KARNATAKA RURAL INFRASTRUCTURE DEVELOPMENT LIMITED

(FORMERLY KARNATAKA LAND ARMY CORPORATION LIMITED)
"GRAMEENABHIVRUDDHI BHAVAN", 4TH & 5TH FLOOR, ANANDA RAO CIRCLE, BANGALORE – 560 009

Annexure-II
Format 1 - Part 1

FOR ROAD WORKS

PART-I WORK INFORMATION - {TO BE FILLED-UP BY (PROJECT) PIU}

Work is | **Ongoing** | **Completed**

1) GENERAL:

1. Date of Inspection:
2. Name of District Quality Monitor :
3. District: Taluk:
4. Work code:
5. Name of work:
6. Technically Sanctioned Date & Amount: Rs. Lakhs
7. Adm. Approval Date & Amount: Rs. Lakhs
8. Date of Commencement:
9. Stipulated Date of Completion:
10. Actual Date of Completion (if work is completed):

2) PHYSICAL PROGRESS: (In case of ongoing works only) Construction Programme and physical Progress:

Item	Completed reaches	% age of completion of Item	Date of start		Date of Completion	Delay in Months	Quality control test report
			Due	**Actual**			
Formation/Embankment/Cutting, CD works							
Sub base							
Base course and Shoulders							
Wearing course and shoulders							
CC pavement							
Road furnitures & protective works							

3) QUALITY CONTROL:

1. Location of Field Laboratory :
2. Quality Control Register Part-I is maintained by : _____JE/AE
3. Quality Control Register Part-II is maintained by : _____ AEE
4. Location of CIB: Ch..... KM. Village ..... is

4) INSPECTIONS BY DQM or SENIOR OFFICERS AND ACTION TAKEN:

a) Inspection by JD/DD/DQM and action taken statement:

Sl. No	Date of Inspection	Inspected by	Stage of work at the time of Inspection	Item wise Observations	Whether observations have been attended to Y/N	Date of submission of compliance	Reasons for delay in submission of compliance

b) Inspection by DQM and action taken statement:

Sl. No	Date of Inspection	Inspected by	Reaches inspected by DQM & chainages where detailed tests have been conducted	Item wise Observations	Action taken by Project & Date of submission of ATR	Date of submission of re-gradation proposal	Reasons for delay in submission of ATR/Re-gradation proposal

5) SUITABILITY TESTS CONDUCTED ON MATERIAL PRIOR TO CONSTRUCTION

Sl. No	Item of Work	Type of Test	Number of tests required prior to Construction (Number of tests from each source for one KM or part thereof)				Date of Suitability tests conducted	Whether required number of tests have been carried out. **Y/N**
1	Embankment /Cutting/Sub -grade		a) Available Soil		b) Barrowed Soil			
		1. WSA	1		1			
		2. Atterberg's limits	1		1			
		3. SPC Test	1		1			
		4. FSI test	1		1			
		5. CBR test	1		1			
2	Granular Sub-Base		a) Naturally occurring soil		b) Blended material			
		1. WSA	1		1			
		2. Atterberg's limits	1		1			
		3. Combined Gradation	-		2			
		4. Plasticity tests	2		2			
		5. SPC tests	1		1			
		6. WAIV test	1		1			
		7. CBR Test	1		1			
3	WBM Base		a) Aggregates		b) Screenings			
		1. AIV Test	1		-			
		2. Water Absorption	-		-			
		3. Soundness Test	-		-			
		4. Gradation of Crushable Screenings	-		1			
		5. Atterberg's limits of binding materials	-		1 (for binding material)			
		6. Flakiness Index	1		-			
4	Surface Course		a) Prime coat	b) Tack Coat	c) Bitumen	d) Aggregates		
		1. Viscosity Test	1	1	-	-		
		2. Residue on 600 Micron Sieve Test	1	1	-	-		
		3. Storage stability	1	1	-	-		
		4. Penetration Test	-	-	1	-		

