

# Practical Training

## Material

### Performance Based Road Maintenance Contract

Project for the strengthening of capacity  
on road maintenance management  
through contracting (Phase 2)

EI
JR
16-072

# Practical Training

## Material

### Performance Based Road Maintenance Contract

Project for the strengthening of capacity  
on road maintenance management  
through contracting



# Practice Training Material of PBC Guideline

## 1. Training Materials

Material	Topic	Remark
Material A	-Road asset and condition survey (Appendix 5) -Service Level Setting (Appendix 6)	Field training
Material B	-Preparation of inspection result report form (Appendix 12 and Appendix 13) - Road asset survey (using drawings) (Appendix 5) - Daily Reports (Appendix 7,8,9,10)	Class room training
Material C	-Self inspection (Appendix 11) -Formal inspection (Appendix 11) - Monthly Evaluation (Appendix 17)	Field training
Material D	-Inspection result report form (Appendix 12, 13) -Payment Reduction form (Appendix 14,16)	Class room training
Material E	Contractor's Evaluation (Appendix 17, Appendix 18)	Class room training
Material F	-Cost survey	(optional)

## 2. Blank forms

## 3. Sample forms



Period	Patrol/Self Insection	Instructed Work (Hybrid Contract)	PBC Work	Employer/Contractor		Remarks	Appendix
				E	C		
Pre Contract Award Period	Site Condition Assessment and Cost Estimation			✓		See Cost Estimation Manual for PBC for cost estimation	
	Advertisement of PBC			✓	✓	See 7.3(Part1)for Employer See 12.1(Part2)for Contractor	Append. 5 Append. 6
	Bidding				✓		
	Evaluation			✓			
	Contract Agreement			✓	✓		
Preparation Period	Establishment of Self-Control Unit				✓	See 12.1.1(Part2)	(Append. 5) (Append. 6)
	Site Condition Assessment				✓	See 12.1.1(Part2)	
	Setting of Sub-Section and Develop the Work Plan				✓	See 12.1.2(Part2)	
	Approve of the Work Plan			✓			
Initial Mobilization Period	Initial Mobilization Period				✓		
	Site investigation and Patrol				✓	See 12.1.3(Part2)	
	Reporting				✓	See 12.1.5(Part2)	Append. 7 Append. 8 Append. 9 Append. 10
		Defects of Road Facility outside of Service Level Setting Work Item	Identify the Service Level Rejected Section inside of Service Level Setting Work Item		✓	See 13(Part2)	
		Instruction by RA	Execution of Initial Mobilization Work and Maintenance Work directed by Self Control Unit	✓	✓	See 13(Part2)	
		Execution of Instructed Work (Include Emergency Work)		✓	✓	See 13(Part2)	
		Self Inspection			✓	See 12.1.4(Part2)	Append.11
		Ad Hoc Inspection(as required)		✓	✓	See 12.1.5(Part2)	
		Preparation for Formal Inspection (documentation/ site inspection)			✓		
		Formal Inspection (Monthly)		✓	✓	See 12.1.6(Part2) See 12.1.7(Part2) and (Part	Append.12 Append. 13
			Service Level meets the specifications?	✓		See (Part3)	
		Repeat Monthly	Yes	✓		See (Part3)	Append.14 Append.15 Append.16 Append. 17
			No Payment Reduction				
		Monthly Payment		✓		See 12.2(Part2)	

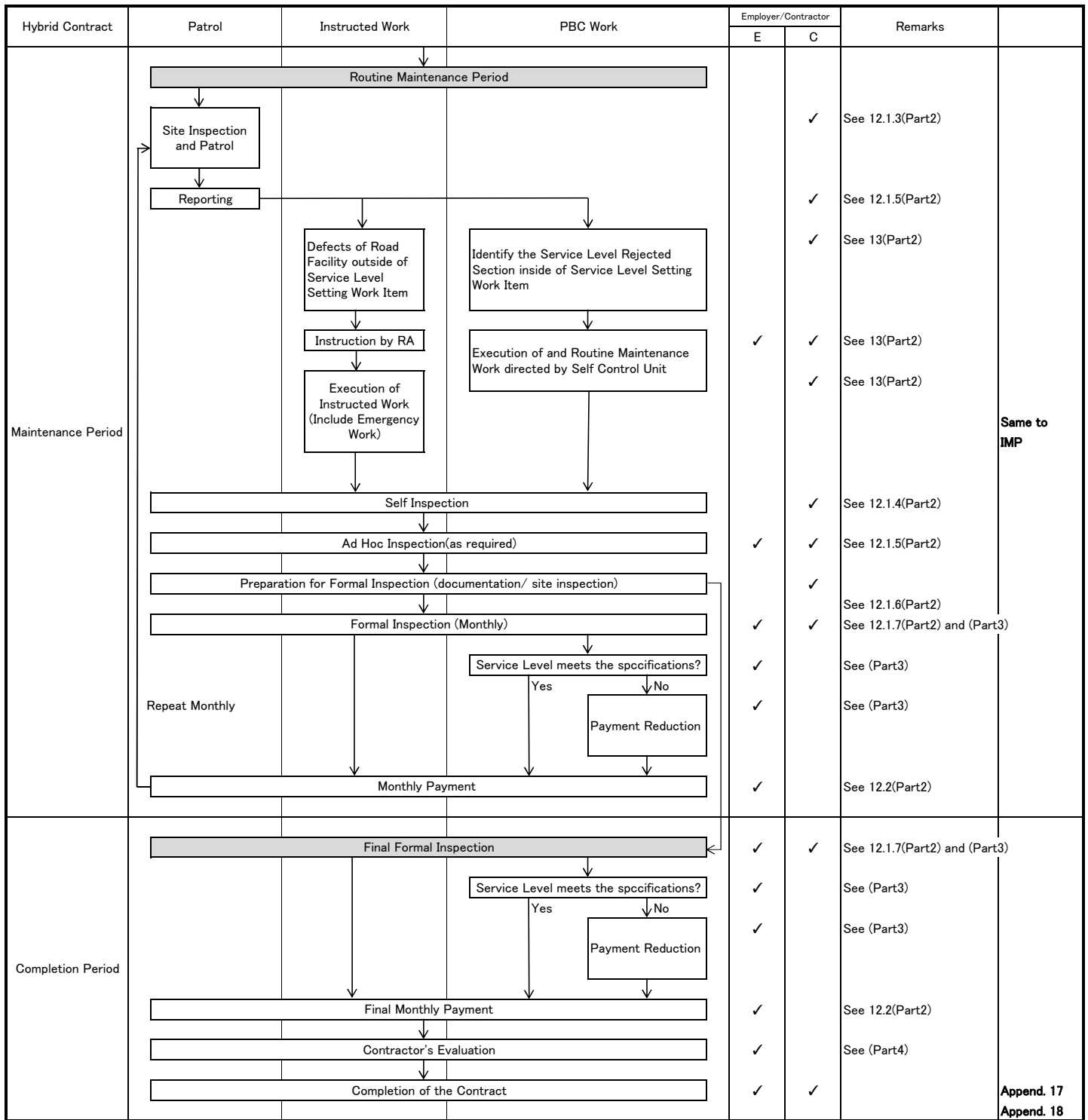


Figure 2.2-1 Standard Procedure of PBC Work

# Material A

## 1) General observation of PBC road

*Contract KURA/RMLF/SR/267/2014-2015*

*Performance Based Routine Maintenance of Lot 24*

<i>Oginga Odinga Rd</i>	<i>6.7km</i>
<i>Section 58 Loop</i>	<i>1.2 km</i>
<i>General Kariba Rd</i>	<i>1.3km</i>
<i>West Rd</i>	<i>1.6km</i>
<i>Government Rd</i>	<i>1.2km</i>
<i>Total</i>	<i>12.0km</i>

## 2) Road Asset Survey



## 2) Road Asset Survey (Field)

1. Set sub-section
  - ✓ Start point, end point
  - ✓ 1.0km Sub-Section
  - ✓ 0.2km Sub-Section
2. Select standard section for Road Asset/Condition Survey
3. Survey road asset (Appendix 5) – Simple Quantity
4. Asset condition (Appendix 5) --- Actual Quantity
5. Select Service Level to be applied in your contract (Appendix 6)

## Appendix 5-1 Road Asset Survey Sheet (1/2) for Paved Road

Road Name: \_\_\_\_\_

AADT: \_\_\_\_\_

Name of Surveyor \_\_\_\_\_

Road Length: \_\_\_\_\_

Survey Date: \_\_\_\_\_

ROW width: \_\_\_\_\_

### Typical Cross Section

#### Road Condition

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
1 Carriage way width	m				
2 Shoulder width (L)	m				
3 Shoulder width (R)	m				
4 Sidewalk width (L)	m				
5 Sidewalk width (R)	m				
6 Pavement thickness	cm				

#### Road Usability

A) Road Usability					
1	Average Roughness	mm/m			

#### Road User Comfort

B) Pavement, Shoulders and ROW					
1	Road Cleanliness	m2			ex. Heavily silted road edge area
2	Potholes	nos			ex. Dia>30cm : 30cm >Dia>15cm : Dia<15cm :
3	Cracking in flexible Pavement	m			ex. Cracks more than 3mm
4	Multiple cracks in the pavement	m2			ex. Arrigator cracks
5	Rutting	m2			
6	Ravelling	m2			
7	Loose pavement edges	m			
8	Height of shoulders vs. height of pavement	m			
9	Damaged Paved shoulders	m			
10	Cracks in Concrete Pavement	m			ex. Cracks more than 3mm
11	Damaged Interlocking Block Pavement	m2			
12	Medians	m			

## Appendix 5-1 Road Asset Survey Sheet (2/2) for Paved Road

Name of Surveyor \_\_\_\_\_

Survey Date: \_\_\_\_\_

Road Name: \_\_\_\_\_

Road Length: \_\_\_\_\_

ROW width: \_\_\_\_\_

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
<b>Road Durability</b>					
C) Drainage					
1	Side Drains (lined)	m			
2	Side Drains (unlined)	m			
3	Cross Culverts/Access Culverts	m			
4	Catch Basin	nos			
5	Scour Checks	nos			
6	Manholes and Gulleys	nos			
7					
D)Vegetation					
1	Vegetation free zone	m2			Carriage way +sidewalks
2	Outer/inner vegetation	m2			
3	Growth encroaching into vegetation free zone from the side or top	m2			
4	Trees within ROW	nos			
E) Structures					
1	Concrete structures	nos			Concrete br. Box culverts
2	Steel Structure	nos			Stell bridge/pedestrian br.
3	Expansion joints	nos			
4	River beds	nos			
F) Road furniture					
1	Information signs	nos			
2	Warning signs	nos			
3	Traffic rule signs	nos			
4	Guide post	nos			
5	kilometer posts	nos			
6	Road markings	m			
7	Street Lighting	nos			
8	Guard rail and pedestrian rail	m			
G) Profile and Road Width					
H) Embankment and Slopes					
1	Embankment slopes	m			
2	Slopes in cuts	m			

## Appendix 6-1 Service Level Selection Form (Paved Road)

Road Authority		
Contractor		
Project		
Road Name/Chainage		
Road Class	Standard Service Level	PH / PS
Inspected By		

Category	Service Scope	Service Criteria (PAVED ROAD)		Items to apply	Remark
					1. Selection of Service Criteria :In case there is no road asset to apply, the service criteria shall not be applied 2. Time allowance and Permissible Tolerance: modify according to site condition requirement
Road Usability	A) Road Usability	1	Passability		
		2	Road Works Advance Warning Sign		
		3	(Roughness)		
Road User Comfort	B) Pavement, Shoulders and ROW for Paved Roads	1	Road Cleanliness		
		2	Potholes		
		3	Cracking in flexible Pavement		
		4	Multiple cracks in the pavement		
		5	Rutting		
		6	Ravelling		
		7	Loose pavement edges		
		8	Height of shoulders vs. height of pavement		
		9	Paved shoulders		
		10	Cracks in Concrete Pavement		
		11	Interlocking Block Pavement		
		12	Medians		
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains (lined)		
		2	Side Drains, Mitre Drains and cut off drains (unlined)		
		3	Culverts and Access Drifts		
		4	Scour Checks, Gabions and other erosion protection structures		
		5	Manholes and Gulleys		
	D) Vegetation	1	Vegetation free zone		
		2	Outer/inner vegetation		
		3	Growth encroaching into vegetation free zone from the side or top		
		4	Trees within ROW		
	E) Structures	1	Concrete structures		
		2	Steel Structures		
		3	Expansion joints		
		4	Riverbeds		
	F) Road Furniture	1	Warning signs/Mandatory signs		
		2	Information signs, Edge marker posts, Guide posts, Kilometer Post		
		3	Traffic Signals		
		4	Street Lighting		
		5	Road Marking/Road Studs		
		6	Guard rails and pedestrian rails		
	G) Profile and Road width				
H) Embankment and Slopes	1	Embankment slopes			
	2	Slopes in Cuts			



## **Material B**

1) Preparation of inspection result form

- Appendix 12
- Appendix 13

2) Road Asset Survey and Service Level Setting (by drawings)

## 1) Preparation of inspection result form

1. Fill contract information
  - Appendix 12
  - Appendix 13
2. Select service level to be applied.  
Put “1”.

## 2) Road Asset Survey (Drawings)

Case 1: Urban Paved Road

Case 2: Rural Paved Road

1. Set sub-section on drawing
2. Survey road asset (Appendix 5)  
from drawing or BoQ
3. Assess condition (Appendix 5)
4. Select Service Level (Appendix 6)
- 5. Verify on site**



**Appendix 12-1(a) Detail Self Inspection Result Report Form (Paved Road)**

Sheet **1** of **5**

Project				Month, Year, Contract Month			
Road Authority							
Road Name/Chainage			Road Class				
Standard Service Level			Inspected Chainage /Number of Sub Sections	Km 0+000-6+700	6.7		

A. Document Verification																							
Document	Count	Description	Compliance																				
	1	1 Work Program	0																				
	1	2 Defect/Rectification List(Appendix 11)	0																				
	1	3 Self Inspection Result Form (Appendix 12 and 13)	0																				
	1	4 Payment Reduction Calculation Form (Appendix 14)	0																				
	1	5 Monthly Statement (Appendix 15)	0																				
		Compliance	0																				

B. Site Verification			Sub Section of Compliance ("Pass"=1, "Fail"=0)																																																							
Service	Service Scope	Selection n°1	Performance Service criteria																																																							
				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	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50					
				km					1km					2km					3km					4km					5km					6km					7km					8km					9km					10km				
Road Usability	A) Road Usability	0	1 Passability																																																							
		0	2 Road Works Advance Warning Sign																																																							
		0	3 (Roughness)																																																							
		0																																																								
		0	<b>Compliance of A)</b>																																																							
Road User Confort	B) Pavement, Shoulders and ROW for Paved Roads	0	1 Road Cleanliness																																																							
		0	2 Potholes																																																							
		0	3 Cracking in flexible Pavement																																																							
		0	4 Multiple cracks in the pavement																																																							
		0	5 Rutting																																																							
		0	6 Ravelling																																																							
		0	7 Loose pavement edges																																																							
		0	8 Height of shoulders vs. height of pavement																																																							
		0	9 Paved shoulders																																																							
		0	10 Cracks in Concrete Pavement																																																							
		0	11 Interlocking Block Pavement																																																							
		0	12 Medians																																																							
		0	<b>Compliance of B)</b>																																																							
Road Durability	C) Drainage	0	1 Side Drains, Mitre Drains and cut off drains (lined)																																																							
		0	2 Side Drains, Mitre Drains and cut off drains (unlined)																																																							
		0	3 Culverts and Access Drifts																																																							
		0	4 Scour Checks, Gabions and other erosion protection structures																																																							
		0	5 Manholes and Gulleys																																																							
	0	<b>Compliance of C)</b>																																																								
	D) Vegetation	0	1 Vegetation free zone																																																							
		0	2 Outer/inner vegetation																																																							
		0	3 Growth encroaching into vegetation free zone from the side or top																																																							
		0	4 Trees within ROW																																																							
	0	<b>Compliance of D)</b>																																																								
	E) Structures	0	1 Concrete structures																																																							
		0	2 Steel Structures																																																							
		0	3 Expansion joints																																																							
		0	4 Riverbeds																																																							
	0	<b>Compliance of E)</b>																																																								
	F) Road Furniture	0	1 Warning signs/Mandatory signs																																																							
		0	2 Information signs, Edge marker posts, Guide posts, Kilometer Post																																																							
		0	3 Traffic Signals																																																							
		0	4 Street Lighting																																																							
0		5 Road Marking/Road Studs																																																								
0		6 Guard rails and pedestrian rails																																																								
0	<b>Compliance of F)</b>																																																									
G) Profile and Road width*only for Unpaved.	0																																																									
	0																																																									
	0	<b>Compliance of G)</b>																																																								
H) Embankment and Slopes	0	1 Embankment slopes																																																								
	0	2 Slopes in Cuts																																																								
0	<b>Compliance of H)</b>																																																									

**Note: In order for the service scope to be considered as pass, all the service criterias items under the service scope must be in compliance.**

**Appendix 13-1 (a) Summary Self Inspection Report Form (Paved Road)**

Project		Month, Year, Contract Month			
Road Authority		Contractor			
Road Name/Chainage		Road Class			
Standard Service Level		Inspected Chainage /Number of Sub Sections	Km 0+000-6+700	6.7	

**A. Document Verification**

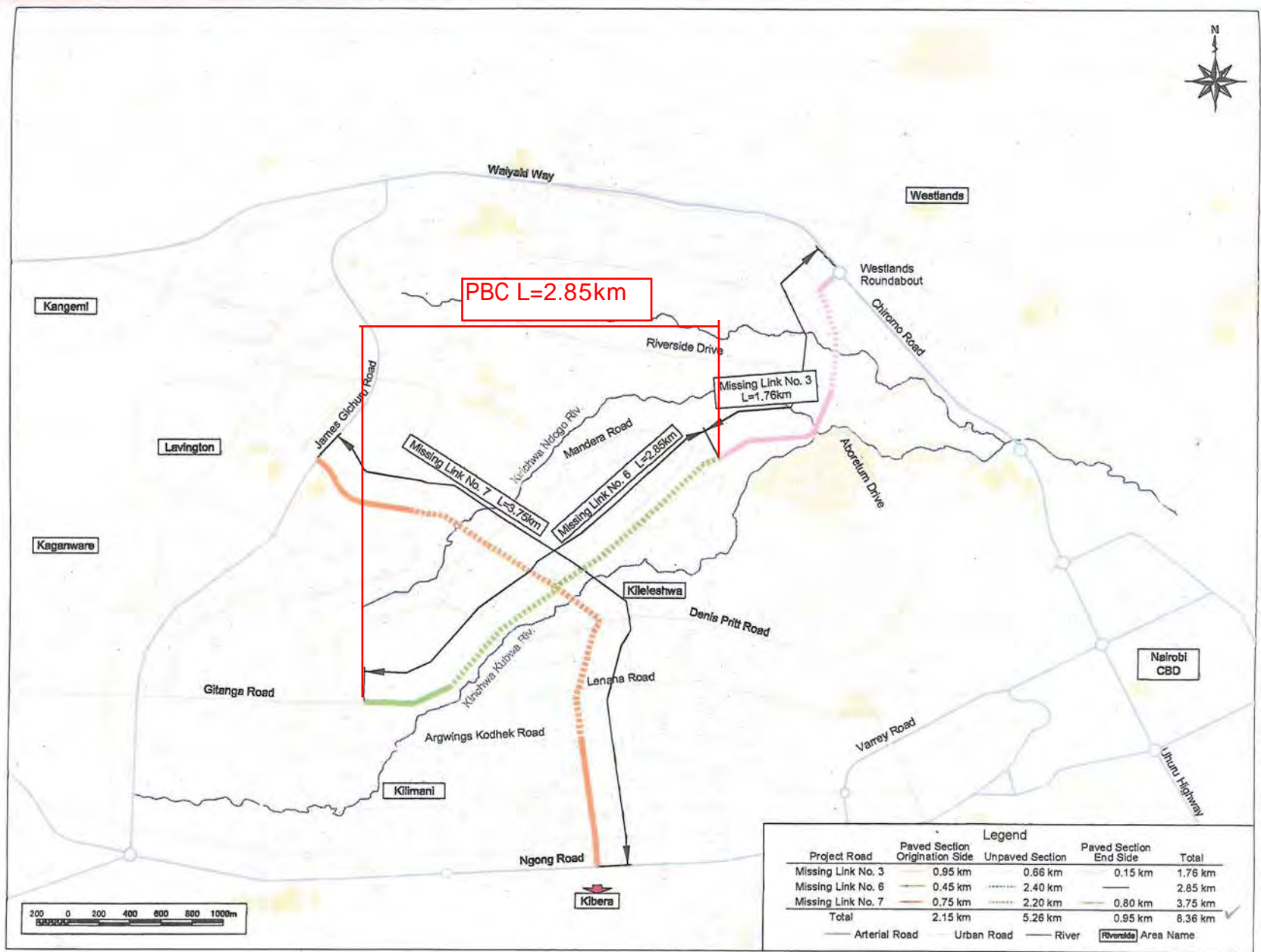
Document	1	1	Work Program																
	1	2	Defect/Rctification List(Appendix 11)																
	1	3	Self Inspection Result Form (Appendix 12 and 13)																
	1	4	Payment Reduction Calculation Form (Appendix 14)																
	1	5	Monthly Statement (Appendix 15)																
			Compliance																Compliance=1 <b>0</b>

**B. Site Verification**

Service	Service Scope	Selection n*1	Performance Service criteria	Sub Section of Compliance ("Pass"=1, "Fail"=0)										Total Complied (km)	Total Non-complied (km) to payment reduction calculation sheet						
				1	2	3	4	5	6	7	8	9	10								
Road Usability	A) Road Usability	1	Passability																		
		2	Road Works Advance Warning Sign																		
		3	(Roughness)																		
					<b>Compliance of A)</b>															0.0	6.7
Road User Confort	B) Pavement, Shoulders and ROW for Paved Roads	1	Road Cleanliness																		
		2	Potholes																		
		3	Cracking in flexible Pavement																		
		4	Multiple cracks in the pavement																		
		5	Rutting																		
		6	Ravelling																		
		7	Loose pavement edges																		
		8	Height of shoulders vs. height of pavement																		
		9	Paved shoulders																		
		10	Cracks in Concrete Pavement																		
		11	Interlocking Block Pavement																		
		12	Medians																		
					<b>Compliance of B)</b>																0.0
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains (lined)																		
		2	Side Drains, Mitre Drains and cut off drains (unlined)																		
		3	Culverts and Access Drifts																		
		4	Scour Checks, Gabions and other erosion protection structures																		
		5	Manholes and Gulleys																		
				<b>Compliance of C)</b>																0.0	6.7
	D) Vegetation	1	Vegetation free zone																		
		2	Outer/inner vegetation																		
		3	Growth encroaching into vegetation free zone from the side or top																		
		4	Trees within ROW																		
				<b>Compliance of D)</b>																0.0	6.7
	E) Structures	1	Concrete structures																		
		2	Steel Structures																		
		3	Expansion joints																		
		4	Riverbeds																		
				<b>Compliance of E)</b>																0.0	6.7
	F) Road Furniture	1	Warning signs/Mandatory signs																		
		2	Information signs, Edge marker posts, Guide posts, Kilometer Pos																		
		3	Traffic Signals																		
		4	Street Lighting																		
5		Road Marking/Road Studs																			
6		Guard rails and pedestrian rails																			
			<b>Compliance of F)</b>																0.0	6.7	
G) Profile and Road width*only for Unpaved.			<b>Compliance of G)</b>																		
	H) Embankment and Slopes	1	Embankment slopes																		
2		Slopes in Cuts																			
			<b>Compliance of H)</b>																0.0	6.7	

