on the above project.

The date of commencement shall be the day of200.....

The date of completion shall be the day of200.....

Strip Map is attached.

The value of this Work Order is as given in the summarized Bill of Quantities below:-

Item	Description	Amount (UShs.)
Bill No. 1		
Bill No. 2		
Bill No.		
...		
	TOTAL	

Amount:

District Engineer/Project Manager
 Date:-----

c.c ACE (RM)
 PXE (....)

DEFECT	SEVERITY	EXTENT				
		A	B	C	D	E
	2	3	2	2	1	1
	1	2	2	1	1	1

CONDITION VALUE	DESCRIPTION
5	EXCELLENT
4	GOOD
3	FAIR
2	POOR
1	VERY POOR

Description of Condition values

CONDITION VALUE	DESCRIPTION
5	The carriageway is smooth. Patches or depressions do not appear. Shallow, < 5mm, ruts might appear. No high edge steps on the shoulders.
4	The carriageway is smooth. Some patches or depressions might appear. Occasional wearing and shallow ruts, 5 – 15, mm might appear. Edge steps occur randomly, but not higher than 5 cm.
3	Some patches and cracking appear. Wearing of surface and ruts, 15 – 30, mm appear. Edge steps occur here and there, but not higher than 7 cm.
2	Potholes and cracking appear richly. Surface worn out occasionally. Localised deformation of carriageway caused by poor bearing capacity might appear. Edge steps occur frequently, but not higher than 10 cm.
1	Severe wear of surface and defects appear. Deformation 5 – 10 cm deep caused by poor bearing capacity appears. Edge steps are common, higher than 10 cm.

C. Level of Service, Paved Roads

Level of Service (LOS) requirements for different maintenance priority classes:

Road priority class	Required LOS after remedy	Intervention level
1	3.9	3.4
2	3.4	2.9
3	2.9	2.4
4	2.4	1.9

If a road receives less than 1.2 average LOS points, it shall be considered as ruined.

2.2.6 Condition Rating for Gravel Roads

Gravel road condition rating includes five different condition categories (see below), which are based on the following five parameters:

- Evenness of carriageway,

- Rutting,
- Loss of camber (shape)
- Potholes,
- Edge-step on carriageway and/or shoulders.

A. Distress Classification for Gravel Roads

Distress classification is a tool to rank various distresses according to severity and extent of them.

Various distresses are classified as follows:

DISTRESS	SEVERITY				EXTENT				
	4	3	3	1	A	B	C	D	E
ROUGHNESS	IRI - value				% Length Effected in 1 km				
	<3.5	3.5-6.0	6.1-8.0	>8.0	<5	5-10	10-25	25-50	>50
RUTTING	Depth mm				% Area Effected				
	>20	21-30	31-40	>40	< 5	5-10	10-25	25-50	>50
LOSS OF CAMBER	Degree				% Length Effected in 1 km				
	>5	3-4	2-4	<1	<5	5-10	10-25	25-50	>50
POTHOLE	Depth mm				% Area Effected				
	<20	21-30	31-40	>40	<5	5-10	10-25	25-50	>50
EDGE STEP	Height mm				% Length Effected in 1 km				
	< 30	30-50	50-100	>100	<5	5-10	10-25	25-50	>50

B. Condition Value for Gravel Roads

DEFECT	SEVERITY	EXTENT				
		A	B	C	D	E
ROUGHNESS	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
	1	2	2	1	1	1
RUTTING	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
LOSS OF CAMBER	1	2	2	1	1	1
	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1

BRIDGE INSPECTION FORM

District

Date

Bridge No	Type	River			Comments
Location	Road	Distance	Accident	Date	
Report type	Annual	High-water			
Inspector's Name					
Item	No defects	Defects			
		Minor	Major	Critical	
Approaches					
Waterway					
Piers					
Abutments					
Stringers					
Girders					
Crossbeams					
Bearings					
Expansion joints					
Decking					
Curbs					
Sidewalk					
Drainage					
Railing					
Truss					
Signs, reflectors					
Other					
Copy for	District Engineer			Bridge Engineer	

Signature

Position

ANNEX 19

CONDITION OF DRAINAGE STRUCTURES

Station _____

Month _____
Date _____

Road Name	Location	Structure Details	Action Required	Remarks

Recommendation _____

Inspection carried out Name _____ Date _____

DEFECT	SEVERITY	EXTENT				
		A	B	C	D	E
	1	2	2	1	1	1
POTHOLES	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
	1	2	2	1	1	1
EDGE STEP	4	5	4	3	2	1
	3	4	3	2	2	1
	2	3	2	2	1	1
	1	2	2	1	1	1

CONDITION VALUE	DESCRIPTION
5	EXCELLENT
4	GOOD
3	FAIR
2	POOR
1	VERY POOR

Condition Rating for Gravel Roads:

CONDITION VALUE	DESCRIPTION
5	Shape of the road is correct and crossfall about 5 %. The surface is even and solid and corrugation does not exist. Practically no dust can be observed. No high edges are found on shoulders. Driving speed does not have to be lowered. No weed occurs on the carriageway or shoulders. Warning signs are not needed.
4	Shape of the road is mostly correct. Generally, the surface is even and solid and corrugation is rare. Some occasional, shallow depressions may appear. Generally, road is not dusty and high shoulder edges are not found. Driving speed does not have to be lowered. Signs of some weed starting to appear on the carriageway or shoulders. Warning signs are rarely needed.
3	Shape of the road is usually correct, but some irregularities may appear. Occasional potholes and other roughness appear and the road is dusty at places. High shoulders prevent surface water from getting into the drainage system here and there. Driving speed may have to be lowered when avoiding irregularities. Weed occurs here and there on the carriageway or shoulders. Single warning signs are required here and there.
2	Shape of the road is incorrect in many places. Potholes and other roughness are common and the road is generally dusty. Depressions appear. High shoulders commonly prevent surface water from getting into the drainage system and driving speed has to be lowered because of defects. Weed largely appears on the carriageway and shoulders. Warning signs are commonly required.
1	Shape of the road is usually incorrect. Potholes and holes are located in large areas; surface is loose having generally corrugation and dust. High shoulders prevent surface water from getting into the drainage system. Driving speed must be lowered all the time because of defects. Weed severely influences maintenance and appears everywhere on carriageway and shoulders. Long-section warning signs are required.

C. Required level of service and intervention level for gravel roads are as following:

Traffic volume	Required LOS after remedy	Intervention level
>50 vpd.	3.4	2.5
<50 vpd.	2.8	2.0

If a road receives less than 1.2 average LOS points, it shall considered as ruined or non-engineered.

2.2.7 Drainage Condition Rating

Condition Rating for Drainage:

CONDITION VALUE	DESCRIPTION
5	Ditches, culverts, offshoots, other water channels and scour controls are in good condition or they are not needed at all. Shape of ditching is good and no blockages of drainage system occur. Placing of drainage elements is correct. Drainage system is functioning well based n visual observations.
4	Ditches, culverts, offshoots, other water channels and scour controls are mostly in good condition, but some silting up and some irregularities of shape in ditches may appear. Drainage system is functioning quite well based on visual observations.