		5. R&B Softening point test	-	-	1	-			
		6. Ductility Test	-	-	1	-			
		7. Flakiness Index	-	-	-	1			
		8. AIV test	-	-	-	1			
		9. Soundness Test	-	-	-	-			
		10. Water Absorption	-	-	-	1			
		11. Anti-Stripping	-	-	-	1			
			a) Stones	b) Cement	c) Sand	d) Course aggregates	e) Steel		
5	Cross drainage and CC pavement	1. Shape and dimension	1	-	-	-	-		
		2. Water absorption	1	-	-	1	-		
		3. Dressing of stones	Visual	-	-	-	-		
		4. Setting time of cement	-	1	-	-	-		
		5. Soundness	-	-	-	-	-		
		6. Compressive strength of mortar cubes	-	1	-	-	-		
		7. Gradation of sand	-	-	1	-	-		
		8. Deleterious materials and organic impurities	-	-	1	-	-		
		9. Gradation of course aggregate	-	-	-	1	-		
		10. Flakiness index	-	-	-	1	-		
		11. Deleterious constituents	-	-	-	1	-		
		12. Water absorption	-	-	-	1	-		
		13. AIV	-	-	-	1	-		
		14. Grade percentage Elongation, ultimate tensile strength, pitch of the rib, nominal diameter & protection for steel	-	-	-	-	1		

6) Mandatory field tests conducted by Project (PIU) for Stage passing:

#	Item of work executed	Reaches	Total number of Mandatory QC tests required	Total number of Mandatory QC tests conducted by the agency	Cumulative tests witnessed by			Total number of NCRs issued	Total number of Mandatory QC tests conducted by AD/DD for stage passing	Designated stage passing officer	Date of stage passing
					AE/JE	AD	DD				
1	Formation/ Embankment/cutting/sub-grade										
2	Sub base										
3	Base course										
4	Wearing course										
5	Shoulders										
6	Rigid pavements & Pucca drains										

AE/JE

Date ..... **ASSISTANT DIRECTOR**

Format 1 - Part II

REPORT OF DISTRICT QUALITY MONITOR (DQM)

ROAD WORKS

PART-II- Observations of DQM for Ongoing/Completed Work

(To be filled-Up by DQM, use additional sheets, if required)

Stage of Work : (Tick only one appropriate box)		
	I	**Earthwork in embankment/cutting or sub-grade is in progress.**
	II	**Sub base or base course is in progress.**
	III	**Work is nearing completion i.e., when bituminous work is in**

1) SETTING OUT AND WORKING DRAWING: For all stages of work - Visual observations

#	Whether Bench marks @ 4 per km established **Y/N**	Exact Locations of the Bench Marks	Whether Centerline of Carriage Way accurately established and referenced with Marker Pegs and Chainage Boards **Y/N**	Whether properly prepared Working Drawing for the work under progress is available **Y/N**

Grade :	**S**	**RI**	**U**	If this item is graded RI/U, write clear reasons and suggestions for improvement.

2) SITE CLEARANCE AND GRUBBING: For stage I of Work - Visual observations

#	Whether Clearing and Grubbing being done as per Estimate and Material obtained is being disposed off properly. **Y/N**	Whether the material available from scarifying existing work or clearing operations can be salvaged and reused **Y/N**	Name the reusable material obtainable from clearance or scarification and indicate approximate quantity and its re-use by the **PIU**

Grade :	**S**	**RI**	**U**	If this item is graded RI/U, write clear reasons and suggestions for improvement.

3) QUALITY ARRANGEMENTS AND ATTENTION TO QUALITY: <u>For all stages of Work</u> - (Visual observations) :

#	Whether Field Laboratory established **Y/N**	List the Equipments available	Whether adequate Equipments as per requirement of work are available and are being used **Y/N**

Item 3b: Observations about Mandatory Tests:

#	Item of work executed	Total number of Mandatory QC tests required	Total number of Test conducted by the agency	Name of the Test conducted by DQM at a designed location	Result of the test conducted by DQM **Pass/Fail**	Test result as per Q.C register at the same location (Mention the page No. of Q.C Reg.) **Pass/Fail**	Whether the test recorded in Q.C register found correct. **Y/N**

Item 3c: Observations - Maintenance of QC Registers (Examination of record and verification of QC Register Part 1 & 2)

#	Based on executed quantities whether all mandatory tests conducted			Whether QC Register Part I maintained properly			Whether QC Register Part II maintained and NCR issued whether necessary		
	Yes	**Partly**	**No**	**Yes**	**Partly**	**No**	**Yes**	**Partly**	**No**

Grade :	**S**	**RI**	**U**	If this item is graded RI/U, write clear reasons a suggestions for improvement.

4) GEOMETRICS: <u>For all stages of Work</u>

Item 4a: Observations - Road way width, Carriage way width and Camber / Cross fall (for both pavement and Shoulders) Actual measurement - 2 per km.

Sl. No.	Road Ch:	Roadway Width **Meter**	Carriageway width **meter**	Camber of pavement **%**	Cross fall of shoulders **%**	Whether road way width, carriage way width, camber/cross fall provided as per requirement **Y/N**
1						
2						
3						
4						
5						
6						

Item 4b: Observations - Super-elevation and Extra Widening at Curves - Actual measurement - 1.