**Note: In order for the service scope to be considered as pass, all the service criterias items under the service scope must be in compliance.**

3-19



Project Road	Legend		Total	
	Paved Section Origination Side	Unpaved Section		Paved Section End Side
Missing Link No. 3	0.95 km	0.66 km	0.15 km	1.76 km
Missing Link No. 6	0.45 km	2.40 km	—	2.85 km
Missing Link No. 7	0.75 km	2.20 km	0.80 km	3.75 km
<b>Total</b>	<b>2.15 km</b>	<b>5.26 km</b>	<b>0.95 km</b>	<b>8.36 km</b>

— Arterial Road    — Urban Road    — River    [Westlands] Area Name

KENYA URBAN ROAD AUTHORITY  
CITY COUNCIL OF NAIROBI  
MINISTRY OF LOCAL GOVERNMENT  
MINISTRY OF ROADS

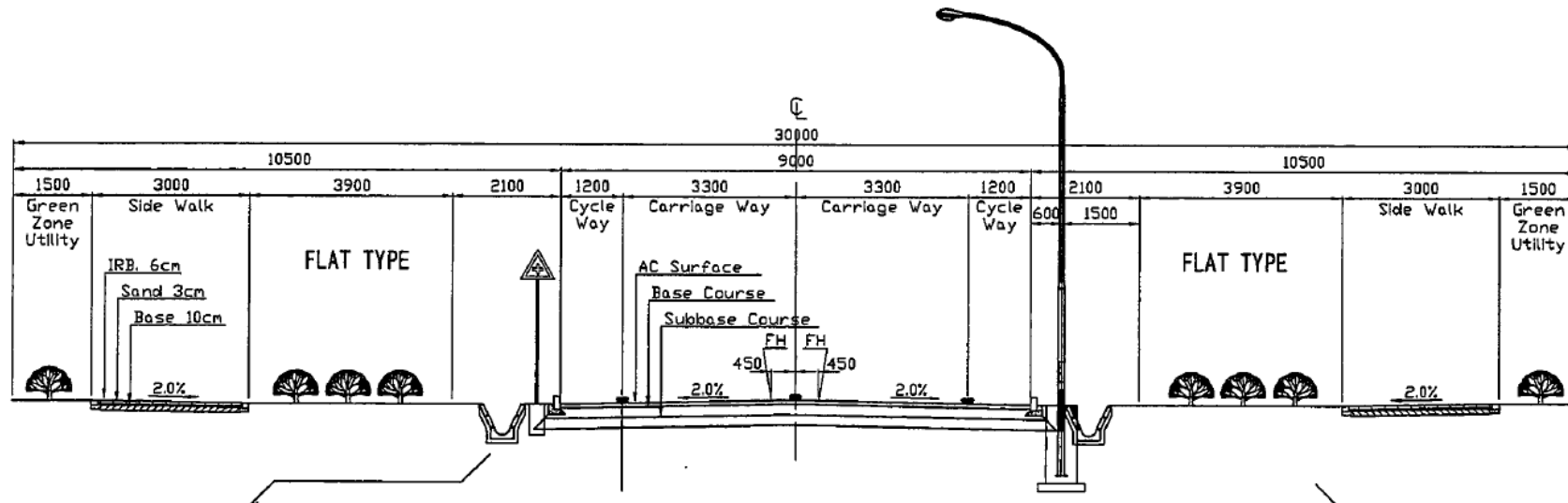
JAPAN INTERNATIONAL  
COOPERATION AGENCY  
KATAHIRA & ENGINEERS INTERNATIONAL

THE PREPARATORY SURVEY ON  
THE PROJECT FOR  
THE CONSTRUCTION OF  
NAIROBI WESTERN RING ROADS

TITLE:  
**LOCATION MAP**

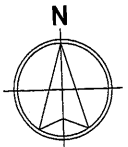
Drawing No.	G-01
SCALE	1/2500
DATE	AUG. 2009

C-① M7 Radial Road Section (Standard Type)  
 Row=30m, Nos. of Lane=2  
 Location of Lanes : Both Sides (without Median)



Typical Cross Section

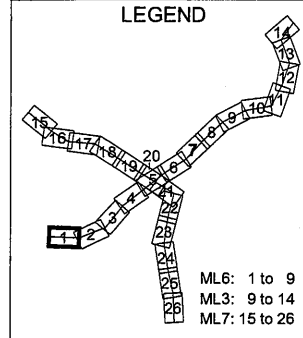
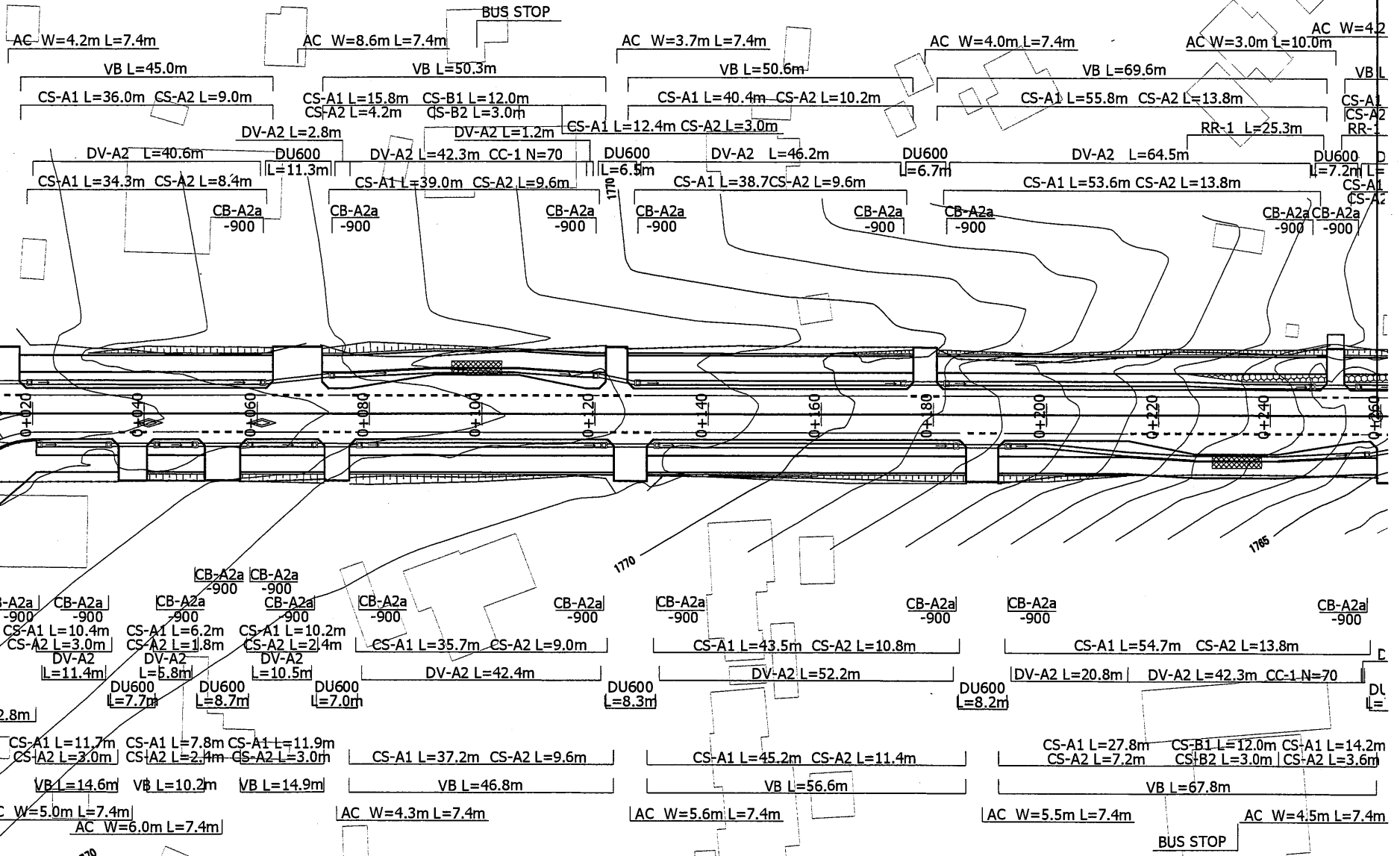




KAG001-1  
A=7M

REFER TO DETAIL 7 INTERSECTION DRAWING

REFER TO DETAIL 7 INTERSECTION DRAWING



REVISIONS		
No.	Date	Description
0	OCT.2010	
1	NOV.2010	

**KENYA URBAN ROADS AUTHORITY**  
Efficient and safe urban roads

IKM PLACE, Bishops Road, Tel: 254-020-8013844  
Email: info@kura.go.ke Web: www.kura.go.ke  
P.O. Box 41727-00100, GPO, NAIROBI

**KEI KATAHIRA & ENGINEERS**  
INTERNATIONAL

DETAIL DESIGN ON THE PROJECT FOR THE CONSTRUCTION OF NAIROBI WESTERN RING ROADS

TITLE :  
ML6 PLAN (1)  
STA. 0+000 to STA. 0+240

Approved by : John M. Mwatu General Manager [D&C], KURA	Date : 12/12/10	Drawing No. PL-1	Sheet No.
Checked by : K. Isomoto [KEI]	Date : 12/12/10	Scale : 1/1000	
Designed by : H. Fujiwara [KEI]	Date : 01/12/10	Date : NOV. 2010	20

### ABBREVIATION LIST

CLASSIFICATION(1)	CLASSIFICATION(2)	CLASSIFICATION(3)	CLASSIFICATION(4)	DRAWING NO.	ABBREVIATION	CLASSIFICATION(1)	CLASSIFICATION(2)	CLASSIFICATION(3)	CLASSIFICATION(4)	DRAWING NO.	ABBREVIATION		
ACCESS WAY				AC-1	AC	DRAINAGE	INVERT BLOCK DRAIN		H=900mm, W=1350mm	DR-1	DV-A1		
CURBS	CURB STONE		H=250	CT-1&3	CS-A1				H=600mm, W=750mm	DR-1	DV-A2		
			H=100	CT-1	CS-A2			H=825mm, W=975mm	DR-1	DV-A3			
			FOR INVERT BLOCK DRAIN	H=250	CT-1			CS-B1	H=300mm, W=1200mm	DR-1	DV-B		
				H=100	CT-1			CS-B2					
		FOR CROSS WALK		CT-1&3	CS-C								
		FOR CROSS WALK, BOUNDARY BETWEEN CYCLE WAY AND SIDE WALK		CT-1&3	CS-C1								
		FOR CROSS WALK	WITH GUARD POST	CT-1&3	CS-C2								
		VERGE BLOCK		CT-1&2	VB								
CORNER BLOCK		FOR TRAFFIC ISLAND	CT-3	CNB									
TREE CIRCLE				CT-2	TC								
RETAINING WALL	RETAINING WALL	GRAVITY TYPE	FOR EMBANKMENT	RR-1	RW-A								
		REVERSED T-TYPE	FOR EMBANKMENT	RR-1	RW-B								
RIPRAP			WITH CRUSHED STONE BASE	RR-1	RR-1								
			WITHOUT CRUSHED STONE BASE	RR-1	RR-2								
STONE MASONRY		INSTALLATION AT SIDE OF ROAD, CONCRETE FACE WITHOUT SLOPE	FOR EMBANKMENT, SLOPE GRADIENT=1:0.40, BACKFILLING CONCRETE t=100	SM-1	SM-A			STONE FILTER DRAIN			WITH DV-A2, DP-600	DR-1	SFD
		INSTALLATION AT SIDE OF ROAD, CONCRETE FACE WITH SLOPE	FOR CUT, SLOPE GRADIENT=1:0.40, BACKFILLING CONCRETE t=100	SM-1	SM-B	CATCH BASIN	600*600*900	NOS. OF CONNECTING PIPE N=1	DP-300	DR-2	CB-A1a-900		
		INSTALLATION AT SIDE OF ROAD, CONCRETE FACE WITH SLOPE	FOR CUT, SLOPE GRADIENT=1:0.40, BACKFILLING CONCRETE t=100, WITH DV-A2	SM-1	SM-C			NOS. OF CONNECTING PIPE N=2	DP-300, DP-300	DR-2	CB-A2a-900		
		INSTALLATION AT SIDE OF ROAD, CONCRETE FACE WITH SLOPE	FOR CUT, SLOPE GRADIENT=1:0.50, BACKFILLING CONCRETE t=100	SM-1	SM-D			NOS. OF CONNECTING PIPE N=3	DP-300, DP-300, DP-300	DR-2	CB-A3a-900		
		INSTALLATION AT SIDE OF ROAD, CONCRETE FACE WITH SLOPE	FOR CUT, SLOPE GRADIENT=1:0.50, BACKFILLING CONCRETE t=150	SM-1	SM-E			600*600*1050	NOS. OF CONNECTING PIPE N=2	DP-300, DP-450	DR-2	CB-A2a-1050	
		INSTALLATION AT SIDE OF ROAD, CONCRETE FACE WITHOUT SLOPE	FOR EMBANKMENT, SLOPE GRADIENT=1:0.50, BACKFILLING CONCRETE t=150, WITH DV-A2	SM-1	SM-F				NOS. OF CONNECTING PIPE N=2	DP-450, DP-450	DR-2	CB-A2b-1050	
								NOS. OF CONNECTING PIPE N=3	DP-300, DP-450, DP-450	DR-2	CB-A3a-1050		
GUARD RAIL	ON THE GROUND			GR-1	Gr-E								
	ON THE STRUCTURE			GR-2	Gr-B								
GUARD FENCE				GF-1	GF								
GUARD POSTE				GP-1	GP								
CUSHION DRUM				PL	CD								
HAND HOLE				HH-1	HH								
PEDESTRIAN STEPS			H=1850mm, W=3000mm	PS-1	PS-1								
			H=1400mm, H=3000mm	PS-1	PS-2								
			H=1100mm, W=3000mm	PS-1	PS-3								
CONCRETE COVER			600*1100, t=150mm	DR-3	CC-1								
			600*1400, t=150mm	DR-3	CC-2								
GREEN AREA	GREEN ZONE			PL	GZ								
	GREEN BELT			PL	GB								
STREET LIGHTNING	SINGLE LAMP			ST-1	ST								

Note:  
1. Concrete class is 24N unless otherwise stated in the drawing.

REVISIONS		
No.	Date	Description



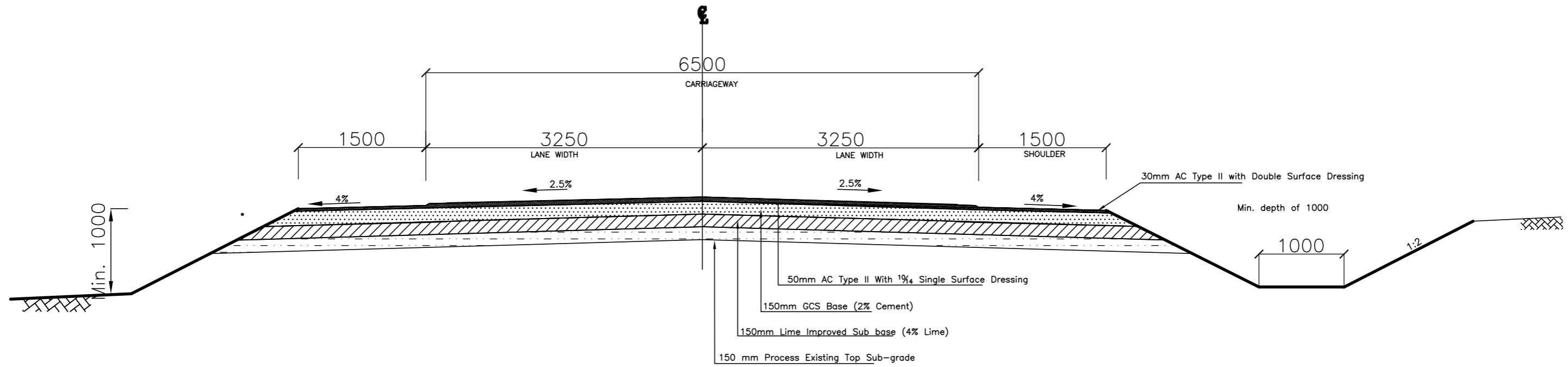
**KENYA URBAN ROADS AUTHORITY**  
Efficient and safe urban roads  
IKM PLACE, Bishops Road, Tel: 254-020-8013844  
Email: info@kura.go.ke Web: www.kura.go.ke  
P.O. Box 41727-00100, GPO, NAIROBI



DETAIL DESIGN ON THE PROJECT FOR THE CONSTRUCTION OF NAIROBI WESTERN RING ROADS

TITLE :  
ABBREVIATION LIST

Approved by : John M. Mwatu General Manager [D&C], KURA	Date: 30/8/10	Drawing No. AB-1	Sheet No.
Checked by : K. Isomoto [KEI]	Date: 15-Aug-10	Scale: NON SCALE	
Designed by : K. Fujiwara [KEI]	Date: 22-Aug-10	Date: JUL.2010	



**PROPOSED CROSSECTION AND PAVEMENT DETAILS**  
Chainage Km 0+000 to 1+000, 2+000- 4+000, 5+000-7+000 & 9+500 - 12+000

SCALE 1:50

**NOTES**

1. The proposed carriageway is 6.5m, with 1.5m shoulders on each side
2. Shoulders will be constructed from the sub grade level.
3. All dimensions are in mm

APPROVED BY:

CHECKED BY:

DRAWN BY:

DESIGNED BY:

**CLIENT**



**Kenya Rural Roads Authority**  
Blue Shield Towers, Hospital Road, Upper Hill P.O. Box 48151 - 00100 Nairobi  
Tel +(254)020 - 2710464 Email kerra@kerra.go.ke Website www.kerra.go.ke

**GENERAL MANAGER (DESIGN & CONSTRUCTION) :**

**DIRECTOR GENERAL (DESIGN & CONSTRUCTION) :**

REVISIONS	
DESCRIPTION	DATE

**CONSULTANT**



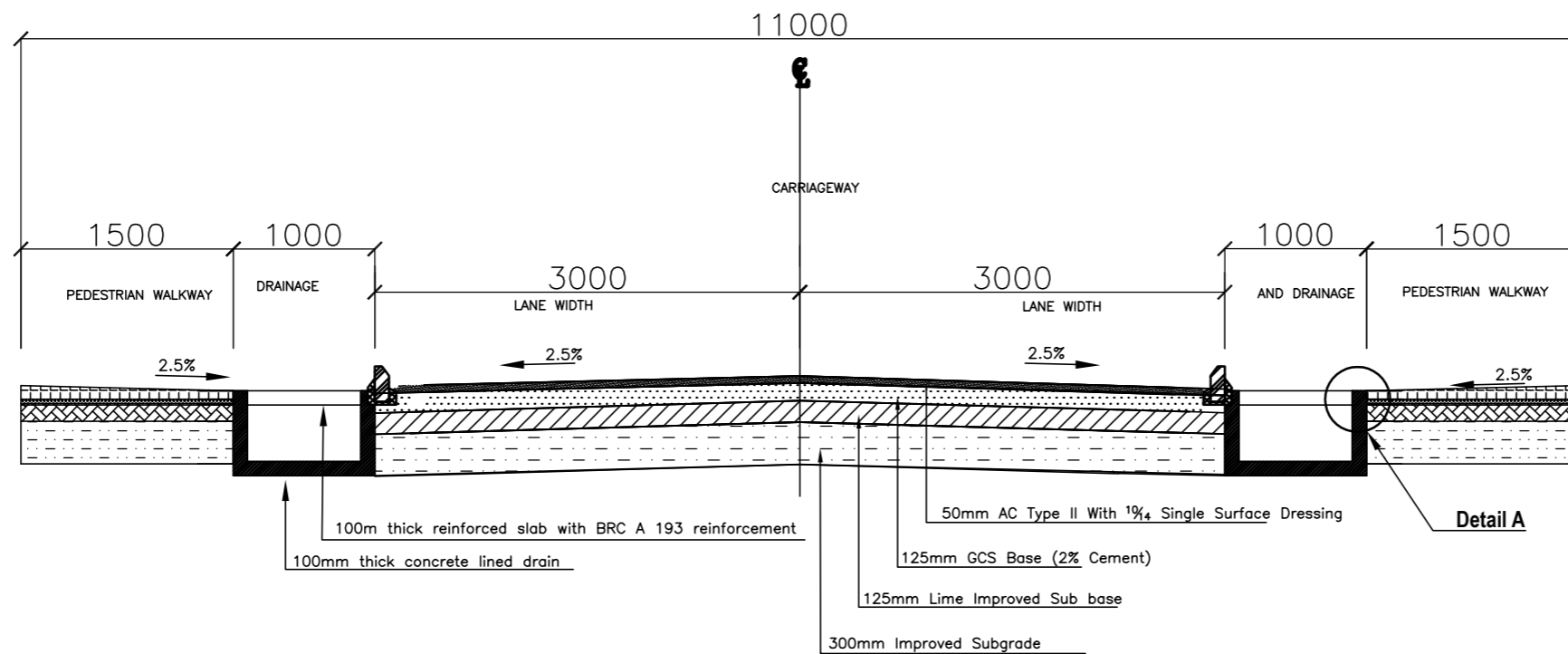
**ITEC Engineering Ltd.**  
Infrastructure, Transportation & Environment Consulting Engineers

*in association with* **MECE**

**PROJECT : DESIGN OF MASENO-KOMBEWA-KALANDINI (D245) ROAD & MASENO LOOP ROADS**  
**TYPICAL CROSS SECTION :D245 MASENO - KOMBEWA SECTION**

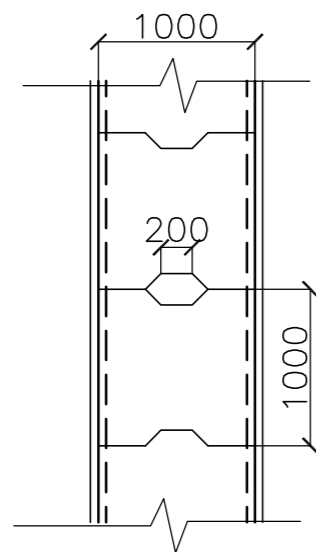
DWG No : ITEC  
SHEET : 2 of 8  
SCALE : 1 : 50  
DATE: APRIL 2014





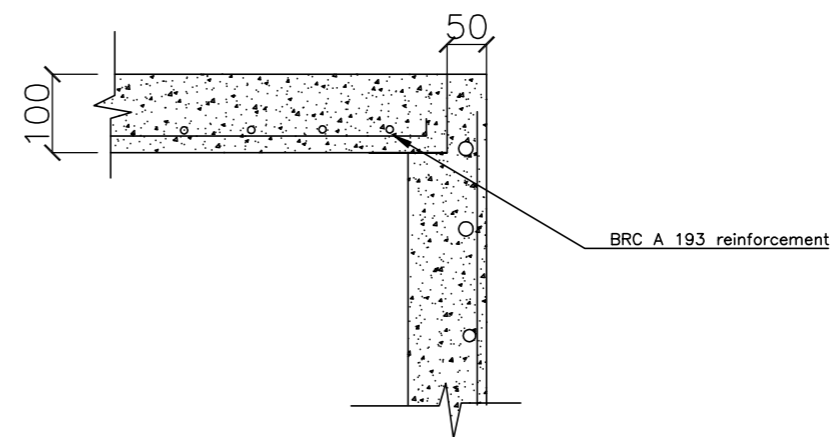
**PROPOSED CROSSSECTION AND PAVEMENT DETAILS**