ANNEX 18

FUEL RETURNS FOR THE MONTH OF

This is to acknowledge receipt of the following petroleum products:

Description	Amount	Cost (Ushs)	Date	Vehicle No.
Diesel				
Petrol				
Engine Oil				
Gear Oil EP 90				
Gear Oil EP 140				
Hydraulic Oil				
ATF				
Grease				
Brake Fluid				

UTILISATION

Category	Activity	Quantity	Remarks
I	Road Inspection		
II	Force Account Operations		
II	Ferries		
IV	Others		

Name _____ Signature _____

Title _____ Station _____ Date _____

District _____ ROUTINE MECHANISED AND PERIODIC MAINTENANCE RETURNS _____ Month _____

MONTHLY OUTPUT FOR CONTRACTS

i) Routine Mechanised Maintenance

Road	Length (KM)	Contractor	Contract Sum (Ushs)	Duration	Programmed Output	Physical Progress				Cumulative Physical Progress	Payments Certified To-Date	Remarks
						Grading (KM)	Spot Regravelling (KM)	Asphalt Patching (M2)	Culvert Installation (M)			

ii) Periodic Maintenance

Road	Length (KM)	Contractor	Contract Sum (Ushs)	Duration	Programmed Output	Physical Progress			Cumulative Physical Progress	Payments Certified To-Date	Remarks
						Regravelling (KM)	Resealing (KM)	Road Marking (KM)			

Remarks _____

CONDITION VALUE	DESCRIPTION
3	Ditches, culverts, offshoots, other water channels and scour controls are usually in good condition, but loss of shape, small blockages and silting up appear in ditches, and small defects can be found in culverts here and there. Drainage system has some irregularities in functioning.
2	Loss of shape, blockages and silting up are common in ditches. Due to defects in culvert seams holes may appear on the road, culvert heads may be broken in many cases and culverts are silted up. Scour control is often damaged. Visible functioning of drainage can be often observed poor. Some urgent cleaning and repair is required.
1	Loss of shape, blockages and silting up exist almost everywhere. Culvert defects often reflect to the road surface. Culvert heads and scour control are mostly in need of repair. Visible functioning is poor. Drainage system requires urgent cleaning and repair in most parts.

LOS Requirement and intervention level:

Traffic volume	Required LOS after remedy	Intervention level
>3000 vpd.	3.4	2.7
>1000 vpd.	2.9	2.2
>300 vpd.	2.4	1.7
<300 vpd.	1.9	1.2

2.2.8 Roadside Condition Rating

Condition Rating for Vegetation Control:

CONDITION VALUE	DESCRIPTION
5	Vegetation has been cut up to the required close and faraway distance (see drawing below) and sight distances in curves and junctions are as required. Maximum height of grass is 15 cm. Planted trees and bushes are verdant, healthy and groups are homogenous. General appearance is nice.
4	Slopes are free of vegetation up to the required close distance. Within faraway distance up to the woods the height is not more than 0.5 m. Sight distances are as required. Single bushes and trees grow here and there, but they blend in the scenery. Possible lawns are tidy with just occasional bare spots. General appearance is mostly nice.
3	Height of vegetation within the close distance is 0.5 m. In faraway distance the height is 1.5 m. Some of trees and bushes prevent drainage. Vegetation reduces sight distances in some places. General appearance of roadsides is quite tidy.
2	The height of vegetation within the close distance is 100 cm and within faraway distance up to 300 cm. Vegetation reduces sight distances in many places and blocks drainage in many places. General appearance is modest.
1	Vegetation higher than 300 cm appears all over. Trees may bend to the road causing danger to the passing vehicles. Rock cuts contain big trees that may fall across the road. Vegetation is thick and significantly reduces sight distances and prevents drainage. Grass height is more than 50 cm and may reduce the visibility. General appearance is poor.

Distances

Close Distance: 10 m from the road centreline or 1 m beyond the limits of the side drains or earthworks or structures, whichever is greater. Requirement for the vegetation height is maximum of 15 cm.

Far away Distance: Within a width of 3 m beyond the limits of the side drains or earthworks or structures, whichever is greater. Requirement for the vegetation height is maximum of 50 cm.

Sight Distance: Distances for curves and at junctions through which there must be free visibility. In tight inside curves radii of less than 500 m vegetation control shall be extended to 10 m beyond the limits of the side drains or earthworks structures, whichever is greater.

Disposal

Waste vegetation shall be disposed to at least 25 m distance from the centreline or transported away.

LOS Requirements:

Road type	Work target level Required level	Intervention level
Urban areas with special attention (1)	4	3
>3000 vpd. (2)	3	2.5
>1000 vpd. (3)	2.5	2
<300 vpd. (4)	2	1.5

2.2.9 Litter Control Requirements

Intervention level: Litters must be picked and treated during each Inspection Interval.

2.2.10 Traffic Sign Routine Maintenance Requirements

Intervention level: All damaged signs must be replaced or repaired when meeting the performance criteria below. Replace signs when they have bent or letters are missing. Straighten tilted poles or supports. The work must be carried out within the Inspection Interval or as soon as the spare parts have been received.

Performance criteria:

Perform cleaning when dirt hampers visibility of signs. Replace signs when they have lost 50 % of original reflection or it has faded remarkably.

2.2.11 Safety Rail Routine Maintenance Requirements

Intervention level: The countermeasures mentioned below in Performance Criteria must be carried out within the Inspection Interval. In case of lack of spare parts the work is allowed to be postponed until the spares delivery has taken place. Warning signs must be placed at the site immediately for the damaged rail system.

Perform vegetation removal when visibility of safety rails is limited. Replace damaged or missing rails when there is hazard for road safety. Replace damaged or missing supports to prevent more severe damages.

Small painting works belong to routine maintenance, but large painting work to periodic maintenance.

2.2.12 Removal of Deposits and Obstructions on Carriageway and Shoulders Requirements

All excess deposits and obstacles shall be removed from the roadway within the Inspection Interval after the deposits and obstacles have been observed. The original as-built formation level shall be reinstated to its original level, solidity and crossfall. Deposits shall be suitably disposed to at least 25 m distant from the road centreline.