Sl. No.	Road Ch:	Super elevation as per design **%**	Actual Super Elevation provided **%**	Extra width required as per design **meter**	Actual Extra Width provided **meter**	Whether road way width, carriage way width, camber/cross fall provided as per requirement **Y/N**
1						
2						
3						

Grade :	S	U	If this item is graded U, write clear reasons and suggestions for improvement:

OBSERVATIONS REGARDING THE QUALITY OF ITEMS OF WORK:

5A. Earthwork:

Item 5Aa: Observations - Quality of Material for Embankment/Sub-grade-by visual classification-for all stages-1 test per KM.

Sl. No.	Location Ch:	On Visual Classification identify the each soil Group Symbol and write			Whether Quality of material is acceptable. **Y/N**
		Available:	barrow:	blended:	
1					
2					
3					

Item 5Ab: Observations - Thickness and compaction: For all stages-1 test per KM.

#	Location Ch:	MDD KN/m^3	OMC in % age (as per record)	Thickness of loose layer (when the item is in progress) in MM (2 tests per km in stage-1	Thickness of compacted layer in mm (2 tests per km in stage-1	Prescribed thickness in mm	Thickness provided is adequate **Y/N**	**Field test results**				
								Field Moisture Content in % age	Field Density KN/m^3	Dry Density KN/m^3	Degree of compaction	Compaction adequate **Y/N**
1												
2												
3												
4												
5												
6												

Grade :	**S**	**U**	If this item is graded U, write clear reasons and suggestions for improvement:

Item 5Ac: Observations - Side slopes and profiles: 2 measurements per KM in stage III.

#	Location Ch:	Whether Side Slopes Satisfactory **Y/N**	Whether profile is Satisfactory **Y/N**
1			
2			
3			
4			
5			
6			

Item 5B: Earth work in Hilly/Rolling terrain or high Embankments:
Item 5Ba: Observations - Cut slopes, profile, slope protection and formation: (Visual observations)

#	Location Ch:	Whether cut Slopes & Profile appears to be stable (in stage I & II, at 2 critical locations with maximum height of embankment / cutting in each km) **Y/N**	Whether adequate slope protection works executed (all stages - in general **Y/N**	Whether formation is properly dressed and traffic worthy (in stage III, at 2 critical locations with maximum height of embankment/cutting in each km) **Y/N**
1				
2				
3				
4				
5				
6				

Item 5Bb: Observations - Longitudinal Gradient in case of road in hilly/rolling terrain: Actual measurement in stage II or III
One critical and fairly representative stretch of 200 in each KM.

#	Ref. Between Ch: -- & Ch: --	Longitudinal Gradient as per design	Actual Longitudinal Gradient provided	Whether the longitudinal gradient provided is within the tolerance limits **Y/N**	Reason for the deviations in the longitudinal gradients, if any
1					
2					
3					

Grade :	**S**	**U**	If this item is graded U, write clear reasons and suggestions for improvement:

6. Sub-Base:
Quality of Material and Workmanship:

Item 6a: Observations - Thickness and Surface evenness-2 tests per KM in stage II and I test per KM in stage III

#	Location Ch:	Thickness of loose layer (when the item is in progress) mm	Thickness of compacted Layer **mm**	Prescribed Thickness in **mm**	Thickness provided is adequate **Y/N**	Reach of 200m critical length for surface evenness check	Location of test.	Tolerance limit **mm**	Actual results **mm**	Whether actual result is acceptable **Y/N**
1										
2										
3										
4										
5										
6										

Item 6b: Observations - Gradation and compaction-1 test per KM in stage II and stage III

#	Location Ch:	Confirms to grading **Y/N**	Suitable from plasticity angle **Y/N**	MDD (as per record) **KN/M³**	OMC (as per record) **%**	Field test results				Whether compaction is adequate **Y/N**
						Field moisture content %	Field density **KN/M³**	Dry density **KN/M³**	Degree of compaction	
1										
2										
3										

Grade :	**S**	**U**	If this item is graded U, write clear reasons and suggestions for improvement:

7. Base Course
Water Bound Macadam (G2 & G3):
Quality of Material and Workmanship:
Item 7a: Observations - Gradation, thickness and compaction- In stage II or III, 1 test per KM

#	Location Ch:	Compacted thickness of each layer of WBM **mm**	Thickness is adequate. **Y/N**	Aggregate confirms to Grading. **Y/N**	Screenings confirms to Grading **Y/N**	Crushable screenings if used or Binding material as filler material is non-plastic to desired extent. **Y/N**	Volume of filler material (including binding material, if used)- course aggregate	Whether adequate compaction is done (by volumetric analysis by re-filling the pit) **Y/N**
1		WBM G2						
		WBM G3						
2		WBM G2						
		WBM G3						
3		WBM G2						
		WBM G3						

Item 7b: Observations - Surface evenness of completed WBM-2 tests per KM using straight edge.