SCALE 1:50



PLAN VIEW OF THE SIDE DRAINS

SCALE 1:50



DETAIL A

SCALE 1:25

**NOTES**

1. The pedestrian walk way consist of the following:

- 60mm thick concrete paving blocks
- 30mm thick selected sand
- 125mm cement improved gravel base
- 300mm sub grade S3 class

2. All dimensions are in mm

APPROVED BY:

CHECKED BY:

DRAWN BY:

DESIGNED BY:

CLIENT



Kenya Rural Roads Authority

Blue Shield Towers, Hospital Road, Upper Hill P.O. Box 48151 - 00100 Nairobi  
Tel +(254)020 - 2710464 Email kerra@kerra.go.ke Website www.kerra.go.ke

**GENERAL MANAGER**  
(DESIGN & CONSTRUCTION) :

**DIRECTOR GENERAL**  
(DESIGN & CONSTRUCTION) :

REVISIONS

DESCRIPTION	DATE

CONSULTANT



**ITEC Engineering Ltd.**  
Infrastructure, Transportation & Environment  
Consulting Engineers

in association with **MECE**

PROJECT: DESIGN OF MASENO-KOMBEWA-KALANDINI  
(D245) ROAD & MASENO LOOP ROADS

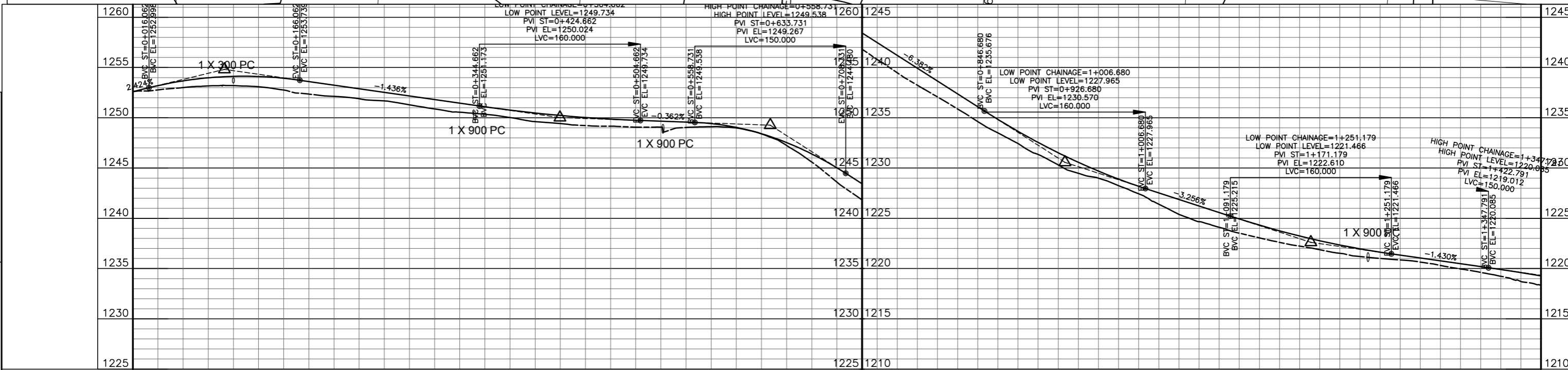
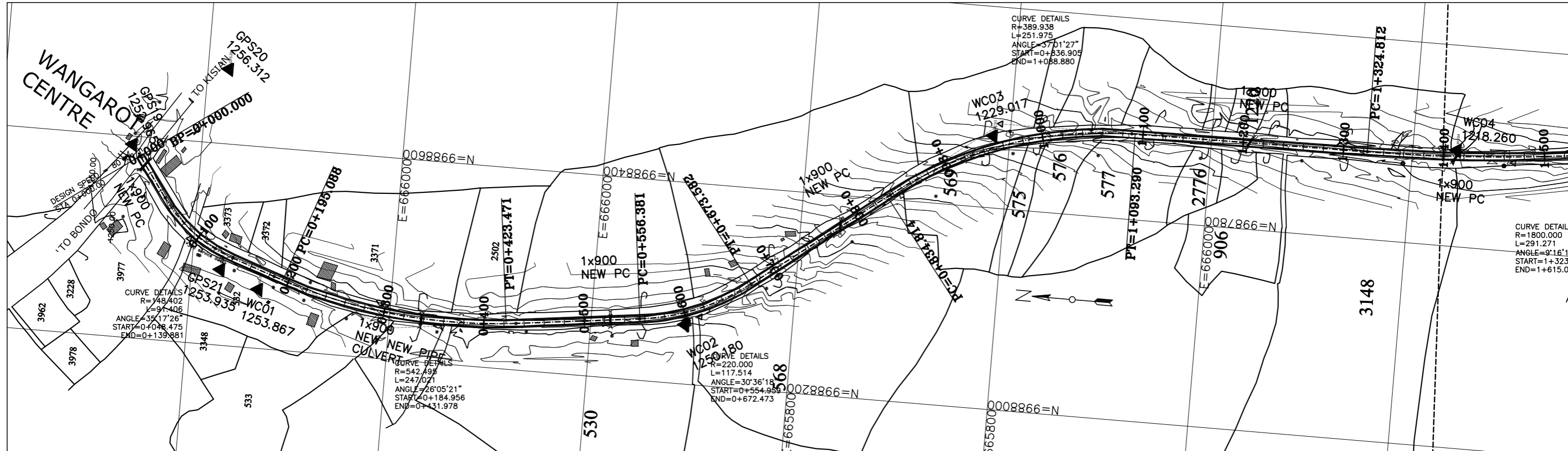
TYPICAL CROSS SECTION OF MASENO LOOP ROADS 3,&4

DWG No : ITEC

SHEET : 5 of 8

SCALE : 1 : 50

DATE: APRIL 2014



STATION	0+000	0+100	0+200	0+300	0+400	0+500	0+600	0+700	0+800	0+900	1+000	1+100	1+200	1+300	1+400																																																																																																																			
EXISTING GROUND LEVELS	1253.092	1252.72	1253.505	1252.93	1253.815	1253.10	1254.022	1253.19	1254.126	1253.20	1254.127	1253.13	1254.026	1252.91	1253.821	1252.51	1253.538	1252.30	1253.251	1252.13	1252.964	1251.96	1252.677	1251.74	1252.389	1251.55	1252.102	1251.21	1251.815	1250.88	1251.527	1250.58	1251.240	1250.44	1250.961	1250.25	1250.707	1249.94	1250.481	1249.62	1249.281	1249.47	1249.752	1249.07	1249.679	1249.07	1249.533	1249.08	1249.370	1249.13	1249.047	1248.99	1248.563	1248.57	1247.919	1247.83	1247.113	1246.63	1246.148	1245.23	1245.022	1243.60	1243.761	1242.18	1242.484	1240.81	1241.208	1239.49	1239.931	1238.24	1238.655	1237.07	1237.378	1235.87	1236.102	1234.63	1234.843	1233.50	1233.658	1232.44	1232.550	1231.36	1231.521	1230.31	1230.571	1229.49	1229.698	1228.99	1228.904	1228.25	1228.187	1227.44	1227.532	1226.40	1226.881	1225.40	1226.230	1224.66	1225.578	1224.11	1224.932	1223.52	1224.324	1223.06	1223.761	1222.61	1223.244	1222.23	1222.773	1221.87	1222.347	1221.53	1221.967	1221.20	1221.633	1221.01	1221.340	1220.86	1221.054	1220.65	1220.768	1220.32	1220.482	1219.96	1220.196	1219.62	1219.906	1219.24	1219.598	1218.71
PROPOSED ROAD LEVELS	1253.092	1252.72	1253.505	1252.93	1253.815	1253.10	1254.022	1253.19	1254.126	1253.20	1254.127	1253.13	1254.026	1252.91	1253.821	1252.51	1253.538	1252.30	1253.251	1252.13	1252.964	1251.96	1252.677	1251.74	1252.389	1251.55	1252.102	1251.21	1251.815	1250.88	1251.527	1250.58	1251.240	1250.44	1250.961	1250.25	1250.707	1249.94	1250.481	1249.62	1249.281	1249.47	1249.752	1249.07	1249.679	1249.07	1249.533	1249.08	1249.370	1249.13	1249.047	1248.99	1248.563	1248.57	1247.919	1247.83	1247.113	1246.63	1246.148	1245.23	1245.022	1243.60	1243.761	1242.18	1242.484	1240.81	1241.208	1239.49	1239.931	1238.24	1238.655	1237.07	1237.378	1235.87	1236.102	1234.63	1234.843	1233.50	1233.658	1232.44	1232.550	1231.36	1231.521	1230.31	1230.571	1229.49	1229.698	1228.99	1228.904	1228.25	1228.187	1227.44	1227.532	1226.40	1226.881	1225.40	1226.230	1224.66	1225.578	1224.11	1224.932	1223.52	1224.324	1223.06	1223.761	1222.61	1223.244	1222.23	1222.773	1221.87	1222.347	1221.53	1221.967	1221.20	1221.633	1221.01	1221.340	1220.86	1221.054	1220.65	1220.768	1220.32	1220.482	1219.96	1220.196	1219.62	1219.906	1219.24	1219.598	1218.71
VERTICAL ALIGNMENT	L=16.862m K=2.245		LVC=150m K=38.856		L=178.618m K=-1.436%		LVC=160m K=148.945		L=54.069m K=-0.362%		LVC=150m K=24.917		L=138.229m K=-6.382%		LVC=160m K=51.173		L=84.543m K=-3.256%		LVC=160m K=87.644		L=96.622m K=-1.430%		LVC=150m K=203.826																																																																																																											
HORIZONTAL ALIGNMENT	L=48.475m		R=148.40m L=91.406m		L=45.076m		R=542.49m L=247.021m		L=122.981m		R=220.00m L=117.514m		L=164.433m		R=389.94m L=251.975m		L=234.891m		R=1800.00m L=291.271m																																																																																																															
RIGHT SUPERELEVATION	0+000.850	0+050.330	0+100.100	0+150.250	0+200.006	0+250.844	0+300.506	0+350.170	0+400.031	0+450.027	0+500.253	0+550.427	0+600.032	0+650.190	0+700.942	0+750.719	0+800.004	0+850.105	0+900.272	0+950.889	1+000.097	1+050.514	1+100.680	1+150.105																																																																																																										
LEFT SUPERELEVATION	-2.5%	-6.0%	-6.0%	-6.0%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%																																																																																																											

APPROVED BY: [Signature]
   
 CHECKED BY: [Signature]
   
 DRAWN BY: JW
   
 DESIGNED BY: JW

**GENERAL MANAGER**  
 (DESIGN & CONSTRUCTION):  
  
**DIRECTOR GENERAL**  
 (DESIGN & CONSTRUCTION):

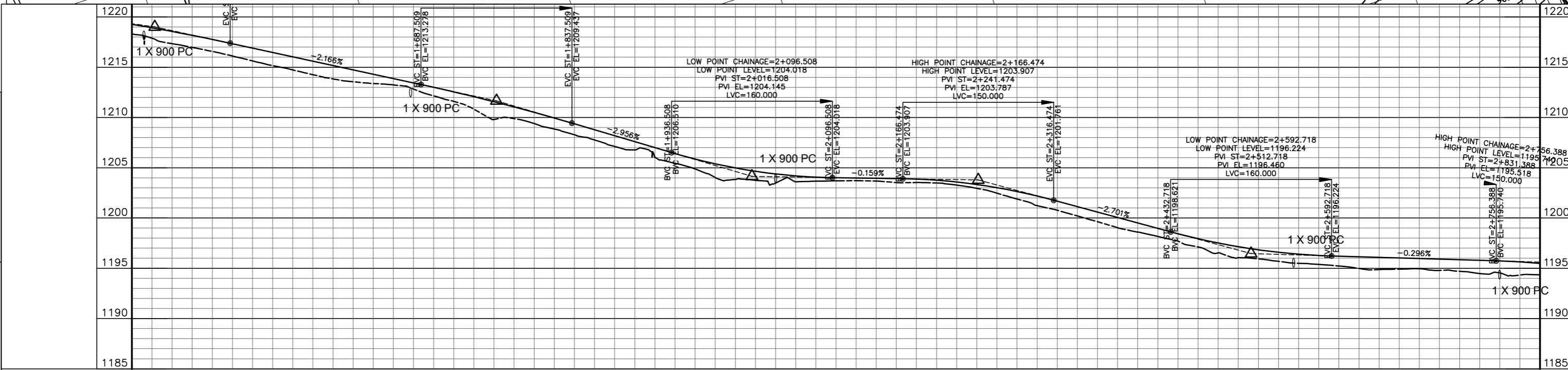
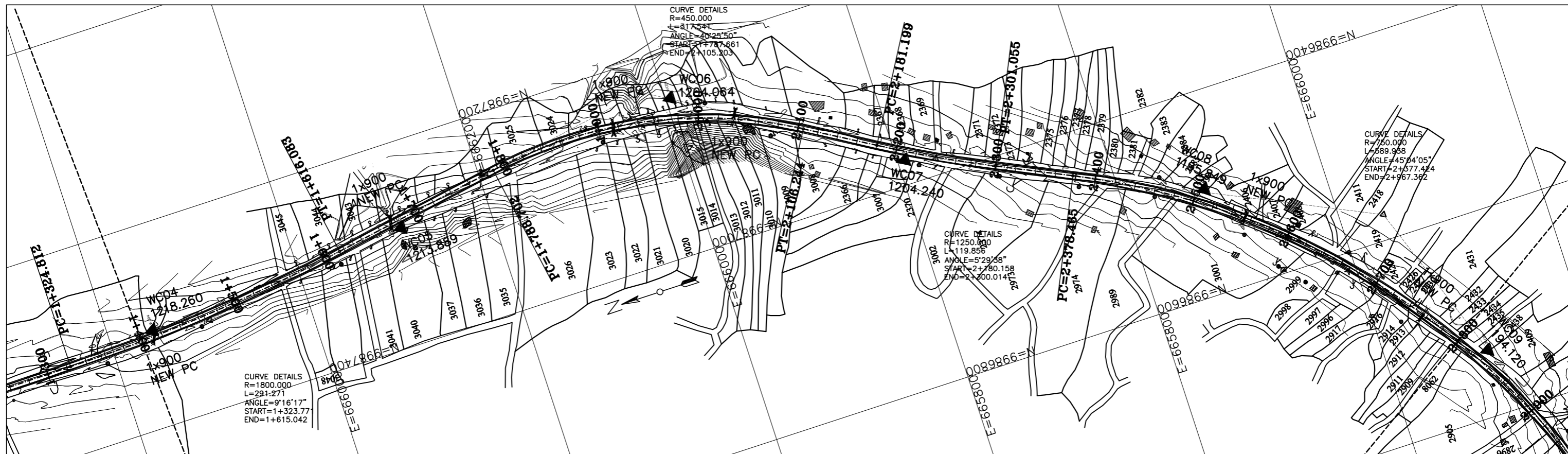
REVISIONS	
DESCRIPTION	DATE

CONSULTANT  
**ITEC Engineering Ltd.**  
 Infrastructure, Transportation & Environment  
 Consulting Engineers  
 in association with **MECE**

PROJECT **DESIGN OF MASENO-KOMBEWA-KALANDINI (D245) ROAD & MASENO LOOP ROADS**  
**WANG'AROT-KALANDINI PLAN AND PROFILE KM 0+000.000 - 1+400.000**

DWG No: ITEC/MK/2  
 SHEET: 1 of 13  
 SCALE: 1:400  
 DATE: APRIL 2014

**Kenya Rural Roads Authority**  
 Blue Shield Towers, Hospital Road, Upper Hill P.O. Box 48151 - 00100 Nairobi  
 Tel +254(0)20 - 2710464 Email kenra@kenra.go.ke Website www.kenra.go.ke



STATION	1+400	1+500	1+600	1+700	1+800	1+900	2+000	2+100	2+200	2+300	2+400	2+500	2+600	2+700	2+800																																																																																				
EXISTING GROUND LEVELS	1218.89	1217.34	1216.98	1216.57	1216.12	1215.62	1215.16	1214.73	1214.26	1213.84	1213.41	1212.83	1212.16	1211.60	1210.82	1209.80	1209.89	1209.41	1208.85	1208.28	1207.77	1207.12	1206.78	1206.06	1205.45	1204.88	1204.02	1203.84	1203.75	1203.48	1203.60	1204.06	1203.66	1204.01	1203.69	1203.71	1203.67	1203.91	1203.53	1203.53	1203.48	1203.27	1203.32	1202.96	1203.01	1202.47	1202.63	1201.89	1202.18	1201.23	1201.77	1201.66	1200.77	1201.26	1200.20	1200.58	1199.63	1200.04	1199.04	1199.50	1198.60	1198.96	1198.17	1198.42	1197.70	1197.94	1197.12	1197.52	1197.14	1196.06	1196.83	1195.94	1196.69	1195.69	1196.40	1195.50	1196.27	1195.38	1196.20	1195.23	1196.14	1194.98	1196.08	1194.87	1196.02	1194.91	1195.96	1194.95	1195.90	1194.79	1195.84	1194.70	1195.78	1194.47	1195.72	1194.53	1195.63	1194.32	
PROPOSED ROAD LEVELS	1218.924	1218.557	1217.34	1216.98	1216.57	1216.12	1215.62	1215.16	1214.73	1214.26	1213.84	1213.41	1212.83	1212.16	1211.60	1210.82	1209.80	1209.89	1209.41	1208.85	1208.28	1207.77	1207.12	1206.78	1206.06	1205.45	1204.88	1204.02	1203.84	1203.75	1203.48	1203.60	1204.06	1203.66	1204.01	1203.69	1203.71	1203.67	1203.91	1203.53	1203.53	1203.48	1203.27	1203.32	1202.96	1203.01	1202.47	1202.63	1201.89	1202.18	1201.23	1201.77	1201.66	1200.77	1201.26	1200.20	1200.58	1199.63	1200.04	1199.04	1199.50	1198.60	1198.96	1198.17	1198.42	1197.70	1197.94	1197.12	1197.52	1197.14	1196.06	1196.83	1195.94	1196.69	1195.69	1196.40	1195.50	1196.27	1195.38	1196.20	1195.23	1196.14	1194.98	1196.08	1194.87	1196.02	1194.91	1195.96	1194.95	1195.90	1194.79	1195.84	1194.70	1195.78	1194.47	1195.72	1194.53	1195.63	1194.32
VERTICAL ALIGNMENT	LVC=150m K=203.826		L=189.763m -2.166%			LVC=150m K=189.807			L=89.042m -2.956%			LVC=160m K=57.202			L=69.966m -0.159%			LVC=150m K=59.005			L=116.286m -2.701%			LVC=160m K=66.514			L=163.671m -0.296%			LVC=150m K=77.597																																																																					
HORIZONTAL ALIGNMENT	R=1800.00m L=291.271m		L=172.619m			R=450.00m L=317.541m			L=74.956m			R=1250.00m L=119.856m			L=77.410m			R=750.00m L=589.938m																																																																																	
SUPERELEVATION	RIGHT LEFT		RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT			RIGHT LEFT																																																																		

APPROVED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 DRAWN BY: JW  
 DESIGNED BY: JW



**Kenya Rural Roads Authority**  
 Blue Shield Towers, Hospital Road, Upper Hill P.O. Box 48151 - 00100 Nairobi  
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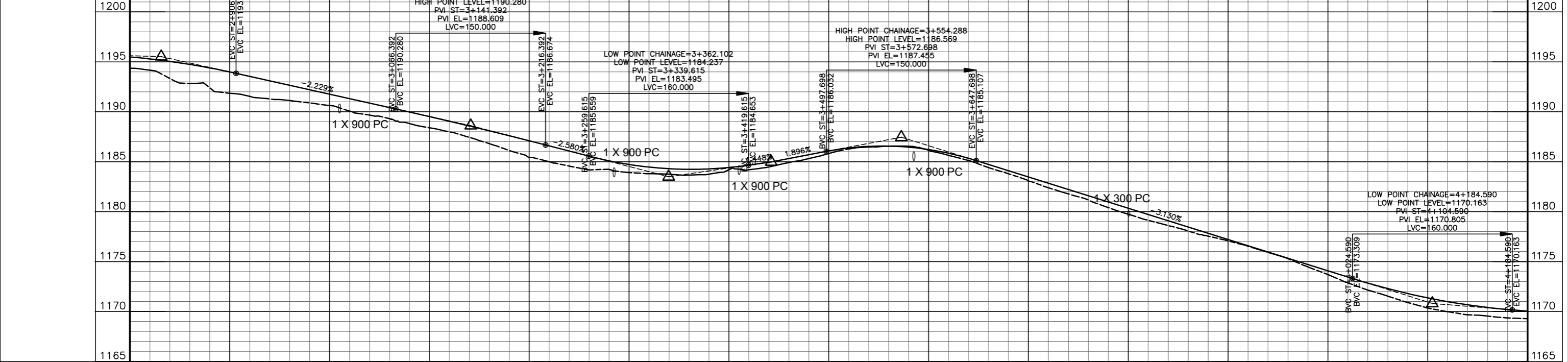
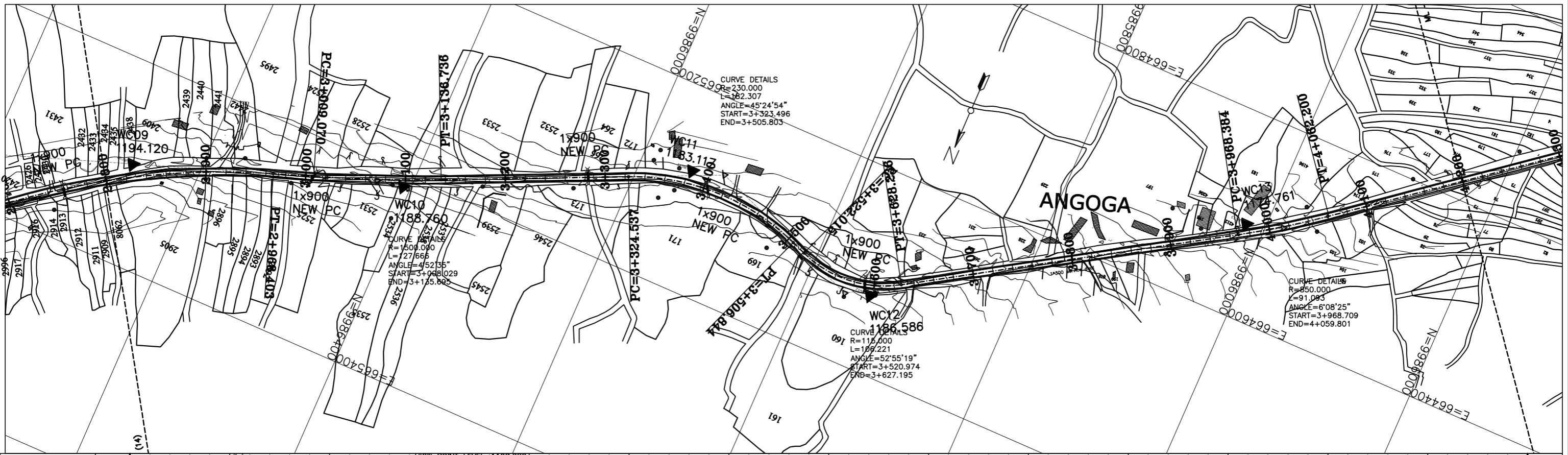
**GENERAL MANAGER (DESIGN & CONSTRUCTION):**  
**DIRECTOR GENERAL (DESIGN & CONSTRUCTION):**

REVISIONS	
DESCRIPTION	DATE

CONSULTANT  
**ITEC Engineering Ltd.**  
 Infrastructure, Transportation & Environment  
 Consulting Engineers  
*in association with* **MECE**