All obstacles such as fallen rocks, woods etc. shall be removed immediately they have been observed. Disposal shall be as described above unless the obstructions harm the

2 Spot Regravelling

Daily output 0,25 km
Expected Monthly Output 5 km

Road Name	Length (KM)	Actual Performance	Value (Ushs)
TOTAL			

3 Asphalt Patching

Daily output 15 m2
Expected Monthly Output 300 m2

Road Name	Length (KM)	Actual Performance	Value (Ushs)
TOTAL			

4 Shoulder Repair

Daily output 1 km
Expected Monthly Output 20 km

Road Name	Length (KM)	Actual Performance	Value (Ushs)
TOTAL			

5 Culvert Installation

Daily output 5 m
Expected Monthly Output 100 m

Road Name	Length (KM)	Actual Performance	Value (Ushs)
TOTAL			

6 Ditch Cleaning

Daily output 1,5 km
Expected Monthly Output 30 km

Road Name	Length (KM)	Actual Performance	Value (Ushs)
TOTAL			

7 Opening/Cleaning Culverts

Daily output 10 m
Expected Monthly Output 200 m

Road Name	Length (KM)	Actual Performance	Value (Ushs)
TOTAL			

FORCE ACCOUNT ROUTINE MAINTENANCE RETURNS

District

Month

A: MONTHLY SAFARI DAY ALLOWANCE RETURNS

ITEM	OFFICER	NO.	DAYS TO BE PAID	RATE	AMOUNT
1	District Engineer/Officer-in Charge				
2	Engineering Assistant				
3	Road Inspector				
4	Road Overseer				
5	Operator				
6	Driver				
7	Mechanic				
8	Other Staff				

B: MONTHLY CONSUMPTION OF FUEL, OILS AND LUBRICANTS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	Diesel				
2	Petrol				
3	Engine Oil				
4	Hydraulic Oil				
5	Gear Box Oil				
6	AFT				
7	Grease				
8	Brake Fluid				
	TOTAL				

C. MONTHLY OUTPUT**Maintenance Activity**

1 Grading

Daily output 2 km
 Expected Monthly Output 40 km

Road Name	Length (KM)	Actual Performance	Value (Ushs)
	TOTAL		

environment visually or otherwise. Harmful materials shall be transported away for proper treatment.

2.2.13 Erosion Repair Requirements

Intervention level: All erosion damages of structures must be repaired as soon as possible after observation, since the small erosion spots can be repaired easily and prevent them from forming large ones.

2.2.14 Material Requirements

Only materials that meet the requirements are allowed to be used for different maintenance activities. If the requirements are non-existing, they will be done as soon as possible.

2.2.15 Work methods

Best practices of work are illustrated in the Road Maintenance Specifications of 2004. As best practices keep developing, the Specifications shall be updated accordingly.

2.2.16 Heavy Grading and Regravelling Requirements

This is a periodic maintenance measure and should be done in three-year intervals on roads traffic volume more than 70 vpd and in five-year intervals on roads traffic volume less than 70 vpd.

2.2.17 Maintenance Priorities

Traffic needs are different on different roads and maintenance budgets are usually limited. In order to save scarce resources and money the maintenance activities shall be prioritised according to the traffic needs as introduced above. LOS-requirements shall be accordingly.

2.2.18 Standards and Specifications

This Road Maintenance Management Manual includes; LOS requirements, intervention levels and allowed response times for different priority class roads by maintenance measure.

The maintenance concepts "routine maintenance" and "periodic maintenance" are explained above.

The routine maintenance management system must include the following elements:

- Road, road side, drainage and structure condition evaluation (rating) system,
- minimum requirements for road, road side, drainage and structure conditions (Level of Service) using concrete rating values and
- priority description, which usually means definition of the allowed response time for different class roads,
- work performance standards (methods and tools or equipment – for labour based and equipment based maintenance) including work zone safety issues,
- technical specifications for works and materials.

2.3 Selected Terms Used in this Manual

1. Labour-based maintenance technology means working procedures where vast majority of works are carried out by labour force. It shall remain the main working principle on Ugandan road network.
2. Equipment-based (mechanised) maintenance technology means working procedures where majority of works are carried out using equipment. Equipment-based working methods shall be practiced only on busy highways where high capacity of maintenance operations is needed.

3. Intermediate (mixed) maintenance technology means working procedures where majority of works are carried out by labour force, but equipment is used selectively in addition. Heavier pieces of equipment and hauling vehicles (mainly tractors) should be evenly located in the districts to facilitate occasional use of equipment for heavier countermeasures where and when needed. The intermediate technology is to favoured where ever possible.
4. Emergency works: Because the length-man system, which is being used in Uganda, is not sufficient for heavy countermeasures (for instance against heavy flooding), more work-force should be reserved for such incidents. Extra work-force should be located near the susceptible places for different adverse events and it may have proper equipment for countermeasures.
5. Cost-accounting: The basic data collection forms must be filled-in on a daily basis with true information. The data must be regularly transferred to the cost-accounting system. Collected cost data will be used for follow-up of activities and for preparing the future budgets and maintenance cycles/programmes.
6. Reporting: Reporting system should support management efforts and help managing the maintenance activities in the optimal way and in planning the activities of the next maintenance cycle. Reporting shall include all required data, be timely and addressed to the people in-charge. They in turn must feel obligatory to get acquainted with the reports and immediately intervene in the implementation of operations, if necessary.
7. Supervision: The line managers shall, not only read reports, but also visit the sites in regular intervals in order to know what is the actual site situation. If any deficiencies occur, they shall start immediate actions to correct the situation back to normal. Reporting from different levels of organisation shall be utilised. All substantial events of the day must be put down in the site log-book.
8. Contracting: Small-scale contracting should be used as much as possible as already advised in 1993 Manual. Contracting method shall be used for all equipment-based contracts, if possible.
9. Inspection and monitoring: All people in-charge of supervising either short or long sections of roads should monitor the activities and inspect that all works are done according to the requirements. In addition, it would be useful to involve an independent Road Inspector (RI) for observing and recording the Level of Service on the classified roads.
10. In order to discuss quality in concrete terms, the rating system for quality of different road parts is included as described earlier.
11. Training: It has been a common problem that the contents of the Management Manual and the Maintenance Specifications have not been trained to all parties involved. Therefore, a lot of efforts is to be paid to make sure that people on all levels of organisations know what is required and how the work should be carried out. Training is one way to motivate people who are practically working on the roads. During training events and other times all means of creating good motivation among the workers should be used. A special Training Unit (TU) should be formed, if not yet existing. TU should receive a clear authorisation, training budget and other resources and scheduled demands for the results. No contracts or other work commitments should be created before the staff in question have been trained.
12. Equipment management: Equipment needs to be procured, run, maintained and finally disposed. To guarantee uninterrupted operations and long life-time of machines, an equipment management system is needed. That must also include a system for procurement, storing and delivery of spare parts, fuel, oils and lubricants. Formation of an independent Equipment Unit (EqU) is advisable. EqU should get and run its own account where revenues are addressed and from where money for procurements, services and repair are drawn.

2.4 Works management and safety

PIARC has published an International Road Maintenance Handbook in four volumes for maintenance of paved and unpaved rural roads including labour-based and mechanical methods. It was last revised in 1994 (reference: PIARC Road Maintenance Handbook). Chapters 2.4.1 to 2.4.4 are quotes from the Handbook.