#	Reach of 200m critical length from Ch: ---- to Ch: ------	Location of test	Tolerance limits in mm	Actual result in mm	Whether the actual result is acceptable **Y/N**
1					
2					
3					
4					
5					
6					

Grade : | **S** | **U** | If this item is graded U, write clear reasons and suggestions for improvement:

8. Bituminous Course: Premix Carpet/Surface Dressing/MSS etc. and Seal Coat:
Quality of material and workmanship of BT layer

Item 8a: Observations - Level of cleanliness, Rate of spread, etc - Visual observations-in case of ongoing work

#	Location Ch:	Level of cleanliness of WBM surface prior to application of bitumen layers (swept clean of dust, loose particles, lightly and uniform sprinkling of water to moist the surface etc.)	Rate of spread of primer and tack coat is uniform and adequate **Y/N**	Whether mechanical sprayer is used **Y/N**	Whether penetration of primer and application of tack coat is proper and adequate **Y/N**
1					
2					
3					

Item 8b: Observations - Gradation and temperature-I test per KM when the work is in progress on the day of inspection-In stage III - Actual measurements

#	Location Ch:	Whether Course Aggregate confirms to grading **Y/N**	Whether the binder is of approved grade **Y/N**	Write the quantity of binder **gms**	Whether required quantity of binder is used **Y/N**	Write the mixing temperature of bitumen **°C**	Whether is in permissible limits **Y/N**	Write the temperature of aggregates **°C**	Whether is in permissible limits **Y/N**	Write the mixing Temperature **°C**	Whether is in permissible limits and difference of temperature between aggregate and bitumen is acceptable **Y/N**	Write laying Temperature **°C**	Write rolling Temperature **°C**	Whether it is in permissible limits **Y/N**
1														
2														
3														

Item 8c: Observations - Thickness and Surface evenness (in case of completed work only) - 2 test per Km - In stage III - Actual measurements

#	Location ch:	Thickness of BT **mm**	Whether thickness of BT is adequate **Y/N**	Reach of 200mm critical length for surface evenness check	Location of test	Tolerance limit **mm**	Actual result **mm**	Whether surface evenness by straight edge is within acceptable limits **Y/N**
1								
2								
3								
4								
5								
6								

Item 8d: Observations - Gradation, quantity and riding quality - One test per Km - In stage III - Actual measurements

#	Location ch:-----	Write the quantity of binder used	Whether required quantity of binder used **Y/N**	Whether course aggregate confirm to grading **Y/N**	Whether seal coat has filled up all the interstices **Y/N**	Whether riding quality is good **Y/N**
1						
2						
3						

9. Shoulders:
Quality of Material and Workmanship:
Observations-Thickness and Compaction-Actual measurements-In stage II and Stage III

#	Location Ch:	MDD **KN/ M³**	OMC (as per record)	Thickness of loose layer (when the item is in progress) in MM (2 tests per km in stage-I	Thickness of compacted layer (2 tests per km in stage-I) **Mm**	Prescrible thickness in mm	Thickness provided is adequate **Y/N**	**Field test results**				
								Field Moisture Content **%**	Field Density **KN/M³**	Dry Density **KN/ M³**	Degree of compaction	Compaction adequate **Y/N**
1												
2												
3												
4												
5												
6												

10. Cross Drainage Works: Observations-Quality of CDs: In all stages

Grade :	**S**	**RI**	**U**	If this item is graded U, write clear reasons and suggestions for improvement:

#	RD at which CD is located	Type of CD	Whether quality of the material is acceptable **Y/N**	Whether quality of workmanship is acceptable **Y/N**	Remarks

Observations - Tests reports on mortar or Concrete ingredients, Design mix, Storage of cement and stacking of aggregates, Cement consumption, workability, W/C ratio, Mixing, Transporting, Placing and Compaction, form work, centering scaffolding, Bracing etc., casting of cubes and 28 days strength etc., Honeycombing and finishing, Tests on steel, bending, splicing or welding and placing of reinforcement.
Dressing of stones and its sizes, Height of course, consumption of mortar, line, plumbness, Horizontality and Vertically of course, staggering of joints, Physical tests on stones and bricks, Bond stones, weep holes.
Tests on Hume pipes, alignment and joining of pipes, cushions, backfill material and its compaction, longitudinal slopes, keying of face walls above HFL, Protective works, clearing of valley approach and exit etc.,
Comments about adequacy of face/main walls, wings and retaining walls.