PROJECT **DESIGN OF MASENO-KOMBEWA-KALANDINI (D245) ROAD & MASENO LOOP ROADS**  
**WANG'AROT-KALANDINI PLAN AND PROFILE KM 1+400.000 - 2+800.000**

DWG No: ITEC/MK2  
 SHEET: 2 of 13  
 SCALE: 1:200  
 DATE: APRIL 2014



STATION	2+800	2+900	3+000	3+100	3+200	3+300	3+400	3+500	3+600	3+700	3+800	3+900	4+000	4+100	4+200																																																																																																																																																															
EXISTING GROUND LEVELS	1195.291	1195.042	1194.742	1194.390	1193.986	1193.543	1193.097	1192.652	1192.206	1191.760	1191.314	1190.869	1189.67	1189.31	1188.82	1188.40	1187.99	1187.576	1187.144	1186.81	1186.47	1186.12	1185.74	1185.31	1184.92	1184.58	1184.20	1183.80	1183.41	1183.07	1182.79	1182.54	1182.30	1182.06	1181.81	1181.57	1181.33	1181.09	1180.85	1180.61	1180.37	1180.13	1179.89	1179.65	1179.41	1179.17	1188.82	1188.40	1187.99	1187.576	1187.144	1186.81	1186.47	1186.12	1185.74	1185.31	1184.92	1184.58	1184.20	1183.80	1183.41	1183.07	1182.79	1182.54	1182.30	1182.06	1181.81	1181.57	1181.33	1181.09	1180.85	1180.61	1180.37	1180.13	1179.89	1179.65	1179.41	1179.17	1188.82	1188.40	1187.99	1187.576	1187.144	1186.81	1186.47	1186.12	1185.74	1185.31	1184.92	1184.58	1184.20	1183.80	1183.41	1183.07	1182.79	1182.54	1182.30	1182.06	1181.81	1181.57	1181.33	1181.09	1180.85	1180.61	1180.37	1180.13	1179.89	1179.65	1179.41	1179.17	1188.82	1188.40	1187.99	1187.576	1187.144	1186.81	1186.47	1186.12	1185.74	1185.31	1184.92	1184.58	1184.20	1183.80	1183.41	1183.07	1182.79	1182.54	1182.30	1182.06	1181.81	1181.57	1181.33	1181.09	1180.85	1180.61	1180.37	1180.13	1179.89	1179.65	1179.41	1179.17	1188.82	1188.40	1187.99	1187.576	1187.144	1186.81	1186.47	1186.12	1185.74	1185.31	1184.92	1184.58	1184.20	1183.80	1183.41	1183.07	1182.79	1182.54	1182.30	1182.06	1181.81	1181.57	1181.33	1181.09	1180.85	1180.61	1180.37	1180.13	1179.89	1179.65	1179.41	1179.17
PROPOSED ROAD LEVELS	1195.291	1195.042	1194.742	1194.390	1193.986	1193.543	1193.097	1192.652	1192.206	1191.760	1191.314	1190.869	1189.67	1189.31	1188.82	1188.40	1187.99	1187.576	1187.144	1186.81	1186.47	1186.12	1185.74	1185.31	1184.92	1184.58	1184.20	1183.80	1183.41	1183.07	1182.79	1182.54	1182.30	1182.06	1181.81	1181.57	1181.33	1181.09	1180.85	1180.61	1180.37	1180.13	1179.89	1179.65	1179.41	1179.17	1188.82	1188.40	1187.99	1187.576	1187.144	1186.81	1186.47	1186.12	1185.74	1185.31	1184.92	1184.58	1184.20	1183.80	1183.41	1183.07	1182.79	1182.54	1182.30	1182.06	1181.81	1181.57	1181.33	1181.09	1180.85	1180.61	1180.37	1180.13	1179.89	1179.65	1179.41	1179.17																																																																																																
VERTICAL ALIGNMENT	LVC=150m K=77.597		L=160.043m -2.229%		LVC=150m K=427.598		L=187.801m -2.580%		LVC=160m K=39.730		L=22.723m 1.448%		L=55.373m 1.896%		LVC=150m K=29.841		L=377.076m -3.130%		LVC=160m K=68.733		L=327.110m 0.802%																																																																																																																																																									
HORIZONTAL ALIGNMENT	R=750.00m L=589.938m		L=40.666m		R=1500.00m L=127.666m		L=187.801m		R=230.00m L=182.307m		L=15.171m		R=115.00m L=106.221m		L=341.514m		R=850.00m L=91.093m		L=340.910m																																																																																																																																																											
SUPERELEVATION	RIGHT -3.6%		LEFT 3.6%		RIGHT -2.5%		LEFT 2.5%		RIGHT -6.0%		LEFT 6.0%		RIGHT -6.0%		LEFT 6.0%		RIGHT -2.5%		LEFT 2.5%		RIGHT -3.3%		LEFT 3.3%																																																																																																																																																							

APPROVED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 DRAWN BY: JW  
 DESIGNED BY: JW

**CLIENT**



**Kenya Rural Roads Authority**  
 Blue Shield Towers, Hospital Road, Upper Hill P.O. Box 48151 - 00100 Nairobi  
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**GENERAL MANAGER (DESIGN & CONSTRUCTION):** \_\_\_\_\_  
**DIRECTOR GENERAL (DESIGN & CONSTRUCTION):** \_\_\_\_\_

**REVISIONS**

DESCRIPTION	DATE

**CONSULTANT**



**ITEC Engineering Ltd.**  
 Infrastructure, Transportation & Environment  
 Consulting Engineers  
 in association with **MECE**

**PROJECT** DESIGN OF MASENO-KOMBEWA-KALANDINI (D245) ROAD & MASENO LOOP ROADS  
 WANG'AROT-KALANDINI PLAN AND PROFILE KM 2+800.000 - 4+200.000

DWG No: ITEC/MK/3  
 SHEET: 3 of 13  
 SCALE: 1:400  
 DATE: APRIL 2014



## Appendix 5-1 Road Asset Survey Sheet (1/2) for Paved Road

Road Name: \_\_\_\_\_

AADT: \_\_\_\_\_

Name of Surveyor \_\_\_\_\_

Road Length: \_\_\_\_\_

Survey Date: \_\_\_\_\_

ROW width: \_\_\_\_\_

### Typical Cross Section

#### Road Condition

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
1 Carriage way width	m				
2 Shoulder width (L)	m				
3 Shoulder width (R)	m				
4 Sidewalk width (L)	m				
5 Sidewalk width (R)	m				
6 Pavement thickness	cm				

#### Road Usability

A) Road Usability					
1	Average Roughness	mm/m			

#### Road User Comfort

B) Pavement, Shoulders and ROW					
1	Road Cleanliness	m2			ex. Heavily silted road edge area
2	Potholes	nos			ex. Dia>30cm : 30cm >Dia>15cm : Dia<15cm :
3	Cracking in flexible Pavement	m			ex. Cracks more than 3mm
4	Multiple cracks in the pavement	m2			ex. Arrigator cracks
5	Rutting	m2			
6	Ravelling	m2			
7	Loose pavement edges	m			
8	Height of shoulders vs. height of pavement	m			
9	Damaged Paved shoulders	m			
10	Cracks in Concrete Pavement	m			ex. Cracks more than 3mm
11	Damaged Interlocking Block Pavement	m2			
12	Medians	m			

## Appendix 5-1 Road Asset Survey Sheet (2/2) for Paved Road

**Road Name:** \_\_\_\_\_

**Road Length:** \_\_\_\_\_

**ROW width:** \_\_\_\_\_

**Name of Surveyor** \_\_\_\_\_

**Survey Date:** \_\_\_\_\_

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
<b>Road Durability</b>					
C) Drainage					
1	Side Drains (lined)	m			
2	Side Drains (unlined)	m			
3	Cross Culverts/Access Culverts	m			
4	Catch Basin	nos			
5	Scour Checks	nos			
6	Manholes and Gulleys	nos			
7					
D)Vegetation					
1	Vegetation free zone	m2			Carriage way +sidewalks
2	Outer/inner vegetation	m2			
3	Growth encroaching into vegetation free zone from the side or top	m2			
4	Trees within ROW	nos			
E) Structures					
1	Concrete structures	nos			Concrete br. Box culverts
2	Steel Structure	nos			Stell bridge/pedestrian br.
3	Expansion joints	nos			
4	River beds	nos			
F) Road furniture					
1	Information signs	nos			
2	Warning signs	nos			
3	Traffic rule signs	nos			
4	Guide post	nos			
5	kilometer posts	nos			
6	Road markings	m			
7	Street Lighting	nos			
8	Guard rail and pedestrian rail	m			
G) Profile and Road Width					
H) Embankment and Slopes					
1	Embankment slopes	m			
2	Slopes in cuts	m			

## Appendix 5-1 Road Asset Survey Sheet (1/2) for Paved Road

Road Name: \_\_\_\_\_

AADT: \_\_\_\_\_

Name of Surveyor \_\_\_\_\_

Road Length: \_\_\_\_\_

Survey Date: \_\_\_\_\_

ROW width: \_\_\_\_\_

### Typical Cross Section

#### Road Condition

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
1 Carriage way width	m				
2 Shoulder width (L)	m				
3 Shoulder width (R)	m				
4 Sidewalk width (L)	m				
5 Sidewalk width (R)	m				
6 Pavement thickness	cm				

#### Road Usability

A) Road Usability					
1	Average Roughness	mm/m			

#### Road User Comfort

B) Pavement, Shoulders and ROW					
1	Road Cleanliness	m2			ex. Heavily silted road edge area
2	Potholes	nos			ex. Dia>30cm : 30cm >Dia>15cm : Dia<15cm :
3	Cracking in flexible Pavement	m			ex. Cracks more than 3mm
4	Multiple cracks in the pavement	m2			ex. Arrigator cracks
5	Rutting	m2			
6	Ravelling	m2			
7	Loose pavement edges	m			
8	Height of shoulders vs. height of pavement	m			
9	Damaged Paved shoulders	m			
10	Cracks in Concrete Pavement	m			ex. Cracks more than 3mm
11	Damaged Interlocking Block Pavement	m2			
12	Medians	m			



## Appendix 5-1 Road Asset Survey Sheet (2/2) for Paved Road

**Road Name:** \_\_\_\_\_

**Road Length:** \_\_\_\_\_

**ROW width:** \_\_\_\_\_

**Name of Surveyor** \_\_\_\_\_

**Survey Date:** \_\_\_\_\_

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
<b>Road Durability</b>					
C) Drainage					
1	Side Drains (lined)	m			
2	Side Drains (unlined)	m			
3	Cross Culverts/Access Culverts	m			
4	Catch Basin	nos			
5	Scour Checks	nos			
6	Manholes and Gulleys	nos			
7					
D)Vegetation					
1	Vegetation free zone	m2			Carriage way +sidewalks
2	Outer/inner vegetation	m2			
3	Growth encroaching into vegetation free zone from the side or top	m2			
4	Trees within ROW	nos			
E) Structures					
1	Concrete structures	nos			Concrete br. Box culverts
2	Steel Structure	nos			Stell bridge/pedestrian br.
3	Expansion joints	nos			
4	River beds	nos			
F) Road furniture					
1	Information signs	nos			
2	Warning signs	nos			
3	Traffic rule signs	nos			
4	Guide post	nos			
5	kilometer posts	nos			
6	Road markings	m			
7	Street Lighting	nos			
8	Guard rail and pedestrian rail	m			
G) Profile and Road Width					
H) Embankment and Slopes					
1	Embankment slopes	m			
2	Slopes in cuts	m			

## Appendix 6-1 Service Level Selection Form (Paved Road)

Road Authority		
Contractor		
Project		
Road Name/Chainage		
Road Class	Standard Service Level	PH / PS
Inspected By		

Category	Service Scope	Service Criteria (PAVED ROAD)		Items to apply	Remark
					1. Selection of Service Criteria :In case there is no road asset to apply, the service criteria shall not be applied 2. Time allowance and Permissible Tolerance: modify according to site condition requirement
Road Usability	A) Road Usability	1	Passability		
		2	Road Works Advance Warning Sign		
		3	(Roughness)		
Road User Comfort	B) Pavement, Shoulders and ROW for Paved Roads	1	Road Cleanliness		
		2	Potholes		
		3	Cracking in flexible Pavement		
		4	Multiple cracks in the pavement		
		5	Rutting		
		6	Ravelling		
		7	Loose pavement edges		
		8	Height of shoulders vs. height of pavement		
		9	Paved shoulders		
		10	Cracks in Concrete Pavement		
		11	Interlocking Block Pavement		
		12	Medians		
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains (lined)		
		2	Side Drains, Mitre Drains and cut off drains (unlined)		
		3	Culverts and Access Drifts		
		4	Scour Checks, Gabions and other erosion protection structures		
		5	Manholes and Gulleys		
	D) Vegetation	1	Vegetation free zone		
		2	Outer/inner vegetation		
		3	Growth encroaching into vegetation free zone from the side or top		
		4	Trees within ROW		
	E) Structures	1	Concrete structures		
		2	Steel Structures		
		3	Expansion joints		
		4	Riverbeds		
	F) Road Furniture	1	Warning signs/Mandatory signs		
		2	Information signs, Edge marker posts, Guide posts, Kilometer Post		
		3	Traffic Signals		
		4	Street Lighting		
		5	Road Marking/Road Studs		
		6	Guard rails and pedestrian rails		
	G) Profile and Road width				
H) Embankment and Slopes	1	Embankment slopes			
	2	Slopes in Cuts			

## Appendix 6-1 Service Level Selection Form (Paved Road)

Road Authority		
Contractor		
Project		
Road Name/Chainage		
Road Class	Standard Service Level	PH / PS
Inspected By		

Category	Service Scope	Service Criteria (PAVED ROAD)		Items to apply	Remark
					1. Selection of Service Criteria :In case there is no road asset to apply, the service criteria shall not be applied 2. Time allowance and Permissible Tolerance: modify according to site condition requirement
Road Usability	A) Road Usability	1	Passability		
		2	Road Works Advance Warning Sign		
		3	(Roughness)		
Road User Comfort	B) Pavement, Shoulders and ROW for Paved Roads	1	Road Cleanliness		
		2	Potholes		
		3	Cracking in flexible Pavement		
		4	Multiple cracks in the pavement		
		5	Rutting		
		6	Ravelling		
		7	Loose pavement edges		
		8	Height of shoulders vs. height of pavement		
		9	Paved shoulders		
		10	Cracks in Concrete Pavement		
		11	Interlocking Block Pavement		
		12	Medians		
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains (lined)		
		2	Side Drains, Mitre Drains and cut off drains (unlined)		
		3	Culverts and Access Drifts		
		4	Scour Checks, Gabions and other erosion protection structures		
		5	Manholes and Gulleys		
	D) Vegetation	1	Vegetation free zone		
		2	Outer/inner vegetation		
		3	Growth encroaching into vegetation free zone from the side or top		
		4	Trees within ROW		
	E) Structures	1	Concrete structures		
		2	Steel Structures		
		3	Expansion joints		
		4	Riverbeds		
	F) Road Furniture	1	Warning signs/Mandatory signs		
		2	Information signs, Edge marker posts, Guide posts, Kilometer Post		
		3	Traffic Signals		
		4	Street Lighting		
		5	Road Marking/Road Studs		
		6	Guard rails and pedestrian rails		
	G) Profile and Road width				
H) Embankment and Slopes	1	Embankment slopes			
	2	Slopes in Cuts			



# Appendix 7 Daily Work Record Form

Sheet of

## Basic Information

Road Authority			
Contractor			
Project			
Road Name/Chainage			
Road Class		Standard Service Level	

## Date

Date		Weather	
------	--	---------	--

## PBC Work Operations

Chainage		Activity Description	Photo No,
From	To		

## Machinery, Truck

## Labor

Description	Plate No,	Photo No,	Category	number	Photo No,

## Materials Delivered to Site

## Materials Removed from Site

Description	Quantity	Photo No,	Description	Quantity	Photo No,

## Admission

Personal	Name	Sign	Date
Self Control Unit			
Road Manager			

# Appendix 8 Daily Patrol Record

Sheet of

### Basic Information

Road Authority			
Contractor			
Project			
Road Name/Chainage			
Road Class		Standard Service Level	

### Patrol

Date		Weather	
------	--	---------	--

### Cleanliness/Obstacles

Chainage	Time		Remarks	Photo No,
	Detection	Removal		

### Any other activities undertaken

Chainage	Objects, Condition, other information	Photo No,

### Admission

Personal	Name	Sign	Date
Self Control Unit			
Road Manager			

# Appendix 9 Photo Record

Sheet of

Road Authority			
Contractor			
Project			
Road Name and Chainage			
Road Class		Standard Service Level	

No,	DATE		DATE	
Photo	Photo file size : less than 300kB		Photo file size : less than 300kB	
Remarks				
No,	DATE		DATE	
Photo	Photo file size : less than 300kB		Photo file size : less than 300kB	
Remarks				
No,	DATE		DATE	
Photo	Photo file size : less than 300kB		Photo file size : less than 300kB	
Remarks				

# Appendix 10 Incident Condition and Activity Report

Sheet of

## Basic Information

Road Authority			
Contractor			
Project			
Road Name/Chainage			
Road Class		Standard Service Level	

## Incident

### Notification

Caller

Phone  
No,

Date/Time /Chainage or Location			
Information Resource	Road Authority, Police, Engineer, Road Users, Others( )		
Nature of Incident			
Location of Incident			
Condition of Accident Vehicles			
Number/Conditions of injured People			

## Description

## Site Condition

(Any road asset damaged by the accident)

Photo  
No,

Assets	Damage condition	Photo No,





# **Material C**

## **1) Self Inspection**

Appendix 11 Defect Detection and Rectification List

## **2) Formal Inspection**

Appendix 11 Defect Detection and Rectification List

## **3) Monthly Contractor's Evaluation**

Appendix 17 Monthly Evaluation Form

## 1) Self Inspection

1. Self Inspection is the most important work of SCU.
2. SCU inspect road every day.  
(4-5km/day)  
20km road --- 1 week interval  
50km road --- 2 week interval
3. SCU inspect service level of whole stretch of the road and note non-complied location by sub section.t (Appendix 11)
4. Use one sheet per Service Category
5. The list is submitted to RM. RM give instruction to Execution Unit to rectify the identified location immediately.
6. Respect work of SCU

## 2) Formal Inspection

1. Before go to the site, PM check documents from RM.
2. PM make plan of inspection.
3. Check if the SCU works because SCU is your eye.
4. Check Appendix 11, how SCU inspected and reported to RM.
5. Check randomly 1) complied section, then 2) non-complied section.
6. Use Appendix 11
7. If the report from the contractor is not sufficient, make corrective order using above appendix and supplemental inspection.

### 3) Monthly Evaluation

1. Evaluate following items on site at formal inspection
  - 2. Self-control unit performance
  - 3. Work safety management
  - 4. Environmental and social managment

# Appendix 11 Defect Detection/ Rectification Record Form

<b>Road Authority</b>						
<b>Contractor</b>						
<b>Project</b>				<b>Road Name</b>		
<b>Service Level</b>	<b>Category</b>					
	<b>Service Scope</b>					
	<b>Servie Criteria</b>					

No	Detection (to be filled by SCU or PM)			Rectification (to be filled by EXU)		Remark
	Date	Location	Description	Date	Compliance (Yes/No)	
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						
27						
28						
29						
30						43

## Appendix 11 Defect Detection/ Rectification Record Form

<b>Road Authority</b>						
<b>Contractor</b>						
<b>Project</b>				<b>Road Name</b>		
<b>Service Level</b>	<b>Category</b>					
	<b>Service Scope</b>					
	<b>Servie Criteria</b>					

No	Detection (to be filled by SCU or PM)			Rectification (to be filled by EXU)		Remark
	Date	Location	Description	Date	Compliance (Yes/No)	
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						
27						
28						
29						
30						44

# Appendix 11 Defect Detection/ Rectification Record Form

<b>Road Authority</b>						
<b>Contractor</b>						
<b>Project</b>				<b>Road Name</b>		
<b>Service Level</b>	<b>Category</b>					
	<b>Service Scope</b>					
	<b>Servie Criteria</b>					

No	Detection (to be filled by SCU or PM)			Rectification (to be filled by EXU)		Remark
	Date	Location	Description	Date	Compliance (Yes/No)	
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						
27						
28						
29						
30						45



Appendix 17 Monthly Evaluation Form

Number of elapsed month = 6

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality
Road Authority	KURA
Contractor	VESCOM Enterprise
Date of checking	2-Feb-16

	Name
Project manager	
Assistants	

This form is used by Project manager to verify monthly performance for contract evaluation.

Scope		Requirement		Pass or Fail*1
1	Service level compliance	1	Reduction rate for service level non-compliance is less than 5.0%	
2	Self-control unit performance	1	Self-control unit is organized by proper contractor's member	
		2	Self-control unit operates properly	
		Pass or fail in total*2		
3	Work Safety Management	1	Workers and operators wear proper safety gear	
		2	Traffic control is conducted properly	
		3	No accident of workers, operators attributable to the contractor	
		4	No accident of third-parties attributable to the contractor	
		Pass or fail in total*2		
4	Environment and social management	1	Environmental consideration is properly conducted	
		2	Waste material generated from the site is properly disposed	
		3	Transportation by vehicles is properly controlled	
		Pass or fail in total*2		
5	Corrective order	1	No corrective order is made by authority	
6	Statutory compliance	1	Contractor complied with relevant statutory regulations	

\*1 Filling Example: "Pass"="1" "Fail" = "0" "Not applicable" = "N/A"

\*2 Scoring criteria:

In case of having more than one requirement in each evaluation scope, all the requirements except not applicable case shall be passed for pass evaluation in tota

# Material D

## 1) Inspection Result

Appendix 12-1,13-1 Inspection result

## 2) Payment reduction

Appendix 14, 15 Payment reduction calculation

Appendix 16 Summary statement for payment

account

## 1) Inspection result

1. Note inspection result in Appendix 12 and 13
2. Judge compliance of the section

## 2) Payment Reduction

- (1) Preparation of Self Inspection Result Report Form (Appendix 12-1) and Summary Self Inspection Report Form (Appendix 13-1)
  - 1) Select the service criteria to be applied (1 for apply, 0 for not apply)
  - 2) Delete "0" from sub section evaluation
  - 3) Put evaluation
- (2) Adjustment of Reduction Weight ( in case there is Service Scope not to be applied) (Appendix 13)
  - 1) Adjust reduction weight to be the total weight to be 200%
- (3) Calculation of Payment reduction by Appendix 13.



