

No. RW/NH-33035/2/87-NH Std. DO II

Dated, the 16th December, 1988

To

The Chief Engineers of all State/UT PWDs dealing with NH and other Centrally Sponsored Works;
Director General (Works), CPWD; Director General Border Roads.

Subject: Technical Appraisal proposals and/or Original Estimates for construction/improvement of existing road projects - Check list in respect of.

With a view to preparing road and bridge projects in a systematic manner based on proper survey, investigation, design and format, the Ministry and the IRC have issued many technical circulars and brought out a number of special publications respectively in the past. In this connection, special mention in the case of road projects may be made of the Ministry's circular No. RW/NH III/P/31/77, dated 14th January, 1985 and the IRC Special Publication No. 19 "Manual for Survey Investigation & Preparation of Road Projects". Despite these, very often, the technical proposals and/or detailed estimates for the road projects received in the Ministry are found wanting in proper investigations, adequate technical data, administrative coordination, advance actions, etc, required prior to taking up implementation. It is, therefore, proposed to overcome such shortcomings by subjecting the project preparation process through a system of check lists by which all the engineering data and administrative coordination could be ensured and the projects are based on sound engineering practice. This will also help in quick sanction of works by the Ministry and will eliminate cost and time overruns.

2. The Ministry has already circulated vide letter No. RW/NH-33047/12/87 NH Std. Dated 14.1.1988 a group of check lists for bridge works. Similarly, three check lists, as detailed below are now enclosed in respect of road projects:

Check List A: For preparation of technical proposals for road projects involving new construction, such as, bypasses, approaches to bridges, realignments etc.

Check List B: For preparation of technical proposals for widening/strengthening/improvement of existing roads.

Check List C: Points relating to original estimates for construction/improvement of existing roads.

3. The Check List A and Check List B shall be followed by the agencies while preparing technical proposals and such proposals forwarded to the Ministry should contain data on all items brought out therein. Check List C, duly filled in, should accompany all the original estimates forwarded to the Ministry for sanction. Proposals not accompanied by the Check Lists will not be entertained.

4. It is requested that the above-mentioned instructions may kindly be brought to the notice of all concerned in your organization for strict compliance with immediate effect.

Enclosure to circular No. RW/NH - 33035/2/87 N.H. Std. DO II dt 16.12.88)

CHECK LIST - A

(For preparation of technical proposals of Road Projects involving new road construction such as new road link, bypasses, approaches to major bridges, major re-alignments etc.)

1. Preliminary

- 1.1 Name of Work
- 1.2 Authority and plan provision
- 1.3 History, terrain, climate
- 1.4 Horizontal and vertical profiles of existing facility and other deficiencies.
- 1.5 Board scope of work

2. Land Acquisition and Utilities

- 2.1 Land Acquisition required (width and length) and action taken to ensure its availability.
- 2.2 Acquisition of structures etc. involved.
- 2.3 Re-location of utility services and action taken in the matter to ensure the same prior to taking up the project.

3. Traffic

- 3.1 Traffic studies undertaken
- 3.2 Latest traffic data for the section.

- 3.3 Traffic projections
- 3.4 Design traffic (interms of no. of vehicles of various types PCUs. and cumulative million standard axle repetitions over the design period)
- 4. *Road Location/Alignment*
 - 4.1 Obligatory points
 - 4.2 Compatibility with Master Plan/Regional Plan/Town Plan.
 - 4.3 Alternatives considered with merits and demerits.
 - 4.4 Route selection and description of selected alignment; to approval by competent authority, if any.
 - 4.5 R.O.B's/major/minor bridges involved and action taken for the preparation of proposals therefor.
 - 4.6 Areas needing special treatment
 - 4.7 Environmental features.
- 5. *Road Features*
 - 5.1 Width of carriageway, shoulder, median etc. together with cross falls
 - 5.2 Subgrade level, HFL (existing and anticipated due to any future irrigation works), average height of embankment.
 - 5.3 Geometric design
 - 5.4 Parallel service roads, if any.
- 6. *Soil Investigation*
 - 6.1 General soil test data for embankment and subgrade.
 - 6.2 High embankments - investigation and test data.
- 7. *Pavement Design and Specifications and Shoulder Treatment*
 - 7.1 Design CBR
 - 7.2 Pavement design and composition
 - 7.3 Shoulder treatment
 - 7.4 Specifications
 - 7.5 Typical cross section.
- 8. *Drainage*
 - 8.1 General drainage pattern, HFL, water-table, seepage flows etc.
 - 8.2 Surface drains, catch water drains, longitudinal side drains proposed, if any.
 - 8.3 Sub-surface drains, blanket courses etc.
 - 8.4. Internal pavement layer drainage.
- 9. *Cross-Drainage Structures*
 - 9.1 Waterway
 - 9.2 Type of structures
 - 9.3 Board features, clearance above HFL etc.
 - 9.4 Culverts details.
- 10. *Road Intersection*
 - 10.1 Number of intersections.
 - 10.2 Types of intersection and the category of the other roads involved with traffic details
 - 10.3 Interchange, if any, with justifications.
- 11. *Railway Crossings*
 - 11.1 Locations of crossing and the number of lines (BG/MG) being crossed at each location.
 - 11.2 Justifications for provisions of ROB/RUB
- 12. *Materials and Equipments*
 - 12.1 Prospecting of borrow area for soil properties for embankment as well as subgrade & leads involved.
 - 12.2 Quarries for aggregates, its characteristics and lead involved.
 - 12.3 Sources of materials, water and arrangement for transportation etc.