MONTHLY EQUIPMENT REPORT							
District	Name			Month	Sheet		
Prepared by	Position		Signature				
Equipment Type & MoWHC ID No.	Use	Hours	Monthly Totals	Availability%	Utilisation%	Average Daily Consumption	Remarks
	Worked						
	Broken						
	Standing						
	Travelling						
	Total						
	Fuel						
	Oil						
	Worked						
	Broken						
	Standing						
	Travelling						
	Total						
	Fuel						
	Oil						
	Worked						
	Broken						
	Standing						
	Travelling						
	Total						
	Fuel						
	Oil						
	Worked						
	Broken						
	Standing						
	Travelling						
	Total						
	Fuel						
	Oil						

forced and child labour, the right to organize, protection of wages, safety and health and insurance against work accidents

Gender issues

The Constitution of the Republic of Uganda contains the following provisions relevant to equality, women and employment issues:

- a. The Preamble sets out the objectives of Constitution, which, include the protection of human rights, gender balance and fair representation of marginalised groups, the right to development, recognition of the role of women in society, and the recognition of the dignity of persons with disabilities.
- b. Under the National Objectives and Directive Principles of State Policy, Objective XIV on social and economic objectives provides that the State shall endeavour to fulfil the fundamental rights of all Ugandans to social justice and economic development and shall in particular, ensure that:
 - i) all development efforts are directed at ensuring social and cultural well-being of people; and,
 - ii) all Ugandans enjoy rights and opportunities and access to education, health services, clean and safe water, work, decent shelter, adequate clothing, food security and pension and retirement benefits.
- c. Article 2(2) stipulates that if any other law or any custom is inconsistent with any of the provisions of the Constitution, the Constitution shall prevail, and that the other law or custom shall, to the extent of inconsistency, be void.
- d. Article 21(1) provides that all persons are equal before and under the law in all spheres of political, economic, social and cultural life and in every other respect and shall enjoy equal protection of the law.
- e. Article 21(2) prohibits discrimination on the ground of sex, race, colour, ethnic origin, tribe, birth, creed or religion, or social or economic standing, political opinion or disability. Article 21(3) defines discrimination as giving different treatment to different persons attributable only or mainly to their respective description by sex, race, colour, ethnic origin, tribe, birth, creed or religion or social or economic standing, political opinion or disability.
- f. Article 25(2) prohibits forced labour.
- g. Article 29(1)(e) provides that everyone shall have the right to freedom of association which shall include the freedom to form and join associations or unions, including trade unions and political and other civic organisations.
- h. Article 32(1) provides for affirmative action in favour of marginalized groups on the basis of gender, age, disability or any other reason created by history, tradition or custom, for the purposes of redressing imbalances which exist against them. Article 32(2) provides for the establishment of the Equal Opportunities Commission for the purpose of giving full effect to article 32(1).
- i. Article 33 provides:
 - i) Women shall be accorded full and equal dignity of the person with men.
 - ii) The State shall provide the facilities and opportunities necessary to enhance the welfare of women to enable them to realize their full potential and advancement.
 - iii) The State shall protect women and their rights, taking into account their unique status and natural maternal functions in society.
 - iv) Women shall have the right to equal treatment with men and that right shall include equal opportunities in political, economic and social activities.
 - v) Without prejudice to article 32 of this Constitution, women shall have the right to affirmative action for the purpose of redressing the imbalances created by history, tradition or custom.
 - vi) Laws, cultures, customs or traditions which are against the dignity, welfare or interest of women or which undermine their status are prohibited by this Constitution.

MONTHLY ACTIVITY REPORT

District
Link No. Link Name Activity No.

- 1 Grading
- 2 Spot Regravelling
- 3 Asphalt Patching/Murram Patching
- 4 Shoulder Repair
- 5 Culvert Installation
- 6 Ditch Cleaning
- 7 Opening/Cleaning Culverts

Resources		Standard Unit / Daily Target	Monthly Total	Average Daily Total
Labour Used		No.	Record actual days worked	
Engineering Assiatant (Civil)				
Engineering Assiatant (Mech)				
Inspector				
Overseer				
Operator Heavy				
Operator Light				
Driver Heavy				
Driver Light				
Mechanic				
Skilled Labour				
Labour				
Equipment			Record actual hours worked	
Pick Up				
tipper Truck				
Flat Bed Truck				
Water Bowser				
Fuel Tank				
Motor Cycle				
Low Bed				
Dozer				
Front End Loader				
Grader				
Framm Tractor				
Ship Spreader				
Vib. roller				
Service Truck				
Back Hoe				
Hand Roller/Plate				
Water Pump				
Water Trailer				
Bitumen Distributor				
Materials Used				
Diesel (Lt.)				
Engine Oil (Lt.)				
Production				
Programme				
Monthly Output				
Cumulative Quantity				
Cumulative % Achieved				
Constrains				
Remarks/Recommendations				
Future Plans				

Signed Name Position
Date

iii) Maintenance and Repair of Vehicles

Description	Expenditure		Remarks
	Quantity	Amount	
Total Utilised			

iv) Rolling Imprest

Description	Expenditure		Remarks
	Quantity	Amount	
Total Utilised			

v) Special Projects

Description	Expenditure		Remarks
	Quantity	Amount	
Total Utilised			

A well motivated workforce will perform many times better than an unmotivated one. The foreman or supervisor must play his part in motivating the workforce by:

- being firm and fair in all his dealings with the workforce,
- scheduling and organising the work so that it is efficiently carried out,
- arranging a fair workload for each member of the workforce,
- discussing and trying to resolve work and personnel problems as they arise,
- encouraging good quality work from the workforce and care of the equipment and handtools,
- ensuring that each member of the workforce is trained and able to carry out his allocated task. The **foreman or supervisor** should carry out or arrange any necessary initial or refresher training,
- ensuring that payment arrangements are timely, complete and correct.

2.4.3 Organisation

The maintenance foreman or supervisor should schedule and organise work according to the Worksheet or other instructions.

Equipment and hand tools should be arranged as necessary to carry out the task. Mechanical support arrangements will be necessary for sophisticated equipment or items working away from the base for extended periods. Fuel, lubricants, consumable spares, and daily servicing must be ensured to keep equipment operational.

Hand tools should be of construction quality with proper handles; not merely tree branches cut and formed on site. Good quality hand tools can significantly improve productivity and minimise injuries. Arrangements should be made to repair or replace worn or broken hand tools.

Materials should be arranged and transported to site. They should comply with the specifications and be tested when necessary.

The signs and safety equipment should be arranged according to the guidelines or requirements. The foreman or supervisor should ensure that equipment items are not misused.

Work may be carried out by a mobile gang, a gang located or recruited in the locality of the work and walking or cycling to work, or by individual attendants or lengthmen.

Daily tasks or targets should be used wherever possible. These work outputs should be developed from local experience. Ideally the workforce should be released for the day once their task has been achieved with regard to quantity and satisfactory quality.

Dayworks arrangements, whereby a worker stays for a set time period, usually achieves lower productivity. This arrangement should be avoided wherever possible.

Gangs, attendants or lengthmen may be set weekly or fortnightly tasks where supervision arrangements allow only infrequent visits for instruction and inspection.

The work should be recorded on the appropriate forms as accurately as possible. This helps to monitor the progress of the work and plan for future maintenance operations.

The foreman or supervisor is the "eyes and ears" of the Engineer, who necessarily can only make infrequent visits to the site. The foreman or supervisor should keep the engineer fully informed of progress on site and any problems encountered.