**Appendix 13-1 (a) Summary Self Inspection Report Form (Paved Road)**

Sheet **1** of **1**

Project	KURA/RMLF/SR/267/2014-2015	Month, Year, Contract Month	Januaru	2016	7
Road Authority	KURA	Contractor	Vescom Enterprises		
Road Name/Chainage	Oginda- Odinga Rd	Road Class	Urban Road		
Standard Service Level	Paved Standard	Inspected Chainage /Number of Sub Sections	Km 0+000-6+700		6.7

**A. Document Verification**

Document	1	1	Work Program	1																
	1	2	Defect/Rctification List(Appendix 11)	1																
	1	3	Self Inspection Result Form (Appendix 12 and 13)	1																
	1	4	Payment Reduction Calculation Form (Appendix 14)	1																
	1	5	Monthly Statement (Appendix 15)	1																
Compliance				1																Compliance=1
																				1

**B. Site Verification**

Service	Service Scope	Selectio n*1	Performance Service criteria	Sub Section of Compliance ("Pass"=1, "Fail"=0)										Total Complie d (km)	Total Non-complie d (km) to payment reduction calculation sheet								
				1	2	3	4	5	6	7	8	9	10										
Road Usability	A) Road Usability	1	1 Passability	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		0	2 Road Works Advance Warning Sign	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	3 (Roughness)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0																					
		0	<b>Compliance of A)</b>		1	1	1	1	1	1	1	1	0.7									6.7	0.0
Road User Confort	B) Pavement, Shoulders and ROW for Paved Roads	1	1 Cleanliness of the road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		0	2 Potholes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	3 Cracking in flexible Pavement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	4 Multiple cracks in the pavement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	5 Rutting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	6 Ravelling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	7 Loose pavement edges	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	8 Height of shoulders vs. height of pavement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	9 Paved shoulders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	10 Cracks in Concrete Pavement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	11 Interlocking Block Pavement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	12 Medians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	<b>Compliance of B)</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	6.7
Road Durability	C) Drainage	1	1 Side Drains, Mitre Drains and cut off drains (lined)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		0	2 Side Drains, Mitre Drains and cut off drains (unlined)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	3 Culverts and Access Drifts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	4 Scour Checks, Gabions and other erosion protection structures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	5 Manholes and Gulleys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	<b>Compliance of C)</b>		1	1	1	1	1	1	1	1	0.7										6.7	0.0
	D) Vegetation	1	1 Vegetation free zone	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		0	2 Outer/inner vegetation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	3 Growth encroaching into vegetation free zone from the side or top	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	4 Trees within ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	<b>Compliance of D)</b>		1	1	1	1	1	1	1	1	0.7										6.7	0.0
	E) Structures	0	1 Concrete structures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	2 Steel Structures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	3 Expansion joints	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	4 Riverbeds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	<b>Compliance of E)</b>		1	1	1	1	1	1	1	1	0.7										6.7	0.0
	F) Road Furniture	1	1 Warning signs/Mandatory signs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		0	2 Information signs, Edge marker posts, Guide posts, Kilometer Pos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	3 Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	4 Street Lighting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0		5 Road Marking/Road Studs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
0		6 Guard rails and pedestrian rails	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
0	<b>Compliance of F)</b>		1	1	1	1	1	1	1	1	0.7										6.7	0.0	
G) Profile and Road width*only for	0																						
	0	<b>Compliance of G)</b>																					
H) Embankment and Slopes	0	1 Embankment slopes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	0	2 Slopes in Cuts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	0	<b>Compliance of H)</b>		1	1	1	1	1	1	1	1	0.7										6.7	0.0

**Note: In order for the service scope to be considered as pass, all the service criterias items under the service scope must be in compliance.**



**Appendix 13-1 (a) Summary Self Inspection Report Form (Paved Road)**

Project	KURA/RMLF/SR/267/2014-2015	Month, Year, Contract Month	Januaru	2016	7
Road Authority	KURA	Contractor	Vescom Enterprises		
Road Name/Chainage	Oginda- Odinga Rd	Road Class	Urban Road		
Standard Service Level	Paved Standard	Inspected Chainage /Number of Sub Sections	Km 0+000-6+700		6.7

**A. Document Verification**

Document	1	1	Work Program	1																	
	1	2	Defect/Rctification List(Appendix 11)	1																	
	1	3	Self Inspection Result Form (Appendix 12 and 13)	1																	
	1	4	Payment Reduction Calculation Form (Appendix 14)	1																	
	1	5	Monthly Statement (Appendix 15)	1																	
Compliance				1																Compliance=1	1

**B. Site Verification**

Service	Service Scope	Selectio n*1	Performance Service criteria	Sub Section of Compliance ("Pass"=1, "Fail"=0)										Total Complie d (km)	Total Non-complie d (km) to payment reduction calculation sheet											
				1	2	3	4	5	6	7	8	9	10													
Road Usability	A) Road Usability	1	1 Passability	1	1	1	1	1	1	1	1	1														
		1	2 Road Works Advance Warning Sign	1	1	1	1	1	1	1	1	1	1													
		0	3 (Roughness)																							
		0																								
		0																								
<b>Compliance of A)</b>				1	1	1	1	1	1	1	0.7										6.7	0.0				
Road User Confort	B) Pavement, Shoulders and ROW for Paved Roads	1	1 Cleanliness of the road	1	1	1	1	1	1	1	1	1														
		1	2 Potholes	1	1	1	1	1	1	1	1	1	1													
		1	3 Cracking in flexible Pavement	1	1	1	1	1	1	1	1	1	1													
		1	4 Multiple cracks in the pavement	1	1	1	1	1	1	1	1	1	1													
		1	5 Rutting	1	1	1	1	1	1	1	1	1	1													
		1	6 Ravelling	1	1	1	1	1	1	1	1	1	1													
		1	7 Loose pavement edges	1	1	1	1	1	1	1	1	1	1													
		1	8 Height of shoulders vs. height of pavement	1	1	1	1	1	1	1	1	1	1													
		1	9 Paved shoulders	1	1	1	1	1	1	1	1	1	1													
		0	10 Cracks in Concrete Pavement																							
		0	11 Interlocking Block Pavement																							
		0	12 Medians																							
		<b>Compliance of B)</b>				1	1	1	1	1	1	1	0.7											6.7	0.0	
Road Durabilit y	C) Drainage	0	1 Side Drains, Mitre Drains and cut off drains (lined)																							
		1	2 Side Drains, Mitre Drains and cut off drains (unlined)	1	1	1	0	1	1	1																
		1	3 Culverts and Access Drifts	1	1	1	0	1	1	1																
		0	4 Scour Checks, Gabions and other erosion protection structures																							
		0	5 Manholes and Gulleys																							
	<b>Compliance of C)</b>				1	1	1	0	1	1	0.7													5.7	1.0	
	D) Vegetation	1	1 Vegetation free zone	1	1	1	1	1	1	1	1															
		1	2 Outer/inner vegetation	1	1	1	0	1	1	1																
		1	3 Growth encroaching into vegetation free zone from the side or top	1	1	1	1	1	1	1																
		1	4 Trees within ROW	1	1	1	1	1	1	1	1															
	<b>Compliance of D)</b>				1	1	1	0	1	1	0.7														5.7	1.0
	E) Structures	0	1 Concrete structures																							
		0	2 Steel Structures																							
0		3 Expansion joints																								
0		4 Riverbeds																								
<b>Compliance of E)</b>																										
F) Road Furniture	1	1 Warning signs/Mandatory signs	1	1	1	1	1	1	1	1	1															
	1	2 Information signs, Edge marker posts, Guide posts, Kilometer Pos	1	1	1	0	1	1	1																	
	0	3 Traffic Signals																								
	1	4 Street Lighting	1	1	1	1	1	1	1	1	1															
	1	5 Road Marking/Road Studs	1	1	1	1	1	1	1	1	1															
	0	6 Guard rails and pedestrian rails																								
<b>Compliance of F)</b>				1	1	1	0	1	1	0.7														5.7	1.0	
G) Profile and Road width*only for	0																									
	0																									
	0																									
	<b>Compliance of G)</b>																									
H) Embankment and Slopes	0	1 Embankment slopes																								
	0	2 Slopes in Cuts																								
	0																									
	<b>Compliance of H)</b>																									

**Note: In order for the service scope to be considered as pass, all the service criterias items under the service scope must be in compliance.**

Appendix 14 Payment Reduction Calculation Table (Paved Road)

Project	KURA/RMLF/SR/267/2014-2015					Contract Period	12
Road Authority	KURA		Contractor	VESCOE Enterprise			
Road Name/ Class/ Chainage/ (j)Length	Goinga - Odinga Road			Road Class	Urban	6.7km	
Statement Month/ Year and Elapse of Month	January	2016	7	Standard Service Level		Paved Standard	

Contract Due Amount of the Month (x)      134,000      KSH

Service Level Criteria		Compliance			Reduction						
Service	Service Scope	(a) Contract Road Length (km)	(b) Required Target	(c)=(a)*(b) Target Length (km)	(d)=(a)-(c) Exemption Length (km)	(e) Non-Compliant Length (km)	(f)=(e)-(d) (>=0) Adjusted Non-Compliant Length (km)	(g)=(f)/(c) NON-Compliant Rate	(h) Reduction Weight	(i)=(g)*(h) Reduction Rate (%)	(j)=(c)x(i) Reduction Length (km)
Documentation		6.7	100%	6.7	-		-	0%		0.0%	0.00
1. Road Usability	A) Road Usability	6.7	100%	6.7	0.0		0.0	0%		0.0%	0.00
2. Road User Comfort	B) Pavement, Shoulders	6.7	100%	6.7	0.0		0.0	0%		0.0%	0.00
3. Road Durability	C) Drainage	6.7	100%	6.7	0.0		0.0	0%		0.0%	0.00
	D) Vegetation	6.7	100%	6.7	0.0		0.0	0%		0.0%	0.00
	E) Structures	Not Applied									0.00
	F) Road Furniture	6.7	100%	6.7	0.0		0.0	0%		0.0%	0.00
	G) Profile and Road Width (unpaved)	Not Applied									
	H) Embankment and Slopes	Not Applied									0.00
(k) Total =										0.0%	0.00

0% **<-Adjust Reduction weight to be 200%**

Required Target			
Elapse of Month	1. Road Usability	2. Road User Comfort	3. Road Durability
1	50%	50%	50%
2	100%	75%	75%
3	100%	100%	100%
4	100%	100%	100%
5	100%	100%	100%
6	100%	100%	100%
7~	100%	100%	100%

Calculation of the Payment Amount of the Month

Contract Due Amount of the Month	KSH	134,000	(x)
Reduction Rate	%	0.0%	(k)
Reduction Amount	KSH	0	(z)=(x)x(k)
Payment Amount of the Month	KSH	134,000	(y)=(x)-(z)



# Appendix 14 Payment Reduction Calculation Table (Paved Road)

Project	KURA/RMLF/SR/267/2014-2015					Contract Period	12
Road Authority	KURA		Contractor	VESCO M Enterprise			
Road Name/ Class/ Chainage/ (j)Length	Goinga - Odinga Road			Road Class	Urban	6.7km	
Statement Month/ Year and Elapse of Month	January	2016	7	Standard Service Level		Paved Standard	

Contract Due Amount of the Month (x)      134,000      KSH

Service Level Criteria		Compliance			Reduction						
Service	Service Scope	(a) Contract Road Length (km)	(b) Required Target	(c)=(a)*(b) Target Length (km)	(d)=(a)-(c) Exemption Length (km)	(e) Non-Compliant Length (km)	(f)=(e)-(d) (>=0) Adjusted Non-Compliant Length (km)	(g)=(f)/(c) NON-Compliant Rate	(h) Reduction Weight	(i)=(g)*(h) Reduction Rate (%)	(j)=(c)x(i) Reduction Length (km)
Documentation		6.7	100%	6.7	-	-	-	0%	4.6%	0.0%	0.00
1. Road Usability	A) Road Usability	6.7	100%	6.7	0.0	0.0	0.0	0%	46.0%	0.0%	0.00
2. Road User Comfort	B) Pavement, Shoulders	6.7	100%	6.7	0.0	0.0	0.0	0%	57.5%	0.0%	0.00
3. Road Durability	C) Drainage	6.7	100%	6.7	0.0	1.0	1.0	15%	34.5%	5.1%	0.34
	D) Vegetation	6.7	100%	6.7	0.0	1.0	1.0	15%	34.5%	5.1%	0.34
	E) Structures	Not Applied									0.00
	F) Road Furniture	6.7	100%	6.7	0.0	1.0	1.0	15%	23.0%	3.4%	0.23
	G) Profile and Road Width (unpaved)	Not Applied									
	H) Embankment and Slopes	Not Applied									0.00
(k) Total =										13.7%	0.92

200%

Required Target			
Elapse of Month	1. Road Usability	2. Road User Comfort	3. Road Durability
1	50%	50%	50%
2	100%	75%	75%
3	100%	100%	100%
4	100%	100%	100%
5	100%	100%	100%
6	100%	100%	100%
7~	100%	100%	100%

### Calculation of the Payment Amount of the Month

Contract Due Amount of the Month	KSH	134,000	(x)
Reduction Rate	%	13.7%	(k)
Reduction Amount	KSH	18,358	(z)=(x)x(k)
Payment Amount of the Month	KSH	115,642	(y)=(x)-(z)

## **Material E**

### 1) Monthly Evaluation and Contractor's Evaluation

Appendix 17 Monthly Evaluation

Appendix 18 Contractor's Evaluation

# Contractor's Evaluation

- (1) Use your result of Monthly Inspection in the field training (Appendix 17), Fill Monthly evaluation result of January 2016 into Contract Evaluation Tally Sheet and calculate the total score. (Appendix- 18).

Ans. Total evaluation score is

- (2) Calculate the score of Contractor's Evaluation in case of statutory penalty (Appendix 17 and 18)

Ans. Total evaluation score is

**Table 23-1 Evaluation Items and Pass/Fail Criteria**

Scope	Requirement (Pass Criteria)		Fail Criteria
Service level compliance	1	Service level compliance is confirmed according to formal inspection	Reduction rate for service level non-compliance is equal or more than 5%
Self-control unit performance	1	Self-control unit is managed by qualified and experienced contractor's staff member	Registered self-control unit member does not inspect their roads
	2	Self-control unit operates properly	Inspection record is not submitted to the client before formal inspection
Work Safety Management	1	Workers and operators wear proper safety gear	Workers and operators don't wear reflective jackets. Helmet is also needed in case of work using machinery.
	2	Traffic control is conducted properly	No traffic control (in case of work affecting traffic or without proper safety devices (e.g. sign board, cone, flag man)) and no tapered edge at the approach
	3	No accidents to workers, operators and other staff attributable to the contractor	Worker or operator or other staff is injured and have to be hospitalized for more than or equal to 3 days
	4	No accidents to third-parties attributable to contractor	Third-party person is injured or their property is damaged (any level of the accident is not allowed)
Environment and social management	1	Environmental consideration is properly conducted	Mitigation measures against noise, emission, or dust at residential area is not taken and while complaints are received
	2	Waste material generated from the site is properly disposed	Waste material is left at the site
	3	Transportation by vehicles is properly controlled	Overloading, material falling, leakage, or spillage is found
Corrective order	1	No corrective order is issued by authority	No remedy is made for instruction by the client so that corrective order is issued
Statutory compliance	1	Contractor complies with the relevant statutory regulations	Contractor violates relevant statutory regulations and sanction is enforced

Appendix 17 Monthly Evaluation Form

Number of elapsed month = 6

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality
Road Authority	KURA
Contractor	VESCOM Enterprise
Date of checking	2-Feb-16

	Name
Project manager	
Assistants	

This form is used by Project manager to verify monthly performance for contract evaluation.

Scope		Requirement		Pass or Fail*1
1	Service level compliance	1	Reduction rate for service level non-compliance is less than 5.0%	
2	Self-control unit performance	1	Self-control unit is organized by proper contractor's member	
		2	Self-control unit operates properly	
		Pass or fail in total*2		
3	Work Safety Management	1	Workers and operators wear proper safety gear	
		2	Traffic control is conducted properly	
		3	No accident of workers, operators attributable to the contractor	
		4	No accident of third-parties attributable to the contractor	
		Pass or fail in total*2		
4	Environment and social management	1	Environmental consideration is properly conducted	
		2	Waste material generated from the site is properly disposed	
		3	Transportation by vehicles is properly controlled	
		Pass or fail in total*2		
5	Corrective order	1	No corrective order is made by authority	
6	Statutory compliance	1	Contractor complied with relevant statutory regulations	

\*1 Filling Example: "Pass"="1" "Fail" = "0" "Not applicable" = "N/A"

\*2 Scoring criteria:

In case of having more than one requirement in each evaluation scope, all the requirements except not applicable case shall be passed for pass evaluation in tota

## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCOM Enterprise	
Date of Commencement	1-Jul-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	6	

	Date	Name	Signature
Project Manager	2-Feb-16		
Road Manager	2-Feb-16		

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation													(a)	(b)	(c)	(d)	(f)		
	No. of month with "Pass=1" in past years	Year (2016)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
1 Service level compliance																	50%			
2 Self-control unit performance																		10%		
3 Work safety management																		20%		
4 Environment and social management																		10%		
5 Corrective order issuance																		10%		
6 Statutory compliance																			-20	
<b>Total score</b>																			0	-20

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month

## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCOE Enterprise	
Date of Commencement	1-Jul-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	<b>0</b>	

	Date	Name	Signature
Project Manager			
Road Manager			

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation													(a)	(b)	(c)	(d)	(f)
	No. of month with "Pass=1" in past years	Year (2015)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
1 Service level compliance							0	0	0	1	1	1	3	50	50%	25		
2 Self-control unit performance							1	1	1	1	1	1	6	100	10%	10		
3 Work safety management							1	1	1	1	1	1	6	100	20%	20		
4 Environment and social management							1	1	1	1	1	1	6	100	10%	10		
5 Corrective order issuance							1	1	1	1	1	1	6	100	10%	10		
6 Statutory compliance							1	1	1	1	1	1	6	100			0	
<b>Total score</b>																<b>75</b>	<b>0</b>	

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month

## Appendix 17 Monthly Evaluation Form

Number of elapsed month = 6

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality
Road Authority	KURA
Contractor	VESCOM Enterprise
Date of checking	31-Jan-16

	Name
Project manager	
Assistants	

This form is used by Project manager to verify monthly performance for contract evaluation.

Scope		Requirement		Pass or Fail*1
1	Service level compliance	1	Reduction rate for service level non-compliance is less than 5.0%	0
2	Self-control unit performance	1	Self-control unit is organized by proper contractor's member	1
		2	Self-control unit operates properly	1
		Pass or fail in total*2		1
3	Work Safety Management	1	Workers and operators wear proper safety gear	1
		2	Traffic control is conducted properly	1
		3	No accident of workers, operators attributable to the contractor	1
		4	No accident of third-parties attributable to the contractor	1
		Pass or fail in total*2		1
4	Environment and social management	1	Environmental consideration is properly conducted	1
		2	Waste material generated from the site is properly disposed	1
		3	Transportation by vehicles is properly controlled	1
		Pass or fail in total*2		1
5	Corrective order	1	No corrective order is made by authority	1
6	Statutory compliance	1	Contractor complied with relevant statutory regulations	0

\*1 Filling Example: "Pass"="1" "Fail" = "0" "Not applicable" = "N/A"

\*2 Scoring criteria:

In case of having more than one requirement in each evaluation scope, all the requirements except not applicable case shall be passed for pass evaluation in tota



## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCOM Enterprise	
Date of Commencement	1-Feb-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	11	

	Date	Name	Signature
Project Manager	31-Jan-16		
Road Manager	31-Jan-16		

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation													(a)	(b)	(c)	(d)	(f)			
	No. of month with "Pass=1" in past years	Year (2016)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1			
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
1	Service relevel compliance																50%				
2	Self-control unit performance																10%				
3	Work safety management																20%				
4	Environment and social management																10%				
5	Corrective order issuance																10%				
6	Statutory compliance																				
<b>Total score</b>																					

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month

## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCO Enterprise	
Date of Commencement	1-Feb-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	0	

	Date	Name	Signature
Project Manager			
Road Manager			

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation													(a)	(b)	(c)	(d)	(f)				
	No. of month with "Pass=1" in past years	Year (2015)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1				
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
1 Service relevel compliance			0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	90.9	50%	45	
2 Self-control unit performance			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	10%	10	
3 Work safety management			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	20%	20	
4 Environment and social management			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	10%	10	
5 Corrective order issuance			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	10%	10	
6 Statutory compliance			1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	10	90.9			-20
											<b>Total score</b>					95	-20					
																<b>75</b>						

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month



# **Material F**

## 1) Cost Survey and Computation of Productivity (Demonstration)

Form 1 Site layout

Form 2 Work Record

Form 3 Productivity calculation

Samples

**Form 1 Site Layout**

<b>Date:</b>	<b>Start Time:</b>	<b>End Time:</b>
<b>Location:</b>	<b>Weather:</b>	

### Form 2 Work Record Form

Date \_\_\_\_\_ Weather \_\_\_\_\_ Inspected by \_\_\_\_\_  
 Location \_\_\_\_\_ Contractors Name \_\_\_\_\_

Work Item	Number of workers	Start time	End time	workin hours	Work measurement	Work volume	Unit	Remark

**Form-3**

**Productivity Survey Summary Form**

**Labor Based Works**

Location		Client		Site		Weather		Initial Mobilization Period / Routine Maintenance						
Width of Road Reserve (Wr)		Width of Carriage Way (Wc)		Left Lined Ditch (LL)		Right Lined Ditch (RL)		Grass Cutting Width (GW)=(Wr)-(Wc)-(LL)-(RL)	0.00 m	Total Length		Number of Labors		men

Worked Items	Asset Quantity								Labour Input					SRUQ			Remarks (Equipment)
	Simple Quantity			Actual Quantity		Work Difficulty			Foreman	Supervisor	Labors			(4) Simple SRUQ (man day/Qty)	(5) Actual SRUQ (man day/Qty)		
	Q'ty	Unit	Remarks	Q'ty (Vol)	Unit	-Heavy -Normal -Light	Remark	nos	nos	nos	working hours	j=e×f	Man day				
	a			b				c	d	e	f						
1) Grass Cutting(1) / Left		m2	GW x L		m2	Normal						0	0				
Grass Cutting(2) / Right		m2	GW x L		m2	Normal						0	0				
2) Cross Culvert(1)		Pcs			Pcs							0	0				
		m			m							0	0				
3) Cross Culvert(2)		Pcs			Pcs							0	0				
		m			m							0	0				
4) Catch Basin / Cover(1)		Pcs			Pcs							0	0				
5) Catch Basin / Cover(2)		Pcs			Pcs							0	0				
6) Catch Basin / No cover(1)		Pcs			Pcs							0	0				
7) Catch Basin / No cover(2)		Pcs			Pcs							0	0				
8) Lined Side Ditch(1)		m	L		m	Light						0	0				
9) Lined Side Ditch(2)		m	L		m	Light						0	0				
10) Unlined Side ditch(1)		m	L		m							0	0				
11) Unlined Side ditch(2)		m	L		m							0	0				
12) Carriage De-sliting(1)		m2	Lx1.0 (m)		m2	Light						0	0				
13) Carriage De-sliting(2)		m2	Lx1.0 (m)		m2	Light						0	0				
Total												0	0				

Note)

To use one sheet per day

To fill only the number of workers who are engaged in PBC works

Total number of workers or equipment shall tally the number of workers or equipment for PBC works on site.

To specify structures to be maintained

To fill the maintained Q'ty which includes places/areas that don't require any actual maintenance works

0.0  
Man Day

1day = 7 working hours

Ex.

Grass cutting of 10,000m<sup>2</sup> completed in 5 man-days. This means each person completes 2,000m<sup>2</sup> in a day

$$P/R = 2,000\text{m}^2/\text{man-day}$$

$$\text{SRUQ} = 5 \text{ man-days}/10,000\text{m}^2 = 0.0005 \text{ man-days/m}^2$$

Productivity surveys can be used to collect:

- Simple quantities
- Actual quantities
- Km. Standardized quantities

**Productivity Survey**

- The aim of the survey is to establish productivity rates via collection of data which will be used for cost estimation purposes for PBC projects.
- Productivity rate (P/R) is the quantity/volume of work that can be done in a person-day (ex. grass cutting 2,000m<sup>2</sup>/person-day)
- Standard Resource Usage per (Unit) Quantity (SRUQ) is the ratio of the number of person-days per volume of work completed (ex. Grass cutting: 5 person-days/10,000m<sup>2</sup>). SRUQ is the inverse of P/R.