- 12.4 Labour availability, amenities.
- 12.5 Important equipment proposed for the work with their capacities.
- 13. *Miscellaneous*
 - 13.1 Protection works such as pitching, retaining walls etc.
 - 13.2 Rest houses, temporary quarters, wayside amenities, truck parks etc.
 - 13.3 Roadside plantation, turfing, landscaping etc.
 - 13.4 Guard rails, informatory signs, traffic control devices, if any
 - 13.5 Toll Plaza
 - 13.6 Diversion, haul roads
 - 13.7 Site amenities
- 14. *Rough cost*
 - 14.1 Rough cost of work
- 15. *Justification for splitting of work, if proposed*
- 16. *Prequalification of contractors - requirement status.*
- 17. *Statements/Charts*
- 18. *Drawings*
- 19. *Programme of construction*
- 20. *Special status, if any.*

(Signature of the
Executive Engineer,
who prepared the proposal)

(Superintending
Engineer, N.H.)

(Chief Engineer,
N.H.)

CHECK LIST B

(For preparation of technical proposals of widening/strengthening/improvement of existing roads)

- 1. *Preliminary*
 - 1.1 Name of work
 - 1.2 Authority and plan provision
 - 1.3 History, terrain, climate.
 - 1.4 Horizontal & vertical profiles of existing facility and other deficiencies etc.
 - 1.5 Broad scope of work
- 2. *Land Acquisition and Utilities*
 - 2.1 Need for additional land (width and length) and action to ensure its availability, if any.
 - 2.2 Acquisition of structures etc. required.
 - 2.3 Re-location of utility services and action taken in the matter to ensure the same prior to taking up the project, whenever required.
- 3. *Traffic*
 - 3.1 Traffic studies undertaken.
 - 3.2 Latest traffic data for the section.
 - 3.3 Traffic projections
 - 3.4 Design traffic (in terms of no. of vehicles of various types, PCUs and cumulative million standard axle repetitions over the design period).
- 4. *Road Features*
 - 4.1 Improvement to curves, grades etc.
 - 4.2 Improvement to sight distance
 - 4.3 Widening of pavement
 - 4.4 Need for raising
 - 4.5 Need for shoulders (paved), parallel service roads etc.
 - 4.6 ROB/major/minor bridges involved and action taken for preparation of proposals therefor.

