

No. RW/NHIII/P/31/77-Pt.

Dated the 14th Jan., 1985

To,

All the Chief Engineers of States and Union Territories
(dealing with National Highways)

Subject : Preparation of technical proposals for road works included in the Annual Plan

The need for proper and complete field investigations, surface and sub-surface explorations and other technical inputs required for the preparation of detailed project estimate has already been brought to the notice of State Chief Engineers on several occasions in the past. However, due to lack of time or due to other reasons, many times the project estimate are not prepared after carrying out detailed engineering studies. This has often resulted in high cost over-runs and inordinate delay in the completion of the projects. In order to avoid this and subsequent need for revision of estimates, it is appropriate that complete investigations for the project are carried out first before taking up the preparation of the detailed cost estimate. It is therefore requested that initially only technical proposal as distinct from the cost estimate, should be prepared by the state PWD and forwarded to the Ministry for approval.

2. Detailed guidelines for carrying out preliminary survey, final location survey, traffic survey, soil & material survey, drainage and cross drainage structures etc. have been given in the IRC Special Publication No. 19 "Manual for survey, investigation and preparation of road projects". Further, this manual specifies details to be furnished in the longitudinal section and cross-sections, sizes of these drawings, scales to be adopted and other details to be incorporated in the technical proposal. Also a check list has been given to verify that the requisite particulars are incorporated in the technical proposal before it is sent to the Ministry. The technical proposal may be either for strengthening the existing pavement, widening single lane to two lane, construction of bypass or geometric improvements etc. For the technical proposal for strengthening existing weak pavement besides other relevant details it should include the properties of the subgrade soils (CBR values and other test details) Benkelman beam deflection study, traffic in terms of commercial vehicles per day at the last

traffic count, thickness and composition of the existing pavement, year of providing last strengthening or surfacing layer with details etc. Similarly for the technical proposal for the geometric improvement of existing deficient section besides other details it should include horizontal and vertical profile of existing section, properties of horizontal and vertical curves of various alternatives, the details regarding available land width, private and public properties to be acquired in various alternatives, details regarding culverts and bridges coming in the new alignment etc. The technical proposal for any scheme for the improvement of National Highway should include all the relevant technical details and should examine various alternatives with their economic viability. Such technical proposals with various alternatives will be examined in the Ministry in consultation with State PWD and technically sound and economically viable alternative will be selected. The approved technical proposal will be communicated by the Ministry to the State PWD. Only after receipt of the approval to the technical proposal from the Ministry, the cost estimate should be prepared at the current schedule of rates and forwarded. This procedure will help in the selection of appropriate alternative and will avoid delay in the sanction of the cost estimate.

3. The Annual Plan for 1985-86 has been prepared in advance so that sufficient time could be given for carrying out detailed investigation and collection of relevant technical data for the schemes included in the Plan. The copy of the Annual Plan for your State is being sent to you separately. A comprehensive circular letter was issued by the Ministry vide No. NHIII/P/31/77 dated 31.5.78 listing various IRC Codes and this Ministry's circulars to be referred to in the preparation of detailed project estimates. In order to further help in the preparation of technical proposal a statement showing IRC Codes and this Ministry's circulars to be referred for each scheme included in the plan is enclosed herewith for your ready reference. It is requested that detailed technical proposals based on relevant IRC Codes and this Ministry's circulars etc. for the scheme included in the A.P. 85-86 may please be forwarded to this Ministry at the earliest.

SCHEMewise LIST OF PUBLICATIONS OF IRC AND THIS MINISTRY'S CIRCULARS TO BE REFERRED IN THE PREPARATION OF TECHNICAL PROPOSALS