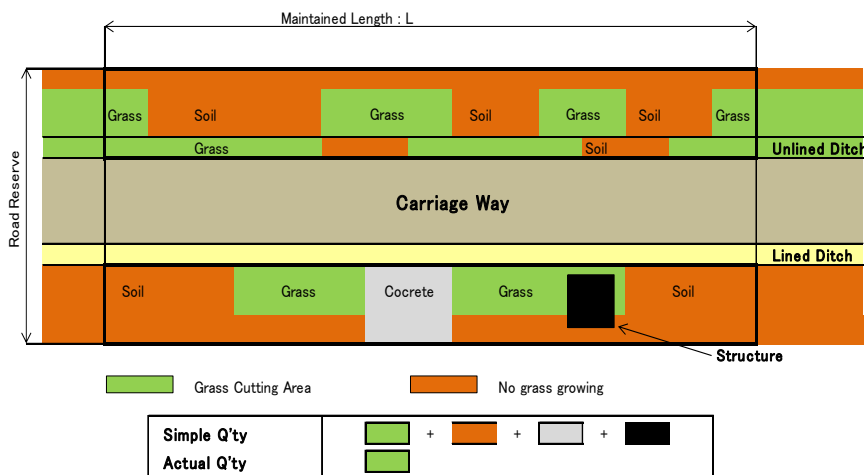
Ex. Grass Cutting : Simple Vs. Actual Q'ty

**Productivity Survey – Ralph Bunches Rd.**

**Procedures:**

Form 1: Site layout sheet:

1. Indicate the date, start - end time of activities, weather condition and location.
2. In the sketch draw the cross section of the road, measure the features of the road within the right of way like the width of the carriageway, side walks, grass area on either sides, width of drains etc...
3. The inspector is to monitor work progress of each activity on a 1hr interval. If the activity takes a shorter time, then the inspector will indicate time accordingly.





## **Productivity Survey – Ralph Bunches Rd.**



### **Procedures Cont'd – 1**

4. The inspector is also to monitor and record the movement of workers from one activity to another. They are to record the quantity of work done and the time it took to finish the activity
5. As each activity is completed, indicate it's linear length. Also measure and indicate the start to end point of activities at the end of the day.
6. Productivity is based on statistical surveys.

## **Procedures Cont'd - 2**



Form 2: Productivity Survey Form:

1. In the productivity survey form, indicate the date, weather, location, contractor's name, and the inspector.
2. For each work item, you must indicate the number of workers, start-end time, working hours for that activity, work measurement, work volume, unit of measurement and any remarks. Remarks can include indicating the level of work being heavy, normal or light.

## **Procedures Cont'd - 3**



Form 3: Productivity Survey Summary Form:

1. Data from the " Site Layout Sheet" can now be transferred to the "Productivity Survey Summary Form".
2. Data to be transferred includes width of the road reserve, width of the carriageway, No. of kerb stones, total maintained length, total working hours, total no. of workers. You should also indicate the "Road Condition"
3. Under "Actual measurements", fill in the "Work Volume" data from form-2 for work done on site.
4. Under "Labor", fill in the number of workers and their working hours.
5. Under "Productivity" the excel sheet will calculate "Actual Productivity" in item No. 5

## **Procedures Cont'd - 4**



Form 3: Productivity Survey Summary Form:

6. For each activity, the inspector should indicate the level of work difficulty (heavy, normal or light) under "Measurements" in the "Remarks(1)" column.
7. Heavy work loads are usually experienced during IMP, normal work load during wet season and light work loads during the dry season.



## **Procedures Cont'd - 5**

Form 3: Productivity Survey Summary Form:

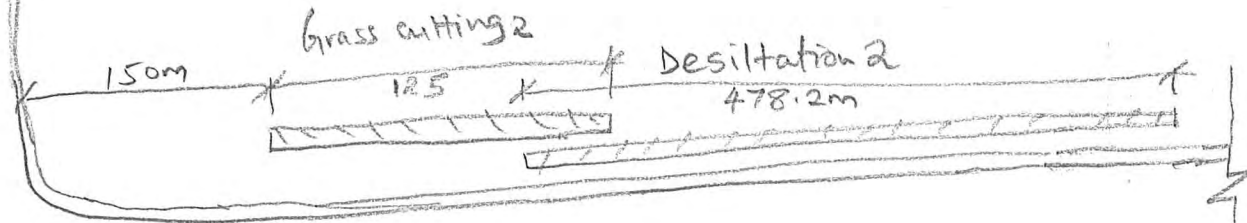
1. Under "Labor", fill in the number of workers and their working hours.
2. Under "Productivity" the excel sheet will calculate "Simple/Actual Productivity" SRUQ's in item No. 5

### **PR Survey Result Summary Form**

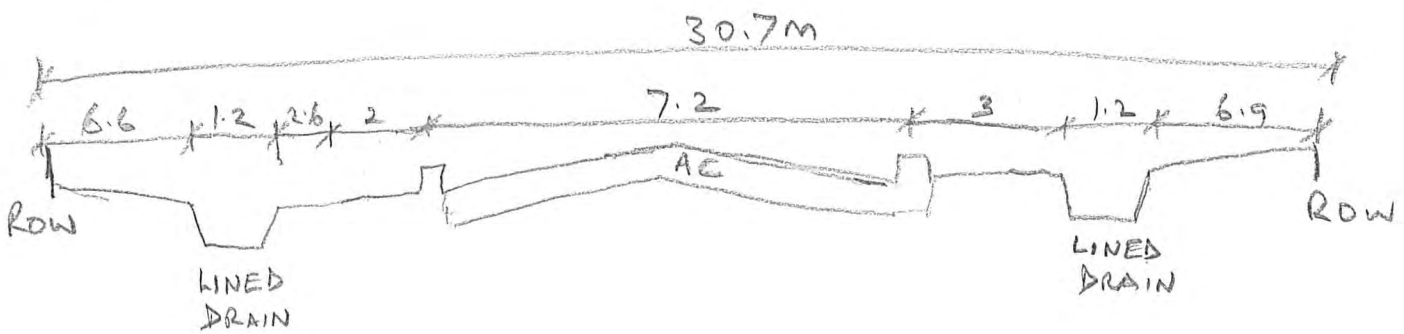
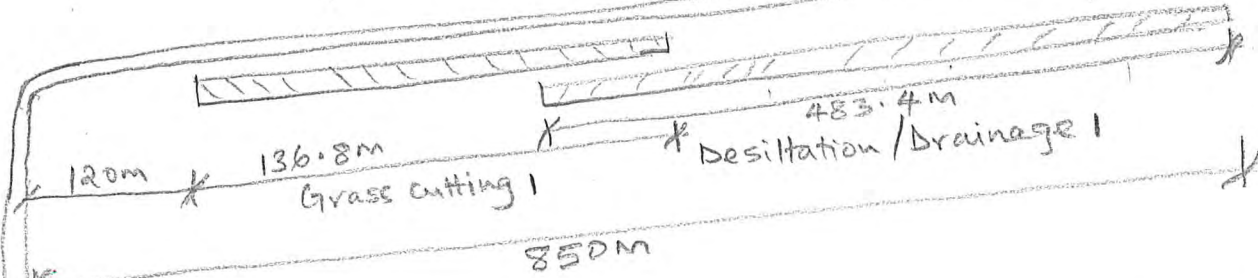
1. The simple/actual SRUQ's are transferred to the "PR survey results summary" excel sheet, classified and averaged into 3 work level categories of SRUQ's: heavy, normal & light.

Date: 25/02/2015	Start Time: 9.00am	End Time: 1.00p.m
Location: PROCESSIONAL WAY	Weather: SUNNY	

State house Road



ProceSSIONAL Way



### PBC Contract Work Productivity Survey Form

Date \_\_\_\_\_ Weather Sunny Inspected by \_\_\_\_\_  
 Location Professional way Contractors Name Hanot

Work Item	Number of workers	Start time	End time	workin hours	Work measurement	Work volume	Unit	Remark
Drainage 1 Right	$\frac{1}{2}$	9am	10am	1	L=164.6 w=.55 d=.01	.9053	m <sup>3</sup>	very little silt,
		10am	11am	1	L=122.6 w=.55 d=.01	.6743	m <sup>3</sup>	
		11am	12p	1	L=139 w=.55 d=.01	<del>.3146</del> .7645	m <sup>3</sup>	
		12pm	1 PM	1	L=57.2 w=.55 d=.01	.3146	m <sup>3</sup>	
				4 hrs	L=483.4	2.659	m <sup>3</sup>	
					120.85 m/hr. $\frac{1}{2}$ p	.665 m <sup>3</sup> /hr. $\frac{1}{2}$ p		
Sitation 1 Right	$\frac{1}{2}$	9am	10am	1	L=164.6 w=.25	41.15	m <sup>2</sup>	silt is very minimal
		10am	11am	1	L=114 w=.25	28.5	m <sup>2</sup>	
		11am	12pm	1	L=45 w=.25	11.25	m <sup>2</sup>	
		12p	1 p	1	L=138.7 w=.25	34.675	m <sup>2</sup>	
				4hr	462.3 m	115.58m <sup>2</sup>		
					115.58 m/hr. 4p	28.90 m <sup>2</sup> /hr. $\frac{1}{2}$ p		
Grass 1 Right	2	9	10	1	L=42.5 w=6.3	267.75	m <sup>2</sup>	
		10	11	1	L=36.1 w=6.3	227.43	m <sup>2</sup>	
		11	12pm	1	L=21.5 w=6.5	139.75	m <sup>2</sup>	
		12	1p	1	L=36.7 w=6.5	238.55	m <sup>2</sup>	
				4hr	136.8m	873.5m <sup>2</sup>		
					34.2 m <sup>2</sup> /hr. 2p	218.4 m <sup>2</sup> /hr. 2p		

### PBC Contract Work Productivity Survey Form

Date \_\_\_\_\_ Weather \_\_\_\_\_ Inspected by \_\_\_\_\_  
 Location \_\_\_\_\_ Contractors Name \_\_\_\_\_

Work Item	Number of workers	Start time	End time	workin hours	Work measurement	Work volume	Unit	Remark
Grass 2 left	2	9 am	10	1	L=38.5 W=5.5	211.75	m <sup>2</sup>	
		10	11	1	L=21.5 W=6.5	139.75	m <sup>2</sup>	
		11	12 pm	1	L=38 W=7.9	300.2	m <sup>2</sup>	
		12	1 P	1	L=27 W=11	297	m <sup>2</sup>	
				4hr	125m	948.7m <sup>2</sup>		
					31.25 m/hr .2 P	237.2m <sup>2</sup> /hr .2 P		
siltation 2 Left	1	9	10	1	L=194.5 W=.25	48.75	m <sup>2</sup>	
		10	11	1	L=83.7 W=.25	20.93	m <sup>2</sup>	
		11	12 P	1	L=100 W=.25	25	m <sup>2</sup>	
		12	1 pm	1	L=100 W=.25	25	m <sup>2</sup>	
				4hr	478.2 m	119.68m <sup>2</sup>		
					119.55 m/hr .1 P	29.92m <sup>2</sup> /hr .1 P		

Form-6(new)  
Productivity Survey Summary Form

Project Lot No.10						Date 25/02/2015	
Location/Region Nairobi		Client Kura		Site Processional Way		Weather Sunny	
Width of Road reserve (Wr) 30.7		Width of Carriage Way (Wc) 7.2		No of Curve stones (Nc)		2	
				Maintained Width (Wm = Wr - Wc + Nc)		25.5	
						Total Length (o) 483.4	
						Total number of wokers (p) 6	
Instruction made by Site Agent or Supervisor		The road was previously under PBC maintenance.		Road Condition		Initial mobilization Period, the road is asphalt paved	
						Total Work Area (m2) = Wm x (o) 12,327	
						Total working time hours 4	
						day 0.6	
						Total number of Man Day (p) 3.4	

Average productivity (P) (m2/M day) 3,595.3

Result	Measurement						Input						Productivity							
	Simple measurement			Actual measurement			Site Agent	Supervisor	Skilled Labor		Labor		(1)Actual Productivity/hr/Group		(2)Actual Productivity/hr/worker		(3)Average Productivity		(4) Actual Productivity by item	
	Length	Qty	Remark(1)	Length	Qty	nos			working hours	nos	working hours	nos	working hours	length	Volume	length	volume	unit Qty=10000m2		Man day/Qty
	a=(o)	b	c	d	e	f	g	h	i	j	ixj	k=c/j	l=d/j	m=k/(g+i)	n=l/(g+i)	P/R1 (=10,000/(P)) Man day/10,000m2	P/R2 =1/(PR1) M day/m2	p=(g+i)xj/d/7	Remarks(2) equipment	
1 Grass Cutting(1)	483.4	m	6,163 m <sup>2</sup>	136.8	m	873.5 m <sup>2</sup>				2	4	8	34.200	218.375	17.100	109.188			0.0013	
2 Grass Cutting(2)	483.4	m	6,163 m <sup>2</sup>	125.0	m	948.7 m <sup>2</sup>				2	4	8	31.250	237.175	15.625	118.588			0.0012	Grass was short
3 Cross Culvert(1)	483.4	m	pcs		m	pcs							0	-	-	-			-	
4 Cross Culvert(2)	483.4	m	pcs		m	pcs							0	-	-	-			-	
5 Catch Basin / Cover(1)	483.4	m	m <sup>3</sup>		m	m <sup>3</sup>							0	-	-	-			-	
6 Catch Basin / Cover(2)	483.4	m	m <sup>3</sup>		m	m <sup>3</sup>							0	-	-	-			-	
7 Catch Basin / No cover(1)	483.4	m	nos		m	nos							0	-	-	-			-	
8 Catch Basin / No cover(2)	483.4	m	nos		m	nos							0	-	-	-			-	
9 Lined Side Ditch(1) /de-silted volume	483.4	m	m <sup>3</sup>	483.4	m	2,659 m <sup>3</sup>			0.5	4	2	120.850	0.665	241.700	1.330			0.1075	very little silt	
10 Lined Side Ditch(2) /de-silted volume	483.4	m	m <sup>3</sup>		m	m <sup>3</sup>							0	-	-	-			-	
11 Unlined Side ditch(1) / de-silted volume	483.4	m	m		m	m <sup>3</sup>							0	-	-	-			-	
12 Unlined Side ditch(2) / de-silted volume	483.4	m	m <sup>3</sup>		m	m <sup>3</sup>							0	-	-	-			-	
11 Carriage De-siting(1) / de-silted area	483.4	m	m <sup>2</sup>	462.3	m	115.58 m <sup>2</sup>			0.5	4	2	115.575	28.895	231.150	57.790			0.0025	very little silt	
12 Carriage De-siting(2) / de-silted area	483.4	m	m <sup>2</sup>	478.2	m	119.68 m <sup>2</sup>			1	4	4	119.550	29.920	119.550	29.920			0.0048	very little silt	
Total									0	6	20	24								

Note) To use one sheet per day

To fill only the number of workers who are engaged in PBC works

Total number of workers or equipment shall tally the number of workers or equipment for PBC works on site.

To specify structures to be maintained

To fill the maintained Qty which includes places/areas that don't require any actual maintenance works

3.4  
Man Day

1day = 7 working hours



# Blank Forms



## Appendix 5-1 Road Asset Survey Sheet (1/2) for Paved Road

Road Name: \_\_\_\_\_

AADT: \_\_\_\_\_

Name of Surveyor \_\_\_\_\_

Road Length: \_\_\_\_\_

Survey Date: \_\_\_\_\_

ROW width: \_\_\_\_\_

### Typical Cross Section

#### Road Condition

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
1 Carriage way width	m				
2 Shoulder width (L)	m				
3 Shoulder width (R)	m				
4 Sidewalk width (L)	m				
5 Sidewalk width (R)	m				
6 Pavement thickness	cm				

#### Road Usability

A) Road Usability					
1	Average Roughness	mm/m			

#### Road User Comfort

B) Pavement, Shoulders and ROW					
1	Road Cleanliness	m2			ex. Heavily silted road edge area
2	Potholes	nos			ex. Dia>30cm : 30cm >Dia>15cm : Dia<15cm :
3	Cracking in flexible Pavement	m			ex. Cracks more than 3mm
4	Multiple cracks in the pavement	m2			ex. Arrigator cracks
5	Rutting	m2			
6	Ravelling	m2			
7	Loose pavement edges	m			
8	Height of shoulders vs. height of pavement	m			
9	Damaged Paved shoulders	m			
10	Cracks in Concrete Pavement	m			ex. Cracks more than 3mm
11	Damaged Interlocking Block Pavement	m2			
12	Medians	m			

## Appendix 5-1 Road Asset Survey Sheet (2/2) for Paved Road

**Road Name:** \_\_\_\_\_

**Road Length:** \_\_\_\_\_

**ROW width:** \_\_\_\_\_

**Name of Surveyor** \_\_\_\_\_

**Survey Date:** \_\_\_\_\_

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
<b>Road Durability</b>					
C) Drainage					
1	Side Drains (lined)	m			
2	Side Drains (unlined)	m			
3	Cross Culverts/Access Culverts	m			
4	Catch Basin	nos			
5	Scour Checks	nos			
6	Manholes and Gulleys	nos			
7					
D)Vegetation					
1	Vegetation free zone	m2			Carriage way +sidewalks
2	Outer/inner vegetation	m2			
3	Growth encroaching into vegetation free zone from the side or top	m2			
4	Trees within ROW	nos			
E) Structures					
1	Concrete structures	nos			Concrete br. Box culverts
2	Steel Structure	nos			Stell bridge/pedestrian br.
3	Expansion joints	nos			
4	River beds	nos			
F) Road furniture					
1	Information signs	nos			
2	Warning signs	nos			
3	Traffic rule signs	nos			
4	Guide post	nos			
5	kilometer posts	nos			
6	Road markings	m			
7	Street Lighting	nos			
8	Guard rail and pedestrian rail	m			
G) Profile and Road Width					
H) Embankment and Slopes					
1	Embankment slopes	m			
2	Slopes in cuts	m			

## Appendix 5-2 Road Asset Survey Sheet (1/2) for Unpaved Road

Road Name: \_\_\_\_\_

AADT: \_\_\_\_\_

Name of Surveyor \_\_\_\_\_

Road Length: \_\_\_\_\_

Survey Date: \_\_\_\_\_

ROW width: \_\_\_\_\_

Typical Cross Section

**Road Condition**

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
1 Carriage way width	m				
2 Shoulder width (L)	m				
3 Shoulder width (R)	m				
4 Sidewalk width (L)	m				
5 Sidewalk width (R)	m				
6 Pavement thickness	cm				

**Road Usability**

A) Road Usability					
1	Average Roughness	mm/m			
2	Average Traffic Speed				

**Road User Comfort**

B) Pavement, Shoulders and ROW					
1	Road Cleanliness	km			
2	Corrugation Amplitude	nos			
3	Rut Depth				
4	Potholes				

## Appendix 5-2 Road Asset Survey Sheet (2/2) for Unpaved Road

Road Name: \_\_\_\_\_

Road Length: \_\_\_\_\_

ROW width: \_\_\_\_\_

Road Name: \_\_\_\_\_

Survey Date: \_\_\_\_\_

Item	Unit	Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
<b>Road Durability</b>					
C) Drainage					
1	Side Drains (lined)	m			
2	Side Drains (unlined)	m			
3	Cross Culverts	m			
4	Catch Basin	nos			
5	Scour Checks	nos			
6		nos			
7					
D)Vegetation					
1	Vegetation free zone	m2			
2	Outer/inner vegetation	m2			
3	Growth encroaching into vegetation free zone from the side	m2			
4	trees within ROW	nos			
E) Structures					
1	Concrete structures	nos			
2	Expansion joints	nos			
3	River beds	nos			
F) Road furniture					
1	Information signs	nos			
2	Warning signs	nos			
3	Traffic rule signs	nos			
4	Guide post	nos			
5	kilometer posts	nos			
G) Profile and Road Width					
1	Gravel Thickness				
2	Camber				
3	Usable Road Surface Width				
H) Embankment and Slopes					
1	Embankment slopes	m			
2	Slopes in cuts	m			

**Appendix 6-1 Service Level Selection Form (Paved Road)**

Road Authority		
Contractor		
Project		
Road Name/Chainage		
Road Class	Standard Service Level	PH / PS
Inspected By		

Category	Service Scope	Service Criteria (PAVED ROAD)		Items to apply	Remark
					1. Selection of Service Criteria :In case there is no road asset to apply, the service criteria shall not be applied 2. Time allowance and Permissible Tolerance: modify according to site condition requirement
Road Usability	A) Road Usability	1	Passability		
		2	Road Works Advance Warning Sign		
		3	(Roughness)		
Road User Comfort	B) Pavement, Shoulders and ROW for Paved Roads	1	Road Cleanliness		
		2	Potholes		
		3	Cracking in flexible Pavement		
		4	Multiple cracks in the pavement		
		5	Rutting		
		6	Ravelling		
		7	Loose pavement edges		
		8	Height of shoulders vs. height of pavement		
		9	Paved shoulders		
		10	Cracks in Concrete Pavement		
		11	Interlocking Block Pavement		
		12	Medians		
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains (lined)		
		2	Side Drains, Mitre Drains and cut off drains (unlined)		
		3	Culverts and Access Drifts		
		4	Scour Checks, Gabions and other erosion protection structures		
		5	Manholes and Gulleys		
	D) Vegetation	1	Vegetation free zone		
		2	Outer/inner vegetation		
		3	Growth encroaching into vegetation free zone from the side or top		
		4	Trees within ROW		
	E) Structures	1	Concrete structures		
		2	Steel Structures		
		3	Expansion joints		
		4	Riverbeds		
	F) Road Furniture	1	Warning signs/Mandatory signs		
		2	Information signs, Edge marker posts, Guide posts, Kilometer Post		
		3	Traffic Signals		
		4	Street Lighting		
		5	Road Marking/Road Studs		
		6	Guard rails and pedestrian rails		
	G) Profile and Road width				
H) Embankment and Slopes	1	Embankment slopes			
	2	Slopes in Cuts			

## Appendix 6-2 Service Level Selection Form (Unpaved Road)

Road Authority		
Contractor		
Project		
Road Name/Chainage		
Road Class	Standard Service Level	UNH / UNS
Inspected By		

Category	Service Scope	Service Criteria (UNPAVED ROAD)		Items to apply	Remark 1. Selection of Service Criteria :In case there is no road asset to apply, the service criteria shall not be applied 2. Time allowance and Permissible Tolerance: modify according to site condition requirement
		No.	Description		
Road Usability	A) Road Usability	1	Passability		
		2	Traffic Regulatory Control Signs		
		3	Road Works Advance Warning Sign		
		4	Average Traffic Speed or Roughness		
		5	Minimum Traffic Speed		
Road User Comfort	B) Pavement, Shoulders and ROW for Paved Roads	1	Road Cleanliness		
		2	Corrugation Amplitude		
		3	Rut Depth		
		4	Potholes		
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains		
		2	Culverts and Access Drifts		
		3	Scour Checks, Gabions and other erosion protection structures		
	D) Vegetation	1	Vegetation free zone		
		2	Outer/inner vegetation		
		3	Growth encroaching into vegetation free zone from the side or top		
		4	Trees within ROW		
	E) Structures	1	Concrete structures		
		2	Expansion joints		
		3	Riverbeds		
	F) Road Furniture	1	Warning signs/Mandatory signs		
		2	Information signs, Edge marker posts, Guide posts, Kilometre Post		
		3	Guard rails and pedestrian rails		
	G) Profile and Road width	1	Gravel Thickness		
		2	Camber		
		3	Usable Road Surface Width		
H) Embankment and Slopes	1	Embankment slopes			
	2	Slopes in Cuts			

# Appendix 7 Daily Work Record Form

Sheet of

## Basic Information

Road Authority			
Contractor			
Project			
Road Name/Chainage			
Road Class		Standard Service Level	