Write comments:

Grade :	S	RI	U	If this item is graded U, write clear reasons and suggestions for improvement:

11. Side drains and Catch water Drains:
Observations: Quality of drains: In all stages - Visual observations

#	Road Ch: where side drain constructed.	Road Ch: at which observation made.	Whether side drains have been trimmed to designed section and adequate longitudinal gradient is provided **Y/N**	Whether general quality of the side drains/catch water drains is acceptable. **Y/N**	Whether side drains are integrated to cross drains. **Y/N**

Grade :	S	RI	U	If this item is graded RI/U, write clear reasons and suggestions for improvement:

12. CC/Semi-Rigid (SR) Pavements and Associated Pucca Side Drains:
Observations: Quality of CC/SR Pavements and pucca drains: In stage II or III - 1 test per 100 m length of pavement.

#	Road Ch: where CC/SR Pavements provided.	Road Ch: at which observations made.	Thickness **mm**	Acceptable **Y/N**	General Quality of material is acceptable **Y/N**	General Quality of workmanship acceptable **Y/N**

Observations - General Quality of water and its acceptance, physical tests on cement, hand feel tests, storage and stacking, physical tests on aggregates, gradation, deleterious materials, storage and stacking of aggregates, Grade of Steel and its physical tests, storage and stacking of steel, form work centering, scaffolding and bracing, design mix, w/c ratio or OMC, combined gradation of course and fine aggregates, mixing, blending, transportation, handling, placing, finishing and curing of concrete. Workability of concrete, verification of trail length, Horizontal alignment, surface levels, thickness surface textures, cracks and their acceptance, joints width and thickness, proper use of filler materials and sealer etc.,
Write comments:

Grade :	**S** / **U**	If this item is graded U, write clear reasons and suggestions for improvement:

13. Road Furnitures and Markings: (as per IRC-35 & IrC-67)

13.1. Observations-Quality of Information Boards and letterings (visual observations)

Whether main informatory boards fixed at both ends of the road and acceptable:	**Yes** / **No**	- In all stages
Whether Citizen information boards fixed at main Village and the details are in local language and acceptable:	**Yes** / **No**	- In all stages

Grade :	**S** / **U**	If this item is graded U, write clear reasons and suggestions for improvement:

13.2. Observations-Quality of Road Furnitures and Markings: - for completed roads

13.2.1	Logo Boards Fixed:	**Yes**	**No**
13.2.2	200m, Stones fixed:	**Yes**	**No**
13.2.3	Km. Stone fixed:	**Yes**	**No**
13.2.4	Guard Stones fixed on Curves:	**Yes**	**No**
13.2.5	Mandatory and Cautionary Signage	**Yes**	**No**

Grade :	**S** / **U**	If this item is graded U, write clear reasons and suggestions for improvement:

14. General Observations of DQM (including the observations made during the interaction with PIU staff and Contractor's/Consultant's Engineers) :

14.1 Observations about deficiency in project preparation (Give detailed observations about deficiencies in general items which have been left but are required as per site condition):

1.
2.
3.
4.

14.2 Whether the work, has been completed/is in progress as per work programme or the delay has occurred is attributable to the contractor, whether the liquidated damages have been withhold or recovered:

14.4 Clearly offer comments about the action taken on the observations of Departmental Officers, District Quality Monitors and State Quality Monitor.

1.
2.
3.
4.
5.
6.

14.5 Comments about difference in observations made by DQM in earlier inspections (the DQM shall study the earlier inspection reports of DQM any and offer his clear comments about the differences in observations, in any).

15. Other observations if any:

16. Overall Grading of Work: The overall grading calculated on the basis of item and sub-item wise grading is given below.

Item No.	Sub item for observation	Awarded Grade
1	Setting Out and working drawing	
2	Site clearance and Grubbing	
3	Quality arrangements	
4	Geometrics	
5 A	Earthwork and sub-grade in embankment/cutting	
5 B	Earthwork in cutting in hilly/rolling terrain	
6	Sub-base	
7	Base course - water bound macadam	
8	Bituminous Layer - Premix Carpet (PMC) / Surface Dressing (SD)/MSS and Seal coat	
9	Shoulders	
10	Cross Drainage works	
11	Side drains and catch water drains	
12	CC/Semi-Rigid pavement and associated Pucca drains	
13	Road Furniture and markings	
	Overall Grading	

* S - Satisfactory
* RI-Required improvement
* U-Un-satisfactory

Signature :
Name :
Date :