- 4.7 Areas needing special treatment.
- 4.8 Environmental features
- 4.9 HFL and water table along the road.
5. *Soil Investigation*
 - 5.1 Soil characteristics of subgrade soil
 - 5.2 General soil test data
 - 5.3 Other investigations, if any
6. *Pavement Design and Specifications and shoulder Treatment*
 - 6.1 Thickness, composition, width of existing pavement and its condition - kilometer - wise.
 - 6.2 Design CBR, benkelman beam deflection studies.
 - 6.3 Pavement design and composition of pavement for widening and/or strengthening.
 - 6.4 Profile corrective course.
 - 6.5 Shoulder treatment.
 - 6.6 Specifications for pavement courses.
 - 6.7 Typical cross-section.
 - 6.8 Existing shoulders details and proposed treatment.
7. *Drainage*
 - 7.1 Conditions of existing drains, water table, seepage flows etc.
 - 7.2 Need for new drains - surface drains, catchwater drains, longitudinal side drains, blanket course etc.
 - 7.3 Need for sub-surface drains
 - 7.4 Internal pavement layer drainage condition and requirement.
8. *Cross-Drainage Structures*
 - 8.1 Condition of existing culverts
 - 8.2 Assessment of waterway and additional needs, if any.
 - 8.3 Culverts to be reconstructed and their type.
 - 8.4 Culvert to be widened.
9. *Road Intersections*
 - 9.1 Improvement to existing intersections category of other roads involved.
 - 9.2 New intersections, where required.
 - 9.3 Interchange, if any with justification.
10. *Railway Crossings*
 - 10.1 Improvement/Upgrading of existing crossings their location with justification; number of railway lines, (BG/MG) crossed at each location.
 - 10.2 Widening, if required.
11. *Materials and Equipments*
 - 11.1 Prospecting of borrow area for soil with soil properties for embankment as well as subgrade and lead involved.
 - 11.2 Quarries for aggregates its characteristics, lend involved.
 - 11.3 Sources of materials, water and arrangement for transportation.
 - 11.4 Labour availability, amenities.
 - 11.5 Important equipments proposed for the work with their capacities.
12. *Miscellaneous*
 - 12.1 Protective works such as pitching, retaining walls etc.
 - 12.2 Rest houses, temporary quarters, wayside amenities, truck parks etc.
 - 12.3 Roadside plantation, turfing, landscaping etc.
 - 12.4 Guard rails, informatory sign boards, traffic control devices, if any.
 - 12.5 Diversion, haul road and traffic arrangement during work on existing road.

- 12.6 Site Amenities.
- 12.7 Toll Plaza
13. *Rough Cost*
- 13.1 Rough cost of work
14. *Justification for splitting of work, if proposed*
15. *Prequalification of contractors - requirement status*
16. *Statements and Charts*
17. *Drawings*
18. *Programme of construction*
19. *Special status, if any*
20. *General*
- 20.1 Status of land plans and ownership.
- 20.2 Use of departmental machinery, where stipulated, with brief particulars.
- 20.3 Roughness measurements, if available.

(Signature of the Executive
Engineer who prepared the
proposal)

(Superintending
Engineer, N.H.)

(Chief Engineer,
NH)

CHECK LIST C

(Check list to accompany the original estimate for construction/improvement of new road/existing road)

Sl. No.	Items	Reply by the State PWD	Explanatory note if the reply to column (3) is in the negative
1.	2.	3.	4.
1.	Is the estimate accompanied by all the needed drawings for execution of the project, as per IRC:SP:19-1977	Yes/No	
2.	Have separate estimates/sub-estimates been enclosed for bridges, over bridges & under bridges falling in the section under consideration?	Yes/No	
3.	Has the economic analysis been attached with the estimate in the case of project costing Rs.3 crores or more i.e. requiring EFC/Cabinet Committee clearance?	Yes/No	
4.	Whether all the technical parameters as approved in the technical proposals have been incorporated in the detailed estimate?	Yes/No	
5.	Does the estimate provide for		
	(i) High embankment section	Yes/No	
	(ii) Protective works	Yes/No	
	(iii) Drainage measures as per detailed designs, where required?	Yes/No	
6.	(i) Has the land acquisition been completed?	Yes/No	
	(ii) Whether land to accommodate high embankment as per approved design has been acquired?	Yes/No	
7.	Have the utility services been relocated, where required?	Yes/No	
8.	(i) Is the estimate based on latest schedule of rates (indicate the year of updation)	Yes/No	
	(ii) Are rates support by analysis in the case of non-schedule items?	Yes/No	
9.	Are leads for material as per technical proposal duly taken in the rates?	Yes/No	
10.	(i) Does the estimate stipulates use of Govt. equipment(s)?	Yes/No	
	(ii) If yes, are its usage charges provided for in the estimate?	Yes/No	
11.	Has action been taken for prequalification of contractors for the work, where applicable?	Yes/No	
12.	(i) Does the project report indicate the detailed physical and financial phasing of construction?	Yes/No	
	(ii) does the phasing take into account the probable date of fixing the agency and availability of Departmental equipment to hire to the contractor where stipulated?	Yes/No	