## Date

Date		Weather	
------	--	---------	--

## PBC Work Operations

Chainage		Activity Description	Photo No,
From	To		

## Machinery, Truck

## Labor

Description	Plate No,	Photo No,	Category	number	Photo No,

## Materials Delivered to Site

## Materials Removed from Site

Description	Quantity	Photo No,	Description	Quantity	Photo No,

## Admission

Personal	Name	Sign	Date
Self Control Unit			
Road Manager			

# Appendix 8 Daily Patrol Record

Sheet of

## Basic Information

Road Authority			
Contractor			
Project			
Road Name/Chainage			
Road Class		Standard Service Level	

## Patrol

Date		Weather	
------	--	---------	--

## Cleanliness/Obstacles

Chainage	Time		Remarks	Photo No,
	Detection	Removal		

## Any other activities undertaken

Chainage	Objects, Condition, other information	Photo No,

## Admission

Personal	Name	Sign	Date
Self Control Unit			
Road Manager			



# Appendix 9 Photo Record

Sheet of

Road Authority			
Contractor			
Project			
Road Name and Chainage			
Road Class		Standard Service Level	

No,	DATE		DATE	
Photo	Photo file size : less than 300kB		Photo file size : less than 300kB	
Remarks				
No,	DATE		DATE	
Photo	Photo file size : less than 300kB		Photo file size : less than 300kB	
Remarks				
No,	DATE		DATE	
Photo	Photo file size : less than 300kB		Photo file size : less than 300kB	
Remarks				

# Appendix 10 Incident Condition and Activity Report

Sheet of

## Basic Information

Road Authority			
Contractor			
Project			
Road Name/Chainage			
Road Class		Standard Service Level	

## Incident Notification

Caller  Phone No,

Date/Time /Chainage or Location			
Information Resource	Road Authority, Police, Engineer, Road Users, Others( )		
Nature of Incident			
Location of Incident			
Condition of Accident Vehicles			
Number/Conditions of injured People			

## Description

## Site Condition (Any road asset damaged by the accident)

Photo No,

Assets	Damage condition	Photo No,

# Appendix 11 Defect Detection/ Rectification Record Form

<b>Road Authority</b>						
<b>Contractor</b>						
<b>Project</b>				<b>Road Name</b>		
<b>Service Level</b>	<b>Category</b>					
	<b>Service Scope</b>					
	<b>Servie Criteria</b>					

No	Detection (to be filled by SCU or PM)			Rectification (to be filled by EXU)		Remark
	Date	Location	Description	Date	Compliance (Yes/No)	
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						
27						
28						
29						
30						88





**Appendix 13-1 (a) Summary Self Inspection Report Form (Paved Road)**

Project		Month, Year, Contract Month			
Road Authority		Contractor			
Road Name/Chainage		Road Class			
Standard Service Level		Inspected Chainage /Number of Sub Sections	Km 0+000-6+700	6.7	

**A. Document Verification**

Document	No.	Description	Compliance										Total Compliance	Compliance=1
			1	2	3	4	5	6	7	8	9	10		
	1	1 Work Program												
	1	2 Defect/Rctification List(Appendix 11)												
	1	3 Self Inspection Result Form (Appendix 12 and 13)												
	1	4 Payment Reduction Calculation Form (Appendix 14)												
	1	5 Monthly Statement (Appendix 15)												
Compliance														0

**B. Site Verification**

Service	Service Scope	Selectio n*1	Performance Service criteria	Sub Section of Compliance ("Pass"=1, "Fail"=0)										Total Complie d (km)	Total Non-complie d (km) to payment reduction calculation sheet
				1	2	3	4	5	6	7	8	9	10		
Road Usability	A) Road Usability	1	Passability												
		2	Road Works Advance Warning Sign												
		3	(Roughness)												
		<b>Compliance of A)</b>											0.0	6.7	
Road User Confort	B) Pavement, Shoulders and ROW for Paved Roads	1	Cleanliness of the road												
		2	Potholes												
		3	Cracking in flexible Pavement												
		4	Multiple cracks in the pavement												
		5	Rutting												
		6	Ravelling												
		7	Loose pavement edges												
		8	Height of shoulders vs. height of pavement												
		9	Paved shoulders												
		10	Cracks in Concrete Pavement												
		11	Interlocking Block Pavement												
		12	Medians												
		<b>Compliance of B)</b>											0.0	6.7	
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains (lined)												
		2	Side Drains, Mitre Drains and cut off drains (unlined)												
		3	Culverts and Access Drifts												
		4	Scour Checks, Gabions and other erosion protection structures												
		5	Manholes and Gulleys												
	<b>Compliance of C)</b>											0.0	6.7		
	D) Vegetation	1	Vegetation free zone												
		2	Outer/inner vegetation												
		3	Growth encroaching into vegetation free zone from the side or top												
		4	Trees within ROW												
	<b>Compliance of D)</b>											0.0	6.7		
	E) Structures	1	Concrete structures												
		2	Steel Structures												
		3	Expansion joints												
		4	Riverbeds												
	<b>Compliance of E)</b>											0.0	6.7		
	F) Road Furniture	1	Warning signs/Mandatory signs												
		2	Information signs, Edge marker posts, Guide posts, Kilometer Pos												
		3	Traffic Signals												
		4	Street Lighting												
5		Road Marking/Road Studs													
6		Guard rails and pedestrian rails													
<b>Compliance of F)</b>											0.0	6.7			
G) Profile and Road width*only for Unpaved.	<b>Compliance of G)</b>														
	<b>Compliance of G)</b>														
H) Embankment and Slopes	1	Embankment slopes													
	2	Slopes in Cuts													
	<b>Compliance of H)</b>											0.0	6.7		

**Note: In order for the service scope to be considered as pass, all the service criterias items under the service scope must be in compliance.**

**Appendix 13-1 (a) Summary Self Inspection Report Form (Paved Road)**

Project	ABC Road PBC Maintenance Project	Month, Year, Contract Month	September	2014	3
Road Authority	KeNHA or KURA or KeRRA or KWS	Contractor	XYZ Contractor		
Road Name/Chainage	ABC Road	Road Class	A, B, C, D, E, Unclassified, Urban Road		
Standard Service Level	High or Standard	Inspected Chainage /Number of Sub Sections	Km 0+00-10+00	10	

**A. Document Verification**

Document	1	1	Work Program	1														
	1	2	Defect/Rctification List(Appendix 11)	1														
	1	3	Self Inspection Result Form (Appendix 12 and 13)	1														
	1	4	Payment Reduction Calculation Form (Appendix 14)	1														
	1	5	Monthly Statement (Appendix 15)	1														
Compliance				1														Compliance=1 1

**B. Site Verification**

Service	Service Scope	Selectio n*1	Performance Service criteria	Sub Section of Compliance ("Pass"=1, "Fail"=0)										Total Complie d (km)	Total Non-complie d (km) to payment reduction calculation sheet					
				1	2	3	4	5	6	7	8	9	10							
Road Usability	A) Road Usability	1	1 Passability	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		1	2 Road Works Advance Warning Sign	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	3 (Roughness)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0	<b>Compliance of A)</b>			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10.0	0.0
Road User Confort	B) Pavement, Shoulders and ROW for Paved Roads	1	1 Road Cleanliness	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		1	2 Potholes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	3 Cracking in flexible Pavement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	4 Multiple cracks in the pavement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	5 Rutting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	6 Ravelling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	7 Loose pavement edges	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	8 Height of shoulders vs. height of pavement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	9 Paved shoulders	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	10 Cracks in Concrete Pavement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	11 Interlocking Block Pavement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	12 Medians	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0	<b>Compliance of B)</b>			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10.0	0.0	
Road Durability	C) Drainage	1	1 Side Drains, Mitre Drains and cut off drains (lined)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		1	2 Side Drains, Mitre Drains and cut off drains (unlined)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	3 Culverts and Access Drifts	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	4 Scour Checks, Gabions and other erosion protection structures	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	5 Manholes and Gulleys	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0	<b>Compliance of C)</b>			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10.0	0.0
	D) Vegetation	1	1 Vegetation free zone	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	2 Outer/inner vegetation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	3 Growth encroaching into vegetation free zone from the side or top	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	4 Trees within ROW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0	<b>Compliance of D)</b>			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10.0	0.0
	E) Structures	1	1 Concrete structures	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	2 Steel Structures	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	3 Expansion joints	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	4 Riverbeds	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0	<b>Compliance of E)</b>			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10.0	0.0
	F) Road Furniture	1	1 Warning signs/Mandatory signs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	2 Information signs, Edge marker posts, Guide posts, Kilometer Pos	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	3 Traffic Signals	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1	4 Street Lighting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1		5 Road Marking/Road Studs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1		6 Guard rails and pedestrian rails	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
0	<b>Compliance of F)</b>			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10.0	0.0	
G) Profile and Road width*only for Unpaved.	0																			
	0																			
	0																			
0	<b>Compliance of G)</b>																			
H) Embankment and Slopes	1	1 Embankment slopes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	1	2 Slopes in Cuts	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	0																			
0	<b>Compliance of H)</b>			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10.0	0.0	

**Note: In order for the service scope to be considered as pass, all the service criterias items under the service scope must be in compliance.**

Appendix 14 Payment Reduction Calculation Table (Paved Road)

Project							Contract Period	
Road Authority				Contractor				
Road Name/ Class/ Chainage/ (j)Length					Road Class		10.0km	
Statement Month/ Year and Elapse of Month				Standard Service Level			High or Standard	

Contract Due Amount of the Month (x)   KSH

Service Level Criteria		Compliance			Reduction						
Service	Service Scope	(a) Contract Road Length (km)	(b) Required Target	(c)=(a)*(b) Target Length (km)	(d)=(a)-(c) Exemption Length (km)	(e) Non-Compliant Length (km)	(f)=(e)-(d) (>=0) Adjusted Non-Compliant Length (km)	(g)=(f)/(c) NON-Compliant Rate	(h) Reduction Weight	(i)=(g)*(h) Reduction Rate (%)	(j)=(c)x(i) Reduction Length (km)
Documentation		10.0	100%	10.0	-	-	-	0%	4%	0.0%	0.00
1. Road Usability	A) Road Usability	10.0	100%	10.0	0.0		0.0	0%	40%	0.0%	0.00
2. Road User Comfort	B) Pavement, Shoulders	10.0	100%	10.0	0.0		0.0	0%	50%	0.0%	0.00
3. Road Durability	C) Drainage	10.0	100%	10.0	0.0		0.0	0%	30%	0.0%	0.00
	D) Vegetation	10.0	100%	10.0	0.0		0.0	0%	30%	0.0%	0.00
	E) Structures	10.0	100%	10.0	0.0		0.0	0%	20%	0.0%	0.00
	F) Road Furniture	10.0	100%	10.0	0.0		0.0	0%	20%	0.0%	0.00
	G) Profile and Road Width (unpaved)	Not Applied									
	H) Embankment and Slopes	10.0	100%	10.0	0.0		0.0	0%	6%	0.0%	0.00
									(k) Total =	0.0%	0.00

200%

Required Target			
Elapse of Month	1. Road Usability	2. Road User Comfort	3. Road Durability
1	50%	50%	50%
2	100%	75%	75%
3	100%	100%	100%
4	100%	100%	100%
5	100%	100%	100%
6	100%	100%	100%
7~	100%	100%	100%

Calculation of the Payment Amount of the Month

<b>Contract Due Amount of the Month</b>	KSH	<b>0</b>	(x)
<b>Reduction Rate</b>	%	<b>0.0%</b>	(k)
<b>Reduction Amount</b>	KSH	<b>0</b>	(z)=(x)x(k)
<b>Payment Amount of the Month</b>	KSH	<b>0</b>	(y)=(x)-(z)



# Appendix 15 Payment Reduction Calculation Table (Unpaved Road)

Project	ABC Road PBC Maintenance Project				Contract Period	24
Road Authority	KeNHA or KURA or KeRRA or KWS	Contractor	XYZ Contractor			
Road Name/ Class/ Chainage/ (j)Length	ABC Road			Road Class	A, B, C, D, E, Unclassified, Urban Road 15.0km	
Statement Month/ Year and Elapse of Month	September	2014	1	Standard Service Level	High or Standard	

Contract Due Amount of the Month (x) 500,000

KSH

Service Level Criteria		Compliance			Reduction						
Service	Service Scope	(a) Contract Road Length (km)	(b) Required Target	(c)=(a)*(b) Target Length (km)	(d)=(a)-(c) Exemption Length (km)	(e) Non-Compliant Length (km)	(f)=(e)-(d) (>=0) Adjusted Non-Compliant Length (km)	(g)=(f)/(c) NON-Compliant Rate	(h) Reduction Weight	(i)=(g)*(h) Reduction Rate (%)	(j)=(c)x(i) Reduction Length (km)
Documentation		15.0	100%	15.0	-	-	-	0%	4%	0.0%	0.00
1. Road Usability	A) Road Usability	15.0	50%	7.5	7.5	0.0	0.0	0%	40%	0.0%	0.00
2. Road User Confort	B) Pavement, Shoulders	15.0	50%	7.5	7.5	0.0	0.0	0%	40%	0.0%	0.00
3. Road Durability	C) Drainage	15.0	50%	7.5	7.5	0.0	0.0	0%	30%	0.0%	0.00
	D) Vegetation	15.0	50%	7.5	7.5	0.0	0.0	0%	30%	0.0%	0.00
	E) Structures	15.0	50%	7.5	7.5	0.0	0.0	0%	20%	0.0%	0.00
	F) Road Furniture	15.0	50%	7.5	7.5	0.0	0.0	0%	20%	0.0%	0.00
	G) Profile and Road Width (unpaved)	15.0	50%	7.5	7.5	0.0	0.0	0%	10%	0.0%	0.00
	H) Embankment and Slopes	15.0	50%	7.5	7.5	0.0	0.0	0%	6%	0.0%	0.00
(k) Total =										0.0%	0.00

200%

Required Target			
Elapse of Month	1. Road Usability	2. Road User Comfort	3. Road Durability
1	50%	50%	50%
2	100%	75%	75%
3	100%	100%	100%
4	100%	100%	100%
5	100%	100%	100%
6	100%	100%	100%
7~	100%	100%	100%

### Calculation of the Payment Amount of the Month

Contract Due Amount of the Month	KSH	500,000	(x)
Reduction Rate	%	0%	(k)
Reduction Amount	KSH	0	(z)=(x)x(k)
Payment Amount of the Month	KSH	500,000	(y)=(x)-(z)

## Appendix 16 Summary of Statement for Payment Account (Monthly Statement)

**Contract No.**

Contract Name: PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR...						CERTIFICATE NO.	
Contractor:						VALUATION AS AT	
CONTRACT SUM :			Region			Fin. Year	
			Administrative Boundary:			Month	
			Previous Certificate (Kshs)	This Certificate (Kshs)	Total (Kshs)		
A. PBC Works *(x) of Payment Reduction Calculation Table(Appendix 14 or 15)							-
B. Instructed Works *if included in the contract			-	-			-
C. Sub-total of (A+B)			-	-			-
D. REDUCTION FOR NON-COMPLIANCE							
*(z) of Payment Reduction Calculation Table(Appendix 14 or 15)							-
E. Sub-total of (C+D)			-	-			-
<b>TOTAL VALUE OF WORK (E)</b>			-	-			-
F. ADD 16% VAT (16% of E)			-	-			-
G. LESS 5 % RETENTION			-	-			-
H. LESS 3% WITHHOLDING TAX			-	-			-
I. CUMMULATIVE DEDUCTIONS (G+H)			-	-			-
J. TOTAL PAYMENT (E+F-I)			-	-			-
K. ADVANCE PAYMENT			-	-			-
L. RECOVERY OF ADVANCE			-	-			-
M. INTEREST ON LATE PAYMENTS			-	-			-
N.LESS LIQUIDATED DAMAGES			-	-			-
O. NET PAYMENT			-	-			-
			LESS PREVIOUS CERTIFICATES				-
			NOW DUE TO CONTRACTOR				-

Submitted by

\_\_\_\_\_ Date.....  
 Contractor

\_\_\_\_\_ Date.....  
 TEAM LEADER

I hereby confirm the above rates &  
 quantities are correct

Checked by  
 \_\_\_\_\_ Date.....  
 SUPERVISOR

\_\_\_\_\_ Date.....  
 ENGINEER (GM(M))

Appendix 17 Monthly Evaluation Form

Number of elapsed month =

Project Title	
Road Authority	
Contractor	
Date of checking	

	Name
Project manager	
Assistants	

This form is used by Project manager to verify monthly performance for contract evaluation.

Scope		Requirement		Pass or Fail*1
1	Service level compliance	1	Reduction rate for service level non-compliance is less than 5.0%	
2	Self-control unit performance	1	Self-control unit is organized by proper contractor's member	
		2	Self-control unit operates properly	
		Pass or fail in total*2		
3	Work Safety Management	1	Workers and operators wear proper safety gear	
		2	Traffic control is conducted properly	
		3	No accident of workers, operators attributable to the contractor	
		4	No accident of third-parties attributable to the contractor	
		Pass or fail in total*2		
4	Environment and social management	1	Environmental consideration is properly conducted	
		2	Waste material generated from the site is properly disposed	
		3	Transportation by vehicles is properly controlled	
		Pass or fail in total*2		
5	Corrective order	1	No corrective order is made by authority	
6	Statutory compliance	1	Contractor complied with relevant statutory regulations	

\*1 Filling Example: "Pass"="1" "Fail" = "0" "Not applicable" = "N/A"

\*2 Scoring criteria:

In case of having more than one requirement in each evaluation scope, all the requirements except not applicable case shall be passed for pass evaluation in tota

## Appendix 18 Contract Evaluation Tally Sheet for PBC

Project Title	
Road Authority	
Contractor	
Date of Commencement	
Expected date of Completion	
Number of elapsed months in the end of last year	

	Date	Name	Signature
Project Manager			
Road Manager			

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	No. of month with "Pass=1" in past years	Monthly Evaluation												(a)	(b)	(c)	(d)	(f)			
		Year (2015)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1			
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
1															0		50%	0	/		
2															0		10%	0	/		
3															0		20%	0	/		
4															0		10%	0	/		
5															0		10%	0	/		
6															0		/	/	0		
<b>Total score</b>																				0	0

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month

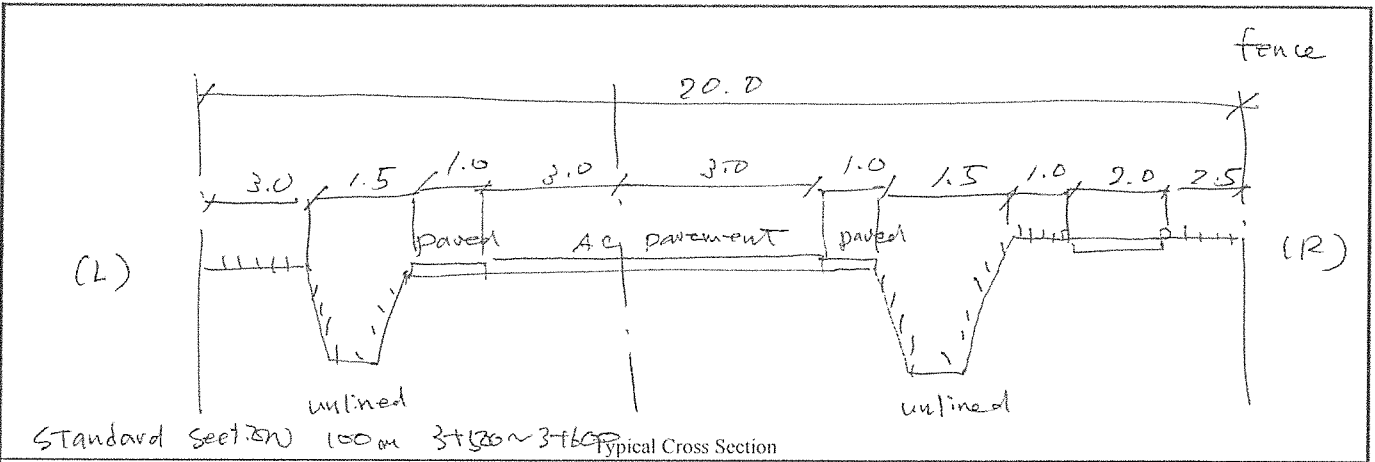


# Sample Forms

### Appendix 5-1 Road Asset Survey Sheet (1/2) for Paved Road

Road Name: Oginga - Odinga  
 Name of Surveyor: Robert  
 Survey Date: 27/0/2016

AADT: \_\_\_\_\_  
 Road Length: 6.7 Km  
 ROW width: 20 m



Standard Section 100m 3+3+3+3+6+3+6+3 Typical Cross Section

**Road Condition**

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
1 Carriage way width	m	6.0			
2 Shoulder width (L)	m	1.0			/
3 Shoulder width (R)	m	1.0			
4 Sidewalk width (L)	m	-			
5 Sidewalk width (R)	m	2.0			
6 Pavement thickness	cm	10			

**Road Usability**

A) Road Usability					
1 Average Roughness	mm/m	3.0		visual inspection	/

**Road User Comfort**

B) Pavement, Shoulders and ROW					
1 Road Cleanliness	m <sup>2</sup>	200	-	ex. Heavily silted road edge area 1.0m x 100m x 2 sides = 200m <sup>2</sup>	/
2 Potholes	nos	-	8	ex. Dia>30cm : 0 30cm > Dia>15cm : 3 Dia<15cm : 5	
3 Cracking in flexible Pavement	m	-	-	ex. Cracks more than 3mm	
4 Multiple cracks in the pavement	m <sup>2</sup>	-	-	ex. Arrigator cracks	
5 Rutting	m <sup>2</sup>	-	-		
6 Ravelling	m <sup>2</sup>	-	-		
7 Loose pavement edges	m	-	-		
8 Height of shoulders vs. height of pavement	m	-	-		
9 Damaged Paved shoulders	m	-	-		
10 Cracks in Concrete Pavement	m	-	-	ex. Cracks more than 3mm	
11 Damaged Interlocking Block Pavement	m <sup>2</sup>	-	-		
12 Medians	m	-	-		

### Appendix 5-1 Road Asset Survey Sheet (2/2) for Paved Road

Name of Surveyor: Robert  
 Survey Date: 27/01/2016

Road Name: Odinga - Odinga RD  
 Road Length: 6.7km  
 ROW width: 20m

Item	Unit	Simple Quantity	Actual Quantity	Dimension and Condition	Remark (ex.Qty to be Instructed Works)
<b>Road Durability</b>					
<b>C) Drainage</b>					
1	Side Drains (lined)	m	—		
2	Side Drains (unlined)	m	200	<del>X</del> 100	$\frac{1}{2} (R) \text{ fully sited } L=100m$ $100m \times 2 = 200m$
3	Cross Culverts/Access Culverts	m	8.0		
4	Catch Basin	nos	—		
5	Scour Checks	nos	—		
6	Manholes and Gulleys	nos	—		
7					
<b>D) Vegetation</b>					
1	Vegetation Free Zone	m <sup>2</sup>	1000	$10 \times 100 = 1000$	Carriage way +sidewalks
2	Inner Vegetation Zone	m <sup>2</sup>	100	$1.0 \times 100 = 100$	
3	Outer Vegetation Zone	m <sup>2</sup>	600	$(2.5 + 3.5) \times 100 = 600$	
4	Trees within ROW	nos			
<b>E) Structures</b>					
1	Concrete structures	nos	—		Concrete br. Box culverts
2	Steel Structure	nos	—		Stell bridge/pedestrian br.
3	Expansion joints	nos	—		
4	River beds	nos	—		
<b>F) Road furniture</b>					
1	Information signs	nos	—		
2	Warning signs	nos	—		
3	Traffic rule signs	nos	—		
4	Guide post	nos	—		
5	kilometer posts	nos	—		
6	Road markings	m	300	$100 \times 3 = 300$	
7	Street Lighting	nos	—		
8	Guard rail and pedestrian rail	m	—		
<b>G) Profile and Road Width</b>					
<b>H) Embankment and Slopes</b>					
1	Embankment slopes	m	—		
2	Slopes in cuts	m	—		