Finally it must be emphasised that the work of the foreman or supervisor is practically orientated. Most of his time should be spent on site organising and controlling work and solving the problems that occur there. Time spent in the office should be minimised, to carry out the necessary arrangements for support, administration, payments and reporting.

3 LABOUR-BASED CONTRACTS

3.1 Introduction

The development of local contracting industry in developing countries, able to mobilise and effectively utilise local human and material resources, is seen as an important means to promote employment, improve efficiency and at the same time an efficient way to develop and maintain infrastructure. An increased focus on labour-based construction and maintenance techniques in the development of the local contracting industry may significantly improve upon the effectiveness and efficiency of the operations, and at the same time, increase the poverty alleviation efforts through increased employment creation and income generation.

In return for the promotion and support to local construction industry, the enterprises concerned have to guarantee certain minimum conditions for their workers. The conditions in question include minimum wages, non-discrimination, the elimination of forced and child labour, the right to organize, protection of wages, safety and health and insurance against work accidents.

Women are often over-represented among the poorest of the poor. They are also in many cases the sole providers for their children. Nevertheless, women are seldom offered remunerative employment. Therefore, great attention to the inclusion of women in employment-intensive infrastructure works should be paid, where in the past men have tended to predominate.

Labour-based contracts will be made with individuals (Lengthmen) and small groups (Labour only Contractors) hereafter referred to as the Contractor, for execution of routine manual maintenance activities on selected roads.

The contracts will include the Form of Agreement, Specifications and Bills of Quantities (BOQ) and work plan. The contracts will be let out for a period of 1 year. The rates in the BOQ will be determined by MOWT and approved by the Contracts Committee. These shall apply to all contracts, within the District and they will be reviewed periodically.

3.2 Packaging of Work

The contracts will cover a road length ranging from 2 km to 10km depending on road condition, terrain, etc and they should preferably be contained within LC III boundaries.

Initially road inventory surveys will be conducted by District Engineers to define the quantities of work to be executed within the contract lengths. The frequency of each activity for the contract period of 12 months will be stated, thereby defining the quantities in the BOQ.

Specific instructions will be given by the District Engineer if an activity is to be executed for more than one cycle.

The packaging of work will be done in the field using standard forms hereby attached as Annex 1A and 1B.

Pricing will be calculated thus;

Activity x frequency x rate

The rate will be determined assuming an 8hr/day input.

3.3 Prequalification of Labour-Based Contractors

An advertisement will be made by MOWT in the local newspapers, giving a background to the labour-based contracts and calling on interested individuals and small groups to get

ROAD MAINTENANCE FUND ACCOUNTABILITY

Station Month Financial Year

Description	Amount (Ushs)	HQ Voucher No.	Location
i) Labour-Based Contracts			
ii) Safari Allowance			
iii) Maintenance and Repair of Vehicles			
iv) Rolling Imprest			
v) Special Projects			
vi) Others			
TOTAL			

Detail of Expenditure:

i) Labour-Based Contracts

Road	Expenditure		Remarks
	Length KM	Amount	
Total Utilised			

ii) Safari Allowance

Description	Expenditure		Remarks
	Quantity	Amount	
Total Utilised			

STATUS DECLARATION FORM

STATION			
ROAD LINK	LINK DISTANCE	DIST. UNDER LBC	AVERAGE MONTHLY COST
TOTAL			
TOTAL PAYMENTS SINCE			
MONTH	AMOUNT PAID		OUTSTANDING PAYMENTS
July			
August			
September			
October			
November			
December			
January			
February			
March			
April			
May			
June			
TOTAL			
Average Monthly Payment			
Amount On Account			
Signature			
Executive Engineer Officer-in-Charge			
Station			
Date			

prequalification forms from District Engineers in the project area. The form is attached as Annex 2.

The interested Lengthman/Labour Group shall include the following information for the prequalification:

- Copies of original documents defining the constitutional or legal status, place of registration and principal place of business or in case of individuals, the details of Identification Document,
- Experience in works of similar nature and size for each of the last two years, and details of work underway or contractually committed and clients, minimum experience in work of similar nature is 2 (two) years,
- Names, qualifications and experience of personnel proposed for execution of the contract, as minimum for the Team Leader professionally qualified with at least 3 (three) years experience,
- Major items of construction equipment (hand tools) proposed for carrying out the Contract, the minimum number and type shall be as follows:

Equipment	Minimum Quantity
shovels	1/ person
slashers	1/ person
hoes	1/ person
wheelbarrows	1/ every 3 person
matches	1 box/ person
pangas	1/ person
rakes	1/ person

- Evidence of adequacy of working capital for this Contract (access to line of credit and availability of other financial resources),
- Written Power of Attorney of the signatory of the Tender to commit the Tenderer,
- Possible recommendations by the LC Chairman.

3.4 Contracts

Contracts will be signed between the MOWT represented by the District Engineer and the lengthman or labour-group leader. A typical Form of Agreement is attached as Annex 3.

3.5 Supervision

The Engineer-in-Chief, Ministry of Works and Transport will have the overall responsibility of the Contract. He will be presented by the relevant District Engineer for the day-to-day management of the Contract.

3.5.1 District Engineer

District Engineer shall be in charge of the following:

- Responsible for overall planning, organising, directing and controlling labour based contracts;
- Preparation of road inventory and assessment of annual maintenance requirements;
- Preparation of annual and monthly work plans, identification of work loads and required resources;
- Preparation of contract documents;
- Tendering and award of contracts;
- Overall work supervision;
- Certification of payments;
- Monthly monitoring and evaluation of work progress and reporting to Headquarters.

3.5.2 Supervisor

The Supervisor will be an Engineering Assistant who will look after the day to day operations under the contract. He will be responsible for 300 km of road, using a pick-up for supervision transport. His duties will be:

1. In charge of a labour-based contract unit.
2. Assisting the District Engineer in the preparation of road inventories, and the assessment of maintenance requirements.
3. Assisting the District Engineer in the preparation of annual and monthly work plans.
4. Preparation of work packages for contracts.
5. Assisting in tendering and award of contracts.
6. Supervision, control and directing overseers and contractors.
7. Counter checking of measurements of work as provided by overseers and certification.
8. Weekly monitoring, evaluation and reporting to District Engineers.

3.5.3 Road Inspector
The Road Overseer will look after the day to day operations under the contract directly supervising the contractor. He will be responsible for 100 km of road, using a motor-cycle. His duties will be:

1. Direct Supervision of contracts
2. Directing of contractors and ensuring that maintenance work is carried out in accordance with the contract specifications and work plan.
3. Preparation of weekly progress reports.
4. On-the-job training of contractors.
5. Recommendation of corrective actions in the field to Supervisor and/or Contractors.
6. Carrying out all measurement of executed works.
7. Inspection and ensuring that the Contractor uses the specified tools.

