
Ministry of Surface Transport
(Roads Wing)

**ADDENDUM TO MINISTRY'S
TECHNICAL CIRCULARS AND DIRECTIVES ON
SPONSORED ROAD & BRIDGE PROJECTS
(August 1988 to December 1992)**

**Published by the
Indian Roads Congress
on behalf of the Govt. of India
Ministry of Surface Transport (Roads Wing)**

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FOREWORD

Technical Circulars, guidelines, directives issued by the Ministry for National Highway works and other Centrally Sponsored Schemes from time to time, were compiled and published in Two Volumes (Vol. I & II) in July, 1986 covering Circulars upto July, 1985. The compendium has served a useful purpose in making the Government policies in the highway sector widely known to all concerned.

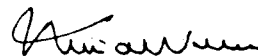
Subsequently, Addendum to Ministry's Technical Circulars on National Highways and Centrally Sponsored Road and Bridge Projects was published in September, 1989 covering the Circulars issued by Ministry from August 1985 to July, 1988.

Since July 1988, a number of Circulars and guidelines have been issued. These have now been updated ending December 1992. This 'Addendum' will afford an opportunity to the officers of Roads Wing as well as various State P.W.Ds to keep abreast with the policy changed in-between.

The compilation of this Addendum, would not have been possible without the active involvement of officers and staff of Roads Standards & Research Zone.

It will be our endeavour to keep on updating these volumes as and when new Circulars are issued by the Ministry and these will be brought out in the form of Addendums for the benefit of the users. Any feedback from the State P.W.Ds as well as technical officers of the Roads Wing to effect improvements in the future editions of the Addendum would be welcome.

Yours faithfully,



(Ninan Koshi)
Director General (Road Development)
& Addl. Secretary to the
Govt. of India

New Delhi, December, 1993

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*Code No. Circular No. & Date**Brief Subject**Page No.*113.25 Notification S.O. No. 57-E
dt 19-1-93

Declaration of N.H. 18

113/13

No.NH/14013/1/92/PL/RW

Dated the 19th January, 1993.

NOTIFICATION

S.O. 57-E. In exercise of the powers conferred by sub-section (2) of section 2 of the National Highways Act, 1956 (48 of 1956), the Central Government hereby declares the highway specified in the Table below to be a National Highway.

The said highway now declared to be a National Highway shall be deemed to be specified in the Schedule to the said Act with the serial number and the National Highway Number indicated in the Table:

TABLE

Serial Number in the Schedule to the N.H. Act, 1956	National Highway No.	Description of National Highway
1.	2.	3.
13-H	18	The Highway starting from its junction at Kurnool on National Highway No. 7 in the State of Andhra Pradesh connecting Nandyal and Cuddapah terminating at Chittoor on National Highway No. 4 in the State of Andhra Pradesh.

121.1 SCOPE OF ORIGINAL & REVISED ESTIMATES

Code No. Circular No. & Date

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121.1.4 RW - 24012/1/91 - RMP
dt. 22-8-91

Amendment in para 5.2 of the
comments in standard format in
respect of technical notes for NHs

121.1/11

No. RW-24012/1/91-RMP

Dated the 22nd August, 1991

CIRCULAR

Subject: Amendment in para 5.2 of the comments in standard format in respect of technical notes for National Highways.

On the basis of standard format of Technical Note to be appended with sanction of original works as in the compendium of Ministry's Circular, it is being mentioned in the Technical Note that "Bitumen used for the work shall be heated in boilers only and not on open fire. Spraying of bitumen wherever necessary should be done only with the mechanical sprayers and pre-mixing of bitumen and stone aggregate should be done only in proper mechanical mixer/hot mix plants".

2. The words "proper mechanical mixer" mentioned above are being misconstrued by the State P.W.D. and are creating problems in the field. Therefore, henceforth this para (para 5.2) may be replaced in the standard format of Technical Note as under:

For

Bitumen used for the work shall be heated in boilers only and not on open fire. Spraying of bitumen wherever necessary should be done only with the mechanical sprayers and pre-mixing of bitumen and stone aggregate should be done only in proper mechanical mixer/hot mix plants.

Read

Bitumen used for the work shall be heated in boilers only and not on open fire. Spraying of bitumen wherever necessary should be done only with the appropriate mechanical sprayers. Heating and mixing of stone aggregate with bitumen should be done only in appropriate hot mix plants as prescribed in the specifications.