## Appendix 6-1 Service Level Selection Form (Paved Road)

Road Authority	KURA		
Contractor			
Project	KURA/RMLF/SE/267/2014-2015		
Road Name/Chainage	Oginga- Odinga Road		
Road Class	Urban	Standard Service Level	PH / PS
Inspected By	Robert		

Category	Service Scope	Service Criteria (PAVED ROAD)		Items to apply	Remark
					1. Selection of Service Criteria :In case there is no road asset to apply, the service criteria shall not be applied 2. Time allowance and Permissible Tolerance: modify according to site condition requirement
Road Usability	A) Road Usability	1	Passability	✓	
		2	Road Works Advance Warning Sign	✓	
		3	(Roughness)	—	
Road User Comfort	B) Pavement, Shoulders and ROW for Paved Roads	1	Road Cleanliness	✓	
		2	Potholes	✓	
		3	Cracking in flexible Pavement	✓	
		4	Multiple cracks in the pavement	✓	
		5	Rutting	✓	
		6	Ravelling	✓	
		7	Loose pavement edges	✓	
		8	Height of shoulders vs. height of pavement	✓	
		9	Paved shoulders	✓	
		10	Cracks in Concrete Pavement	—	no concrete pavement
		11	Interlocking Block Pavement	—	no interlocking pavement
		12	Medians	—	no median
Road Durability	C) Drainage	1	Side Drains, Mitre Drains and cut off drains (lined)	✓	
		2	Side Drains, Mitre Drains and cut off drains (unlined)	✓	
		3	Culverts and Access Drifts	✓	
		4	Scour Checks, Gabions and other erosion protection structures	—	no scour checks
		5	Manholes and Gulleys	—	no manholes and gulleys
	D) Vegetation	1	Vegetation free zone	✓	
		2	Outer/inner vegetation	✓	
		3	Growth encroaching into vegetation free zone from the side or top	✓	
		4	Trees within ROW	✓	
	E) Structures	1	Concrete structures	—	No bridge
		2	Steel Structures	—	No steel structures
		3	Expansion joints	—	no brides
		4	Riverbeds	—	No crossing rivers
	F) Road Furniture	1	Warning signs/Mandatory signs	✓	
		2	Information signs, Edge marker posts, Guide posts, Kilometer Post	✓	
		3	Traffic Signals	—	No traffic signals
		4	Street Lighting	✓	
		5	Road Marking/Road Studs	✓	
		6	Guard rails and pedestrian rails	—	No guard rails
	G) Profile and Road width				
H) Embankment and Slopes	1	Embankment slopes	—	No embankment slopes	
	2	Slopes in Cuts	—	No slides in cuts	

**Appendix 11 Defect Detection/ Rectification Record Form**

Road Authority	KURA		
Contractor	VESCOM ENTERPRISES		
Project	KURA/RMLT/SR/267/2014-2015	Road Name	Oginga-Ddinga RD
Service Level	Category	ROAD DURABILITY	
	Service Scope		
	Service Criteria		

No	Detection (to be filled by SCU or PM)			Rectification (to be filled by EXU)		Remark
	Date	Location	Description	Date	Compliance (Yes/No)	
1	27/01/2016	3+500 ~ 3+600	Drainage			
2			- side drain (R) } silted	1/02/2016	YES	
3			- side drain (L) }	1/02/2016	YES	
4			Vegetation			
5			- outer Vegetation (L)	1/02/2016	YES	
6						
7		3+600 ~ 3+700	Drainage			
8			- side drain (R) - silted	1/02/2016	YES	
9						
10		3+700 ~ 3+800	Drainage			
11			- side drain (L)(R)	1/02/2016	YES	
12			- culvert siltation	1/02/2016	YES	
13			Vegetation			
14			- inner/outer (R)	1/02/2016	YES	
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

~~Formal Inspection~~

# Appendix 7 Daily Work Record Form

Sheet of

## Basic Information

Road Authority	KURA		
Contractor	Vescom Enterprises		
Project	KURA / RMLF / SR / 267 / 2014 - 2015		
Road Name/Chainage			
Road Class	Urban	Standard Service Level	Paved standard

## Date

Date	26/1/16	Weather	Sunny
------	---------	---------	-------

## PBC Work Operations

Chainage		Activity Description	Photo No,
From	To		
0+00	0+100	Cutting <sup>inner zone</sup> <del>outer</del> Vegetation / de-silting lined drain	1
		desilting unlined drains	2, 3

## Machinery, Truck

## Labor


Description	Plate No,	Photo No,	Category	number	Photo No,

## Materials Delivered to Site

## Materials Removed from Site

Description	Quantity	Photo No,	Description	Quantity	Photo No,

## Admission

Personal	Name	Sign	Date
Self Control Unit	Jamal		26/1/16
Road Manager			

# Appendix 8 Daily Patrol Record

Sheet of

## Basic Information

Road Authority	KURA		
Contractor	Vescom Enterprises		
Project	KURA / RMLF / SR / 267 / 2014-2015		
Road Name/Chainage			
Road Class	Urban	Standard Service Level	Paved standard

## Patrol

Date	26/1/16	Weather	Sunny
------	---------	---------	-------


## Cleanliness/Obstacles

Chainage	Time		Remarks	Photo No,
	Detection	Removal		
0+00-0+100	10 am		siltation / obstruction in drain (R)	1
	10 am		inner <del>zone</del> zone vegetation along section 58	2
	10:45 am		unlined drain silted	3

## Any other activities undertaken

Chainage	Objects, Condition, other information	Photo No,




## Admission

Personal	Name	Sign	Date
Self Control Unit	Jared O		26/1/16
Road Manager			

# Appendix 9 Photo Record

Sheet of

Road Authority	KURA		
Contractor	Vescom Enterprises		
Project	KURA/RMLF/SR/267/2014-2015		
Road Name and Chainage			
Road Class	Urban	Standard Service Level	P.S

No.	1	DATE	2016/1/26	2	DATE	2016/1/26
10:00 AM						
Remarks	desiltint lined drain, removal of obstructions			Cutting inner zone vegetation		
No.	3	DATE	2016/1/26		DATE	
10:45 AM				Photo file size : less than 300kB		
Remarks	desiltint un-lined drain					
No.		DATE			DATE	
Photo	Photo file size : less than 300kB			Photo file size : less than 300kB		
Remarks						

**Basic Information**

Road Authority	KURA		
Contractor	Vescom Enterprises		
Project	KURA / RMLF / SR / 267 / 2014-2015		
Road Name/Chainage			
Road Class	Urban	Standard Service Level	Paved standard

**Incident Notification**

Caller **Robert** Phone No, **072299 4398**

Date/Time /Chainage or Location	26/1/16	11am	0400 - 0500	government road
Information Resource	Road Authority, Police, Engineer, <u>Road Users</u> , Others( )			
Mature of Incident	An out of control car hits a light pole			
Location of Incident	government road 0400 0500			
Condition of Accident Vehicles	Private saloon car			
Number/Conditions of injured People	NO injuries, one person involved (driver)			

**Description**

A private saloon car lost control and hit a light pole, the pole fell to the ground and was damaged but the light is in good condition. The car has light front bumper damage and the driver is OK. No other person was injured.

**Site Condition**

(Any road asset damaged by the accident)

Assets	Damage condition	Photo No,
light pole	- The pole fell on the ground, it's deformed and will need to be replaced.	



Appendix 13-1 (a) Summary Self Inspection Report Form (Paved Road)

Project	KURA/RMLF/SR/267/2014-2015	Month, Year, Contract Month	Januaru	2016	7
Road Authority	KURA	Contractor	Vescom Enterprises		
Road Name/Chainage	Oginda- Odinga Rd	Road Class	Urban Road		
Standard Service Level	Paved Standard	Inspected Chainage /Number of Sub Sections	Km 0+000-6+700		6.7

A. Document Verification

Document	1	1	Work Program	1															
	1	2	Defect/Rctification List(Appendix 11)	1															
	1	3	Self Inspection Result Form (Appendix 12 and 13)	1															
	1	4	Payment Reduction Calculation Form (Appendix 14)	1															
	1	5	Monthly Statement (Appendix 15)	1															
Compliance			1																Compliance=1
																			1

B. Site Verification

Service	Service Scope	Selection n*1	Performance Service criteria	Sub Section of Compliance ("Pass"=1, "Fail"=0)										Total Complied (km)	Total Non-complied (km) to payment reduction calculation sheet						
				1	2	3	4	5	6	7	8	9	10								
Road Usability	A) Road Usability	1	1 Passability	1	1	1	1	1	1	1	1	1									
		1	2 Road Works Advance Warning Sign	1	1	1	1	1	1	1	1	1	1								
		0	3 (Roughness)																		
		0																			
		0																			
			<b>Compliance of A)</b>	1	1	1	1	1	1	1	0.7								6.7	0.0	
Road User Confort	B) Pavement, Shoulders and ROW for Paved Roads	1	1 Road Cleanliness	1	1	1	1	1	1	1	1	1									
		1	2 Potholes	1	1	1	1	1	1	1	1	1	1								
		1	3 Cracking in flexible Pavement	1	1	1	1	1	1	1	1	1	1								
		1	4 Multiple cracks in the pavement	1	1	1	1	1	1	1	1	1	1								
		1	5 Rutting	1	1	1	1	1	1	1	1	1	1								
		1	6 Ravelling	1	1	1	1	1	1	1	1	1	1								
		1	7 Loose pavement edges	1	1	1	1	1	1	1	1	1	1								
		1	8 Height of shoulders vs. height of pavement	1	1	1	1	1	1	1	1	1	1								
		1	9 Paved shoulders	1	1	1	1	1	1	1	1	1	1								
		0	10 Cracks in Concrete Pavement																		
		0	11 Interlocking Block Pavement																		
		0	12 Medians																		
			<b>Compliance of B)</b>	1	1	1	1	1	1	1	0.7								6.7	0.0	
Road Durability	C) Drainage	0	1 Side Drains, Mitre Drains and cut off drains (lined)																		
		1	2 Side Drains, Mitre Drains and cut off drains (unlined)	1	1	1	0	1	1	1											
		1	3 Culverts and Access Drifts	1	1	1	0	1	1	1											
		0	4 Scour Checks, Gabions and other erosion protection structures																		
		0	5 Manholes and Gulleys																		
				<b>Compliance of C)</b>	1	1	1	0	1	1	0.7									5.7	1.0
	D) Vegetation	1	1 Vegetation free zone	1	1	1	1	1	1	1	1										
		1	2 Outer/inner vegetation	1	1	1	0	1	1	1											
		1	3 Growth encroaching into vegetation free zone from the side or top	1	1	1	1	1	1	1											
		1	4 Trees within ROW	1	1	1	1	1	1	1	1										
				<b>Compliance of D)</b>	1	1	1	0	1	1	0.7									5.7	1.0
	E) Structures	0	1 Concrete structures																		
		0	2 Steel Structures																		
		0	3 Expansion joints																		
		0	4 Riverbeds																		
				<b>Compliance of E)</b>																	
	F) Road Furniture	1	1 Warning signs/Mandatory signs	1	1	1	1	1	1	1	1	1									
		1	2 Information signs, Edge marker posts, Guide posts, Kilometer Pos	1	1	1	0	1	1	1											
		0	3 Traffic Signals																		
		1	4 Street Lighting	1	1	1	1	1	1	1	1	1									
1		5 Road Marking/Road Studs	1	1	1	1	1	1	1	1	1										
0		6 Guard rails and pedestrian rails																			
			<b>Compliance of F)</b>	1	1	1	0	1	1	0.7									5.7	1.0	
G) Profile and Road width*only for	0																				
	0																				
	0																				
			<b>Compliance of G)</b>																		
H) Embankment and Slopes	0	1 Embankment slopes																			
	0	2 Slopes in Cuts																			
	0																				
			<b>Compliance of H)</b>																		

Note: In order for the service scope to be considered as pass, all the service criterias items under the service scope must be in compliance.



# Appendix 14 Payment Reduction Calculation Table (Paved Road)

Project	KURA/RMLF/SR/267/2014-2015					Contract Period	12
Road Authority	KURA		Contractor	VESCO M Enterprise			
Road Name/ Class/ Chainage/ (j)Length	Goinga - Odinga Road			Road Class	Urban		6.7km
Statement Month/ Year and Elapse of Month	January	2016	7	Standard Service Level		Paved Standard	

Contract Due Amount of the Month (x) 134,000 KSH

Service Level Criteria		Compliance			Reduction						
Service	Service Scope	(a) Contract Road Length (km)	(b) Required Target	(c)=(a)*(b) Target Length (km)	(d)=(a)-(c) Exemption Length (km)	(e) Non-Compliant Length (km)	(f)=(e)-(d) (>=0) Adjusted Non-Compliant Length (km)	(g)=(f)/(c) NON-Compliant Rate	(h) Reduction Weight	(i)=(g)*(h) Reduction Rate (%)	(j)=(c)x(i) Reduction Length (km)
Documentation		6.7	100%	6.7	-	-	-	0%	4.6%	0.0%	0.00
1. Road Usability	A) Road Usability	6.7	100%	6.7	0.0	0.0	0.0	0%	46.0%	0.0%	0.00
2. Road User Comfort	B) Pavement, Shoulders	6.7	100%	6.7	0.0	0.0	0.0	0%	57.5%	0.0%	0.00
3. Road Durability	C) Drainage	6.7	100%	6.7	0.0	1.0	1.0	15%	34.5%	5.1%	0.34
	D) Vegetation	6.7	100%	6.7	0.0	1.0	1.0	15%	34.5%	5.1%	0.34
	E) Structures	Not Applied									0.00
	F) Road Furniture	6.7	100%	6.7	0.0	1.0	1.0	15%	23.0%	3.4%	0.23
	G) Profile and Road Width (unpaved)	Not Applied									
	H) Embankment and Slopes	Not Applied									0.00
(k) Total =										13.7%	0.92

200%

Required Target			
Elapse of Month	1. Road Usability	2. Road User Comfort	3. Road Durability
1	50%	50%	50%
2	100%	75%	75%
3	100%	100%	100%
4	100%	100%	100%
5	100%	100%	100%
6	100%	100%	100%
7~	100%	100%	100%

### Calculation of the Payment Amount of the Month

<b>Contract Due Amount of the Month</b>	KSH	<b>134,000</b>	(x)
<b>Reduction Rate</b>	%	<b>13.7%</b>	(k)
<b>Reduction Amount</b>	KSH	<b>18,358</b>	(z)=(x)x(k)
<b>Payment Amount of the Month</b>	KSH	<b>115,642</b>	(y)=(x)-(z)

## Appendix 16 Summary of Statement for Payment Account (Monthly Statement)

**Contract No. KURA/RMLF/SR/267/2014-2015**

Contract Name: PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality

CERTIFICATE NO.

Contractor: VESCOM Enterprise

VALUATION AS AT

CONTRACT SUM :	Region	Fin. Year	
	<b>Administrative Boundary:</b>	<b>7</b>	<b>Month</b>
	Previous Certificate (Kshs)	This Certificate (Kshs)	Total (Kshs)
A. PBC Works *(x) of Payment Reduction Calculation Table(Appendix 14 or 15)	890,000.00	134,000.00	1,024,000.00
B. Instructed Works *if included in the contract	-	-	-
C. Sub-total of (A+B)	890,000.00	134,000.00	1,024,000.00
D. REDUCTION FOR NON-COMPLIANCE *(z) of Payment Reduction Calculation Table(Appendix 14 or 15)	(560,000.00)	(18,358.00)	(578,358.00)
E. Sub-total of (C+D)	330,000.00	115,642.00	445,642.00
<b>TOTAL VALUE OF WORK (E)</b>	<b>330,000.00</b>	<b>115,642.00</b>	<b>445,642.00</b>
F. ADD 16% VAT (16% of E)	-	-	-
G. LESS 5 % RETENTION	-	-	-
H. LESS 3% WITHHOLDING TAX	(26,700.00)	(4,020.00)	(30,720.00)
I. CUMMULATIVE DEDUCTIONS (G+H)	(26,700.00)	(4,020.00)	(30,720.00)
J. TOTAL PAYMENT (E+F-I)	303,300.00	111,622.00	414,922.00
K. ADVANCE PAYMENT	-	-	-
L. RECOVERY OF ADVANCE	-	-	-
M. INTEREST ON LATE PAYMENTS	-	-	-
N.LESS LIQUIDATED DAMAGES	-	-	-
O. NET PAYMENT	303,300.00	111,622.00	414,922.00
	LESS PREVIOUS CERTIFICATES		(303,300.00)
	<b>NOW DUE TO CONTRACTOR</b>		<b>111,622.00</b>

Submitted by

\_\_\_\_\_ Date.....  
Contractor

\_\_\_\_\_ Date.....  
TEAM LEADER

I hereby confirm the above rates & quantities are correct

Checked by \_\_\_\_\_ Date.....  
SUPERVISOR

\_\_\_\_\_ Date.....  
ENGINEER (GM(M))

## Appendix 17 Monthly Evaluation Form

Number of elapsed month = 6

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality
Road Authority	KURA
Contractor	VESCOM Enterprise
Date of checking	2-Feb-16

	Name
Project manager	
Assistants	

This form is used by Project manager to verify monthly performance for contract evaluation.

Scope		Requirement		Pass or Fail*1
1	Service level compliance	1	Reduction rate for service level non-compliance is less than 5.0%	0
2	Self-control unit performance	1	Self-control unit is organized by proper contractor's member	1
		2	Self-control unit operates properly	1
		Pass or fail in total*2		1
3	Work Safety Management	1	Workers and operators wear proper safety gear	1
		2	Traffic control is conducted properly	1
		3	No accident of workers, operators attributable to the contractor	1
		4	No accident of third-parties attributable to the contractor	1
		Pass or fail in total*2		1
4	Environment and social management	1	Environmental consideration is properly conducted	1
		2	Waste material generated from the site is properly disposed	1
		3	Transportation by vehicles is properly controlled	1
		Pass or fail in total*2		1
5	Corrective order	1	No corrective order is made by authority	1
6	Statutory compliance	1	Contractor complied with relevant statutory regulations	1

\*1 Filling Example: "Pass"="1" "Fail" = "0" "Not applicable" = "N/A"

\*2 Scoring criteria:

In case of having more than one requirement in each evaluation scope, all the requirements except not applicable case shall be passed for pass evaluation in tota

## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCOE Enterprise	
Date of Commencement	1-Jul-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	6	

	Date	Name	Signature
Project Manager	2-Feb-16		
Road Manager	2-Feb-16		

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation													(a)	(b)	(c)	(d)	(f)					
	No. of month with "Pass=1" in past years	Year (2016)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1					
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
1 Service level compliance	3	0													3	42.9	50%	21					
2 Self-control unit performance	6	1													7	100	10%	10					
3 Work safety management	6	1													7	100	20%	20					
4 Environment and social management	6	1													7	100	10%	10					
5 Corrective order issuance	6	1													7	100	10%	10					
6 Statutory compliance	6	1													7	100			0				
<b>Total score</b>																					71	0	
																						71	

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month

## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCO Enterprise	
Date of Commencement	1-Jul-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	<b>0</b>	

	Date	Name	Signature
Project Manager			
Road Manager			

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation													(a)	(b)	(c)	(d)	(f)
	No. of month with "Pass=1" in past years	Year (2015)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
1 Service relevel compliance							0	0	0	1	1	1	3	50	50%	25		
2 Self-control unit performance							1	1	1	1	1	1	6	100	10%	10		
3 Work safety management							1	1	1	1	1	1	6	100	20%	20		
4 Environment and social management							1	1	1	1	1	1	6	100	10%	10		
5 Corrective order issuance							1	1	1	1	1	1	6	100	10%	10		
6 Statutory compliance							1	1	1	1	1	1	6	100			0	
<b>Total score</b>																	<b>75</b>	<b>0</b>

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month

## Appendix 17 Monthly Evaluation Form

Number of elapsed month = 6

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality
Road Authority	KURA
Contractor	VESCOM Enterprise
Date of checking	31-Jan-16

	Name
Project manager	
Assistants	

This form is used by Project manager to verify monthly performance for contract evaluation.

Scope		Requirement		Pass or Fail*1
1	Service level compliance	1	Reduction rate for service level non-compliance is less than 5.0%	0
2	Self-control unit performance	1	Self-control unit is organized by proper contractor's member	1
		2	Self-control unit operates properly	1
Pass or fail in total*2				1
3	Work Safety Management	1	Workers and operators wear proper safety gear	1
		2	Traffic control is conducted properly	1
		3	No accident of workers, operators attributable to the contractor	1
		4	No accident of third-parties attributable to the contractor	1
Pass or fail in total*2				1
4	Environment and social management	1	Environmental consideration is properly conducted	1
		2	Waste material generated from the site is properly disposed	1
		3	Transportation by vehicles is properly controlled	1
Pass or fail in total*2				1
5	Corrective order	1	No corrective order is made by authority	1
6	Statutory compliance	1	Contractor complied with relevant statutory regulations	0

\*1 Filling Example: "Pass"="1" "Fail" = "0" "Not applicable" = "N/A"

\*2 Scoring criteria:

In case of having more than one requirement in each evaluation scope, all the requirements except not applicable case shall be passed for pass evaluation in tota

## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCO Enterprise	
Date of Commencement	1-Feb-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	0	

	Date	Name	Signature
Project Manager			
Road Manager			

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation													(a)	(b)	(c)	(d)	(f)				
	No. of month with "Pass=1" in past years	Year (2015)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1				
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
1 Service relevel compliance			0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	90.9	50%	45	
2 Self-control unit performance			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	10%	10	
3 Work safety management			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	20%	20	
4 Environment and social management			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	10%	10	
5 Corrective order issuance			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	100	10%	10	
6 Statutory compliance			1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	10	90.9			-20
											<b>Total score</b>					95	-20					
																75						

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month

## Appendix 18 Contract Evaluation Tally Sheet for PBC (Draft Ver.3)

Project Title	PERFORMANCE-BASED ROAD MAINTENANCE CONTRACT FOR of Lot 24 Oginga Odinga including Section 58 loop roads, General Kariba Road, West Road and Government Road in Nakuru Municipality	
Road Authority	KURA	
Contractor	VESCO M Enterprise	
Date of Commencement	1-Jul-15	
Expected date of Completion	31 June 2016	
Number of elapsed months in the end of last year	11	

	Date	Name	Signature
Project Manager	31-Jan-16		
Road Manager	31-Jan-16		

1. This tally sheet is for Project Manager to evaluate performance of contractor by scoring at the end of contract. Use this form for evaluation in every year during contract period.
2. Fill "1" for "Pass" or "0" for "Fail" in column for each item and month according to monthly evaluation form. Fill "-" in column for non applicable.

Item	Monthly Evaluation												(a)	(b)	(c)	(d)	(f)					
	No. of month with "Pass=1" in past years	Year (2016)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1				
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
1 Service level compliance	10	0													10	83.3	50%	42				
2 Self-control unit performance	11	1													12	100	10%	10				
3 Work safety management	11	1													12	100	20%	20				
4 Environment and social management	11	1													12	100	10%	10				
5 Corrective order issuance	11	1													12	100	10%	10				
6 Statutory compliance	10	0													10	83.3			-20			
<b>Total score</b>																					92	-20
																					72	

\*1: Penalty of -20 point is given for non-compliance in equal or more than one month