3.6 Measurement of Work

Measurement of Work will be done jointly by the Supervisor, Road Overseer and the Contractor, and certified by the District Engineer once a month. Alternatively, an independent Road Inspector as described in Annex 5 shall inspect the roads together with the Supervisor or Overseer in-charge of the section. An accepted copy of the Inspection Record acts as no objection for the payments. Work will be done according to Specifications.

3.7 Obligations of the Contractor

The Contractor shall in carrying out the maintenance work undertake the following service:

1. Inspect and remove all obstructions on the road,
2. Clear the side drains on both sides of the road, fully silted,
3. Clear the side drains on both sides of the road, half silted,
4. Reinstate/Repair scour checks.
5. Reinstate eroded ditches.
6. Clear mitre drains of all debris, vegetation and bonded water and dispose of appropriately, fully silted,
7. Clear mitre drains of all debris, vegetation and bonded water and dispose of appropriately, half silted,
8. Clean all silted culverts including inlets and outlets, fully silted,
9. Clean all silted culverts including inlets and outlets, half silted,
10. Clear all stream channels of debris and vegetation to ease the flow of water through bridges and culverts
11. Clear catchwater drains, fully silted,
12. Clear catchwater drains, half silted,
13. Fill potholes that have developed on the carriageway using approved material,
14. Fill minor gullies,
15. Do grubbing to reinstate road camber and shoulder crossfall,
16. Re-instate eroded shoulders and ditch slopes with appropriate material,
17. Weed shoulders,
18. Cut grass to specified level,

MONTHLY LABOUR-BASED PRODUCTION REPORT

Station Month	ROAD NAME	Length (Km)	TYPE	Inspection and Obstruction	Clean side drains	Repair scour checks	Repair erode ditches	Clean mitre drains	Clean culverts	Clean stream channels	Clean catch water drains and gullies	Grubbing for camber	Repair shoulders erosion	Weed shoulders	Grass cutting	Grass clearing	Bush planting	Tree nursing	Tree planting	Maintenance road	Sweep the road	Cleaning debris from access road	TOTAL PAYMENT DUE
				US	m	No	m	m	m	m	m	m	m	m	m	m	m	No	No	US	m	m	
TOTAL																							

Remarks
Total Progress/Percentage

LABOUR-BASED CONTRACT PAYMENT SUMMARY

Station	LENGTH KM	TOTAL MONTHLY PAYMENT TO LABOUR-BASED CONTRACTORS												Cumulative Payment	Remarks			
		FY																
		July	August	September	October	November	December	January	February	March	April	May	June					
Bank Charges																		
Stations' Monthly Total Payment																		
Average Monthly Payments																		
Amount Received																		
BALANCE ON ACCOUNT AFTER PAYMENT																		

- 19. Clear Bush/Shrub,
- 20. Plant grass (Paspuram),
- 21. Plant trees,
- 22. Nurse trees,
- 23. Remove debris and silt on carriageway,
- 24. Sweep the road,
- 25. Maintain footpath,
- 26. Carry out miscellaneous activities not covered by 1-25: e.g. removal of anthills.

(For more details see maintenance performance specification)

The Contractor shall perform the services and carry out his obligations as mentioned above with all due diligence, efficiency and in accordance with the MOWT Specifications.

The Bill of Quantities will give the approximate quantities for the maintenance period (Annex 4).

3.8 Mode of Payment

Payments will be made against completed and accepted work on a monthly basis, within 30 days from end of the month. The Contractor will be paid the full monthly rate approved by the Contracts Committee if the District Engineer and the Road Inspector are satisfied with the maintenance status of the section in question. Otherwise the approved unit rates will be used to determine the actual payment due.

Payment will be made by cheque in the names of the Contractor. Cheques will be jointly signed by the District Engineer and Chief Administrative Officer.

3.9 Monitoring Mechanism

- a) The Road Overseer will make a weekly report (Annex 7) on physical progress achieved by the Contractors to the Supervisor.
- b) The Supervisor will make a bi-weekly report on the physical progress achieved by the contractors to the DE.
- c) The District Engineer will make a monthly report to Headquarters covering both financial and technical aspects of the Contracts. The report will be copied to the Chief Administrative Officer. Annex 8 shows a typical report form.
- d) A representative from Headquarters accompanied by the District Engineer will inspect and evaluate the performance of the Contracts, on quarterly basis.

5 FORCE ACCOUNT OPERATIONS

5.1 Road Maintenance Operations

Mechanised routine maintenance operations and emergency works will continue being executed by Ministry of Works and Transport’ Force Account Units which are appropriately located in all districts

The following standard maintenance operations units will be set up:

Routine Maintenance		Production Target Per Day	Production Target Per Month
1.	Pothole patching	15	300 SM
2.	Shoulder spot repair	1.0	20 KM
3.	Spot regravelling	0.25	5 KM
4.	Heavy grading	1500	30000 SM
5.	Light/Medium grading	2.0	40 KM
6.	Mechanical ditch cleaning/ reinstatement	1.5	30 KM
7.	Culvert replacement	5	100 LM
8.	Opening/Cleaning culverts	10	200 LM
Periodic Maintenance			
9.	Regravelling	2400	48,000 SM
		(0.4)	18 KM)

Resources (personnel, equipment, materials etc.), procedures of doing work and expected work output are given in the Maintenance Performance Specifications.

5.2 Routine Manual Maintenance

Ideally Manual Maintenance is supposed to be applied throughout the year. It involves simple but vital tasks like pothole patching, ditch cleaning, opening/cleaning culverts, cutting grass etc.

Force account operations will be carried out on a task-oriented basis and the District Engineer should identify the most critical spots on his roads which must be attended to by his labour force. Technical Specifications for manual maintenance introduced in Road Maintenance Road Maintenance Specifications 2005 should be used in Force Account operations with out rules of payments.

5.3 Routine Mechanised Maintenance

Because of limitations of equipment, these activities do not exist as units on a permanent basis. The units will be constituted using the available equipment in the stations to carry out specific activities as per programme. This means to say that for example for a station with one grader, the same grader will be used to do heavy grading, medium grading, ditch clearing as per programme on a specific stretch of road. The recommended compositions of the units are given in the Maintenance Performance Road Maintenance Specifications 2005. Technical Specifications for mechanical maintenance introduced in Road Maintenance Road Maintenance Specifications 2005 should be used in Force Account operations with out rules of payments.

5.4 Periodic Maintenance

These will be carried out using established regravelling units. These being enhanced maintenance units, the target output will be higher, 0.5 km (2400 SM) per day.