Sl. No.	Scheme	Name & No. of IRC Publications	Subject & No. of this Ministry's circulars
1.	Construction of missing links	IRC Special Publication No. 10-Manual for survey, investigation and preparation of road projects. IRC Special Publication No. 13-Guidelines for the design of small bridges & culverts. IRC : 25-1967-The type design for boundary stones. IRC : 38-1970 Design tables for horizontal curves for highways. IRC : 52-1981-Recommendations about the alignment, survey, geometric design of hill roads (where applicable) IRC : 73-1980-Geometric design standards for rural highways.	Development Plan of NHs during 1970-71 NH-37 (2)/70 dt. 2.4.70 Siting of bridges and fixing alignment of approaches thereto. NH-40 (3)/71 dt. 29.1.71. Fixing gradelines for new roads/existing roads proposed to be raised. PL-67 (12)/76 dated 10.9.76 Plantations, maintenance and cutting of trees. NHIII/P/15 dt. 20.5.76. Wayside amenities and landscaping etc. PL-30 (41)/76 dated 7.7.76.
2.	Imp. to low grade sections.	As I above	As I above
3.	Widening single lane road to two lanes.	IRC : 64-1976 Tentative guidelines on capacity of roads in rural areas. IRC : 37-Guidelines for the design of flexible pavements.	Preparation of detailed project est. for NHs (Rds. & Brds.) work-Avoidance of revision NHIII P 31/77 dt. 28.10.77 Camber for road surfaces for NHs in rural locations. PL-67 (5)/76 dt. 31.5.77.
4.	Widening and strengthening of single lane to two lane	IRC : 37-1984 Guidelines for the design of flexible pavements (modified)	Preparation of detailed project estimate for NHs (Road & Bridge) works & avoidance of revision. NHIII/P/31/77 dt. 28.10.77
(b)	First stage strengthening of two lane sections	IRC : 81-1981-Tentative guidelines for strengthening of flexible road pavements using benkelman deflection technique.	Camber for road surface for NHs in rural locations. PL-67 (5)/76 dt. 17.5.76 & 31.5.77.

(c)	Second stage strengthening of two lanes sections	—do—	Collection & presentations of soil investigation data for pavement design. NHIII/P/3/76 dt. 26.7.76.
(d)	Strengthening existing weak major arterial routes.		
5.	Construction of bypasses around congested towns & Imp. of permanent suitable link	IRC Special Publication No. 19-Manual for survey, investigation & preparation of road projects.	Need to limit acquisition of land to the minimum possible extent RW/NHIII/P/43/82 dt. 12.11.84.
		IRC : 62-1976-Guidelines for control of access of highways.	Preparation of detailed project estimate for NHs (R&B) works avoidance of revision. NHIII/P/31/77 dt. 28.10.77.
		IRC : 66-1976-Recommended practice for sight distance on rural highways.	Provisions of junctions at the ends of bypasses PL-30 (49)/79 dt. 29.9.84.
		IRC : 73-1980 Geometric design for rural (non-urban) highways.	
		IRC : 11-1962-Recommended practice for the design of layout of cycle tracks (where applicable)	
6.	Replacing railway level crossing with over & under-bridges	IRC : 62-1976-Guidelines for control of access on highways.	Gradient for approaches to railway overbridges. PL-30 (20)/77 dt. 21.2.78.
		IRC : 73-1980-Geometric design standards for rural highways.	Integrated project planning for bridges and their approaches. NHIII/P/30/77 dt. 25.2.78.
		IRC : 66-1976-Recommended practice for sight distance on rural highways.	
7.	Reconstruction of culverts.	IRC Special Publication No. 13 of 1973-Guidelines for the design of small bridges & culverts.	Ensuring fluent gradelines at culvert locations. NHIII/P/35/77 dt. 24.12.77.
			Fixing deck level of bridges and culverts. NHIV-50 (20)/77 dt. 27.9.77.
8.	Construction of approaches to bridges.	IRC : Special publication No. 13-1973 : Guidelines for the design of small bridges & culverts.	Integrated project planning for bridges & their approaches. NHIII/P/30/77 dt. 28.2.78.
		IRC : Special publication No. 23-1983 Vertical curves for highways.	Investigation and design for high embankment at approaches to bridges & overbridges on NHs & other centrally financed roads. NHVI-50 (21)/79 dt. 25.1.80.
		IRC 75-1979-Guidelines for the design of high embankments.	
9.	Permanent remedial measures for flood prone reaches.		Flood damages to NHs-instructions regarding mitigations, reporting & remedial measures. NHIII/P/13/79 dt. 4.8.81.
10.	Wayside amenities	—	—
(i)	Roadside rest areas.	—	Provisions of wayside amenities along highways NHIII/P/16/82 dt. 11.5.82.
(ii)	Truck parking area.	IRC : 41-1972-Type designs for check barriers.	
(iii)	Highway safety imp. works.	IRC-38-1970-Design tables for horizontal curves for highways.	Design of intersections PL-30 (49)/79 dated 25.7.84.
		IRC : 66-1979-Recommended practice for side distance on rural highways.	
		IRC : 73-1980-Geometric design standards for rural highways.	
11.	Landscaping of highways.	IRC special publication No. 21-1979-Manual on landscaping of roads.	Plantation, maintenance & cutting of trees on NHs. NHIII/P/15/75 dt. 20.5.76.