

ANNEXURE I

Technical Quality Audit Parameters: Roads

Pre-implementation Stage

Sr. no.	Parameter	Benchmark	Reference	Indicator	Sub indicators	Max. marks	Marks obtained	Weightage (%)
1	Planning & Design	Technical Framework and comprehensive Planning	DPR	1.1) Survey, investigation and regulatory compliances	1.11) Topographic Survey and alignment	10		20 %
					1.12) Land Acquisition, Forest clearance etc.	5		
					1.13) NOC from Railways, Electricity Board, water Resources, PHED etc.	5		
					1.14) Identification & shifting of utilities	5		
					1.15) Traffic survey	10		
				1.2) Long term planning	1.21) Future projections for traffic load	5		
					1.22) Future development of the area such as industrial growth, education hub etc.	5		
				1.3) Selection of appropriate technology/methodology	1.31) Selection of latest software in design	5		
					1.32) Selection of modern mechanized/digital equipment	5		
					1.33) Use of solar energy for Lighting the road infrastructures.	5		

				1.4) Design and specifications	1.41) Identification of material for construction of road	5		
					1.41) conducting mandatory tests for design	5		
					1.42) Framing specifications and appropriate design	10		
				1.5) Cost Analysis, Budget planning and timeline estimates	1.51) Financial implication with cost index up to implementation period.	5		
					1.52) Identification of funding agency with annual budget allocation	5		
					1.53) Period for DPR approval, call of tenders, award of work & its implementation etc.	5		
				1.6) Provision of utility corridor/Horticulture Planning	1.61) Provision of space for conduits /channels /cable /wires etc.	3		
					1.62) Provision for Horticulture Planning	2		
				Total		100		20%

IMPLEMENTATION STAGE

Sr. no.	Parameter	Benchmark	Reference	Indicator	Sub Indicators	Max. marks	Marks obtained	Weightage
2	Execution, Inspection and testing	Technical methodology for implementation and inspection & testing	contract Agreement, test reports and quality control register	2.1) Use of construction materials as per relevant codes & manuals	2.11) use of Materials such as aggregates, sand, good earth etc. from approved source	5		40%
					2.12) Use of design mix as per specifications	5		
					2.13) Procurement of items like cement, steel, Bitumen, RCC Pipes etc. Of approved make and manufacturer	5		
					2.14) Carrying out tests at manufacture's premises before dispatch/inhouse facilities	5		
				2.2) supervision by skilled manpower/ TPIA	2.21) Deployment of appropriate qualified personal	2		
					2.22) Manpower deployment as per requirement	4		
				2.3) Use of modern facilities for construction and treatment	2.31) Sensor pavers	3		
					2.32) Automated batching plants	3		
					2.33) Automated hot mix plants	3		
					2.34) Use of other mechanized and digital equipment etc.	5		
				2.4) Conformity to relevant standards	2.41) Work executed as per approved bid document	10		
				2.5) Testing laboratory at site	2.51) Setting up Testing laboratory having all testing equipment, relevant to the project specifications	10		
					2.61) Selection of quarry site for aggregate, sand, good earth etc.	5		

				2.6) Pre & Post Inspections of all materials	2.62) Ensuring required frequency of tests during implementation	5		
					2.63) Ensuring relevant mandatory tests during execution at every stage such as grading, binder contents, density, super elevation, camber etc.	10		
				2.7) Documentation and Reporting	2.71) Preparation of site inspection and quality control registers	5		
					2.72) Checking of test results by Engineer in Charge	5		
					2.73) Submission of non-conforming reports and keeping the record	5		
					2.74) Rectification of defects	5		
				Total				

COMMISSIONING

Sr. no.	Parameter	Benchmark	Reference	Indicators	Sub Indicator	Max. marks	Marks obtained	Weightage
3	Commissioning and Hand over	Guidelines for commissioning and handover	Completion report	3.1) Testing and commissioning	3.11) Installation of road signages	10		10%
					3.12) Marking of lanes	10		
					3.13) Installation of toll barriers	10		
					3.14) conducting certain test such as roughness index etc.	10		
				3.2) Submission of Assets management Plan and completion certificate and adhering to approved timelines and budget	3.21) Submission of Assets completion Plan & inbuilt drawings by the agency	10		
					3.22) submission of completion report as per approved format by Agency	10		
					3.23) Ensuring to the timelines	10		
					3.24) Ensuring expenditure within approved awarded amount	10		
				3.3) Guarantee of works	3.31) Post commissioning Monitoring and support	10		
					3.32) Withhold of security amount	10		
Total						100		10%

SAFETY AND SECURITY

Sr. no.	Parameter	Benchmark	Reference	Indicator	Sub Indicator	Max. marks	Marks obtained	Weightage
4	Safety and Security	Guidelines for Safety and Security	Safety plan	4.1) Adherence to safety standards & regulations	4.11) Providing safety measures such as firefighting equipment, explosive magazine and it's handling etc.	5		5%
					4.12) Monitoring and Surveillance	1		
				4.2) Safety measures for workers and users	4.21) Proving first aid equipment, safety uniforms and housing for workers etc.	2		
					4.3) Security measures	4.31) Physical Security measure	1	
				4.32) Incident response and reporting		1		
				Total				

OPERATION & MAINTENACE

Sr. no.	Parameter	Benchmark	Reference document	Indicator	Sub Indicator	Max. marks	Marks obtained	Weightage
5	Operation and maintenance	Procedure for effective maintenance	Assets management plan	5.1) Compliance to prescribed deliverable	5.11) Ensuring the periodical repairs as per bidding document	3		10 %
					5.12) Traffic management	2		
				5.2) Timely rectification of defects	5.21) Rectification of defects within the specified time period	3		
					5.22) Documentation of the maintenance record	2		
					Total	10		10%

Sr. No.	Parameter	Marking Criteria	Weightage (%)	Marks obtained
1	Planning and Design		20*	
2	Execution, Inspection and Testing		40*	
3	Commissioning and Handing over		10*	
4	Safety Measures		5*	
5	Project Management	Adherence to project timelines and Cost Projections	10	
6	Environmental Measures	Consideration of environmental factors like sustainability, eco-friendly construction practices	3	
7	User Feedback	Feedback from beneficiaries, stakeholders to assess their satisfaction levels	2	
8	Operation & Maintenance		10*	
TOTAL			100	

*The breakup of the weightage is given in the detailed framework for these parameters

*Parameters that are not applicable to a specific project will not be considered in the audit scoring. The weightage will be adjusted accordingly.