MONTHLY DISTRICT WORK PLAN AND REPORTING LENGTHMAN / LABOUR GROUP CONTRACTS

District	Month	Activity	Unit	Quantity In Bill	Road Station		Link No.	Rate	Amount		Remarks		
					Monthly Planned Qty.	Monthly Achieved Qty.			Cumulative Qty.	Cumulative Percentage		Monthly	Cumulative
	1												
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
	10												
	11												
	12												
	13												
	14												
	15												
	16												
	17												
	18												
	19												
	20												
	21												
	22												
	23												
	24												
	25												
	26												

Signature
Date

District Engineer
Officer

Reporting

HALF YEARLY WORK PLAN

Road Link Name

Packaging No

Location from: Km

to km

Item No.	Activity	Month				Month				Month				Month				Month				
		Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Inspection and removal of obstructions (e.g. dead animals, fallen trees, debris etc.)																					
2	Cleaning side drains, fully silted																					
3	Cleaning side drains, half silted																					
4	Reinstating/Repairing scour checks																					
5	Reinstating eroded ditches																					
6	Cleaning mitre drains, fully silted																					
7	Cleaning mitre drains, half silted																					
8	Cleaning culverts, fully silted																					
9	Cleaning culverts, half silted																					
10	Clearing stream channels																					
11	Cleaning catchwater drains, fully silted																					
12	Cleaning catchwater drains, half silted																					
13	Filling potholes																					
14	Filling minor gullies																					
15	Grubbing to reinstate road camber																					
16	Repairing shoulder slope erosion																					
17	Weeding shoulders																					
18	Grass cutting																					
19	Bush/shrub clearing																					
20	Grass planting (paspuram)																					
21	Tree planting																					
22	Tree Nursing																					
23	Removal of debris and silt																					
24	Sweeping the road																					
25	Maintaining footpaths																					
26	Other miscellaneous activities that include removal of big stones, anthills, disposal of fallen trees within road reserves, etc.																					

Activity	1	2-3	4	5	6-7	8-9	10	11-12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Unit	-	m	No	m	m	m	m	m	m ²	m ²	m ²	m ²	m ²	m ²	m ²	No	No	m ²	m ²	m ²		
Average Daily Production		30			40	4		25														
Days Allocated in a 3 month cycle (range)		50	4	30	60	8	15	40	30	30	70	90	70	##	##	50	20	40	30	30	30	
		Sep-15			02-Apr	03-Sep	03-Sep	03-Sep	02-Apr					22-26		*	*	*				
* All these activities are included in the remaining days out of 75.																						

5.5 Cost Accounting

Cost accounting is the detailed costing of all cost elements of expenditure to enable the total and component costs of each activity to be determined. For cost accounting to be meaningful it is important to keep daily records of all inputs and work output.

Annexes 11 - 18 contain various forms that should be filled appropriately to show the inputs into different activities in order that unit costs for these activities are determined. For these unit costs to be meaningful, detailed comprehensive returns from the field and the use of the standard forms are essential. Personnel responsible for cost accounting should be able to assign resources to particular activities, as accurately as possible. The forms referred to are:

Status declaration form	Annex 11
Road maintenance fund accountability	Annex 12
Monthly activity report	Annex 13
Monthly consumable report	Annex 14
Monthly equipment report	Annex 15
Force account routine maintenance returns	Annex 16
Routine mechanised and periodic maintenance report	Annex 17
Fuel returns	Annex 18
Condition of drainage structures	Annex 19
Bridge inspection form	Annex 20

5.6 Monitoring Mechanism

The following monitoring mechanism will be followed:

- (i) The supervisor will make weekly reports to the District Engineer.
- (ii) The District Engineer will make monthly reports to Headquarters.
- (iii) A representative from the Ministry Headquarters, accompanied by the District Engineer will inspect the site on quarterly basis. Alternatively, the Road Inspector will inspect the site according to the system described above.
- (iv) Road Inspector (RI) will produce basic quality reports and monthly summary quality reports and the monthly Payment Permission Document (no objection) for payments.

5.7 Proposed Performance Allowances

A performance related allowance is proposed. A performance allowance ranging from 35,000 to 70,000 per day has been proposed. This allowance should only be paid in full if 100% performance has been achieved. Reduced payments in corresponding performance levels should be effected accordingly - thus if 60% of the targeted is achieved, then the payments should be reduced to 60% of above figures. A standard reporting form has been prepared for your immediate use (Annex 16).

5.8 Fuel issues

Subject to availability of funds, fuel will be issued to the stations according to the available equipment in serviceable condition.

Continued issue of fuel will be subject to a satisfactory monthly report and in particular equipment return (Annex No. 14, 16, 18). The issue of fuel will not be automatic. Satisfactory work output and returns should be reflected.

6 USEFULL READING AND SOURCE OF INFORMATION

The following documents have important facts on maintenance management and should be read by those responsible for deciding on the management methods and principles:

- Road Maintenance Management; Concepts and Systems by Richard Robinson, Uno Danielson and Martin Snaith.
- Development of Good Governance in Road Sector in Finland, Publication of the Finnish National Road Administration; by Jukka Isotalo, 1995.

The following set of handbooks is an excellent and illustrative publication to be used together with the Maintenance Performance Standards:

- International Road Maintenance Handbook, Volumes 1 through 4: Practical Guidelines for Rural Road Maintenance; PIARC Publication, latest revision from 1994.

Source for the quality inspections and quality inspection system is as follows:

Technical Assistance to "RoadTransService" Department, Azerbaijan, the World Bank financed project; Quality Assurance System – Final Report, Finnroad 2004.

BILL OF QUANTITIES

DISTRICT	ROAD NAME
PACKAGE NO.	ROAD TYPE
FROM KM	TO KM

Item No.		Unit	Quantity	Unit Rate (USHS)	Amount (USHS)	Remarks
1	Inspection and removal of obstructions (e.g. dead animals, fallen trees, debris etc.)	L/S				
2	Cleaning side drains, fully silted	m				
3	Cleaning side drains, half silted	m				
4	Reinstating/Repairing scour checks	No.				
5	Reinstating eroded ditches	m.				
6	Cleaning mitre drains, fully silted	m.				
7	Cleaning mitre drains, half silted	m				
8	Cleaning culverts, fully silted	m.				
9	Cleaning culverts, half silted	m				
10	Clearing stream channels	m.				
11	Cleaning catchwater drains, fully silted	m.				
12	Cleaning catchwater drains, half silted	m				
13	Filling potholes	m ³				
14	Filling minor gullies	m ²				
15	Grubbing to reinstate road camber	m ²				
16	Repairing shoulder slope erosion	m ²				
17	Weeding shoulders	m ²				
18	Grass cutting	m ²				
19	Bush/shrub clearing	m ²				
20	Grass planting (paspuram)	m ²				
21	Tree planting	No.				
22	Tree Nursing	m ²				
23	Removal of debris and silt	m ²				
24	Sweeping the road	m ²				
25	Maintaining footpaths	m ²				
26	Other miscellaneous activities that include removal of big stones, anthills, disposal of fallen trees within road reserves, etc.	L/S				

4.0 ARTICLE 4

COMMENCEMENT, DURATION AND TERMINATION

- 4.1. This contract shall commence on the date of signature or on and shall be for a duration of and shall be renewable thereafter by the agreement of either parties.
- 4.2. This contract shall be terminated at the end of the contract period specified in 4.1 or by either party after giving one month's notice to the other party.
- 4.3 If the Contractor shall be guilty of any, serious misconduct including persistently working behind schedule, indulging in any act of dishonesty or any serious breach or non-observance of any conditions of this agreement or shall fail or refuse to carry out the duties assigned to him hereunder, the Employer shall be entitled summarily to terminate his engagement hereunder without notice and without any payment in lieu of notice.

5.0 ARTICLE 5

MODIFICATION

Modification of the terms and conditions of this contract, including any modification of the scope of the services shall be written agreement between the parties.

6.0 ARTICLE 6

SETTLEMENT OF DISPUTES

- 6.1. The parties shall use their best efforts to settle amicably all disputes arising out or in connection with this contract.
- 6.2. All disputes or differences whatsoever that shall at any time hereafter, whether during the continuance of this contract or upon or after its discharge or termination, arise between the parties hereto touching or concerning this contract or its construction or effect of the right duties or liabilities of the parties hereto or any of them under 'or by virtue of this contract, shall be referred to a single arbitrator to be nominated by the Chief Administrative Officer in whose District the Contractor is operating in accordance with and subject to the provision of the Arbitration Act of Uganda or any Statutory Modification or re-enactment thereof for the time being in force.

7.0 ARTICLE 7

It is hereby understood that annexures to this Contract shall be read together with this contract and shall form an integral part of it.

In witness where of the duly authorised representatives of the parties hereto have signed this contract the day and the year first above written at, Uganda.

..... For and on behalf of the the Republic of Uganda WITNESS CHIEF ADMINISTRATIVE OFFICER CONTRACTOR Government of WITNESS
--	---

<u>ANNEX No.</u>	<u>ANNEXES DESCRIPTION</u>
1A	Packaging of work
1B	Packaging summary
2	Prequalification form
3	Form of agreement
4	Bill of Quantities
5	Half yearly work plan
6	Monthly work plan form
7	Bi-Weekly report form
8	Monthly report form
9	Payment summary
10	Monthly production report
11	Status declaration form
12	Road maintenance fund accountability
13	Monthly activity report
14	Monthly consumable report
15	Monthly equipment report
16	Force account routine maintenance returns
17	Routine mechanised and periodic maintenance report
18	Fuel returns
19	Condition of drainage structures
20	Bridge inspection form
21	Order of Commencement of Works
22	Project Completion Report
23	Maintenance Certificate
24	Substantial Completion Certificate
25	Certificate of Compliance with Environmental Obligations
26	Notification of Awards
27	Site Meeting
28	Interim Certificate
29	Site Instruction
30	Final Payment Certificate

PACKAGING OF WORK

DISTRICT	ROAD LINK:
PACKAGE No.	ROAR TYPE B/G
FROM KM	TO KM

Item No.	Description	Unit	Quantity q	Annual frequency f	Quantity q x f	Unit rate USHS	Amount USHS
1	Inspection and removal of obstructions (e.g. dead animals, fallen trees, debris etc.)						
2	Cleaning side drains, fully silted						
3	Cleaning side drains, half silted						
4	Reinstating/Repairing scour checks						
5	Reinstating eroded ditches						
6	Cleaning mitre drains, fully silted						
7	Cleaning mitre drains, half silted						
8	Cleaning culverts, fully silted						
9	Cleaning culverts, half silted						
10	Clearing stream channels						
11	Cleaning catchwater drains, fully silted						
12	Cleaning catchwater drains, half silted						
13	Filling potholes						
14	Filling minor gullies						
15	Grubbing to reinstate road camber						
16	Repairing shoulder slope erosion						
17	Weeding shoulders						
18	Grass cutting						
19	Bush/shrub clearing						
20	Grass planting (paspuram)						
21	Tree planting						
22	Tree Nursing						
23	Removal of debris and silt						
24	Sweeping the road						
25	Maintaining footpaths						
26	Other miscellaneous activities that include removal of big stones, anthills, disposal of fallen trees within road reserves, etc.						
Total							

45. Clear Bush/Shrub,
46. Plant grass (Paspuram),
47. Plant trees,
48. Nurse trees,
49. Remove debris and silt on carriageway,
50. Sweep the road,
51. Maintain footpath,
52. Other miscellaneous activities that include removal of big stones, anthills, disposal of fallen trees within road reserves, etc.

2.0 ARTICLE 2

OBLIGATIONS OF THE EMPLOYER

- 2.1. The Engineer-in-Chief, Ministry of Works and Transport will have the overall responsibility of the contract. He will be represented by the relevant District Engineer for the day-to-day management of the contract.
- 2.2. The Employer shall appoint and provide a Road Overseer by the name of who shall, from time to time assign work to the Contractor. Whenever the Road Overseer is changed, the Contractor shall be notified in writing accordingly. The Contractor shall comply with the instructions and directions of the Road overseer.
- 2.3. The Contractor's work shall be inspected by the Road Overseer at least once a week. Both the Contractor and the Road overseer shall jointly at the end of the month measure the work done by the Contractor for the month and enter the same on a reporting form to be provided for that purpose. Both the Contractor and Road overseer shall then tender their signatures thereon and the Contractor shall submit the same to the employer as a claim for settlement. The certification of this claim will be done by the District Engineer on behalf of the Engineer-in-Chief. The Contractor shall show proof that he owns hand tools such as: hoes, shovels, pangas slashers, rakes, wheelbarrows, axes, pick axes matches, measuring tape (not less than 30 m long) and as detailed here in Annex 3 before award of the Contract.

3.0 ARTICLE 3

CONTRACT PRICE AND MODE OF PAYMENT

- 3.1. In consideration of the works to be performed by the Contractor, the Ministry shall pay to the Contractor either the measured works done by the Contractor at the unit rates indicated in Annex 1 hereto. The Ministry shall review the said rates anytime the basic market labour rates change in excess of 10%.
- 3.2. The Contractor shall be paid for the work completed during the month within 30 days from the date of the certificate. Such payment will not exceed USHS.....(in words Uganda Shillings)
- 3.3. The Contractor shall maintain an account with the nearest Commercial Bank and the account number shall be made known to the District Engineer responsible for remitting payment.
- 3.4. Payment shall be certified by the District Engineer. The cheques drawn with respect to such payment shall be signed by the District Engineer and countersigned by the Chief Administrative Officer.

ANNEX 2

MINISTRY OF WORKS AND TRANSPORT
LENGTHMAN/ LABOUR GROUP CONTRACTS PREQUALIFICATION FORM

ROAD LINKFROM KM..... TO KM

1. Name of Group Leader/Lengthman			
ID-No	Date of birth	Place of birth	
Address	Village	Parish	
2. Experience in Road Maintenance			
Employer	Contract	Duration	
3. Personnel in Labour Group			
Task	Name	Date of Birth	Sex
4. List of hand tools			
Description		Number	
5. Bank Account Details			
Bank	Branch	Account No.	
6. Recommendation by the LC Chairman			
7. Power of attorney			
Mr.....			
Has been duly authorised to sign all documents in connection with this Tender on behalf of Labour Group of.....			
Signatures of the group			

8. Signature	
Place and Date	Signature
9. For Official use only	
Supervisor's remarks	
Action taken	
District Engineer	
Chief Administrative Office	