3. It is requested that above para should be incorporated in the Technical Notes for the sanction of original National Highways works hereafter in place of para 5.2 appearing in the Compendium of Circulars of the Ministry.

121.2 DIRECTIONS ON PROJECT PREPARATION & CO-ORDINATION BETWEEN ROADS & BRIDGES

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
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121.2.48 204	RW/NH - 11060/1/87-DO I dt. 28-8-92	Expeditious award and Completion of NH Projects	121.2/34

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; reference 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	

No. RW/33044/2/88-D.O II

Dated the 13th January, 1989

To

The Chief Engineers of State Public Works Department and Union Territories dealing with National Highways and other Centrally Financed Schemes; Director General (Works) Central Public Works Department; Director General Border Roads.

Subject: Site Supervision on behalf of consultants.

It has been decided that where consultants are appointed for preparation of design and drawings of a bridge, they shall also be required to depute their personnel for site supervision to ensure implementation of their design during execution.

2. In this connection, it is further pointed out that appointment of consultants shall be made only after obtaining prior consent of this Ministry as already communicated to you vide this Ministry's letter No. NH/11065/10/88-NH.III-D.I. dated 18th July, 1988.

3. The receipt of this communication may please be acknowledged.

No. RW/33044/2/88-DO II

Dated the 19th Jan., 1989

To

The Chief Engineers of State PWDs and Union Territories dealing with National Highways and other Centrally Financed Schemes; Director General (Works), CPWD; Director General Border Roads.

Subject: Execution of bridge works on National Highway and under Other Centrally Financed Schemes Revised Procedure for approval of Bridge Estimates so as to facilitate call of tenders based on departmental designs.

Instructions were issued vide this Ministry's Circular No. NH.I-37(2)/70 dated 2.4.1970 that for bridges with individual span lengths of 25 metres (80 ft) or less and overall length of bridge not more than 5 spans of 25 metres (400 ft.) tenders will have to be only on item rate basis on departmental designs, while for other bridges lumpsum tenders based on alternative designs could be invited. These instructions were reiterated vide letters No. NH VI-50(3)/83 dated 15.7.1985 and 16.12.1986. It is however seen that these instructions are not being strictly followed and many bridges are still being let out on contractor's alternative designs. This is leading to considerable delay in execution of bridge works as difficulties are being experienced in expeditious approval of detailed working drawings based on alternative designs of contractors. In view of this, it has been decided that henceforward all tenders for bridges on National Highways and under other Centrally Financed Schemes, shall be only on item rate basis on already approved designs except in those cases in which the Ministry specifically permits tenders based on alternative designs. The revised procedure for approval of estimates and call of tenders is outlined in the succeeding paras.

1.1 Topographical, hydrological and sub-soil investigations should be carried out properly and accurately in advance so that all necessary data required for design of the bridge and preparation of complete structural designs are available. For major bridges, hydrological investigations shall be got done through Hydraulic Research Stations/Institutes with proper co-ordination at each stage.

1.2 In view of the problems being faced in collection of totally undisturbed soil samples for testing and the difficulties in reconciling the variable results and interpretations thereof, given by different agencies/research laboratories, it is now decided that detailed: sub-soil: investigations shall be carried out only once i.e. at the time of detailed project preparation. For a fully developed departmental design, proposal for foundation shall be formulated on the basis of these detailed investigations and no further confirmatory bores shall be called for from the contractor who takes up the construction work later on. It shall, therefore, be ensured that soil investigations are carried out in a complete and thorough manner with the required equipments so as to furnish reliable results.

2. The revised procedure to be followed now for project preparation is outlined in Annexure-I.

3. In case some State PWDs are not having proper organisation within their present set-up for carrying out detailed investigations and preparation of designs and working drawings, detailed project preparation may be entrusted to competent consultants who will perform the functions required to be carried out by State PWDs vide items 1, 2, 3, 5, 8 and 9 of Annexure-I. The consultant will be responsible for carrying out detailed topographical,

hydrological and sub-soil investigations, interpreting the data obtained and preparing complete technical proposal including structural designs and working drawings for approval of State PWD/Ministry. He will also co-ordinate hydrological investigations with Hydraulic Research Stations/Institutes for major bridges. Also, bill of quantities, tender papers, pre-qualification documents, methodology of construction and details of system of quality assurance, acceptance criteria and documentation shall be prepared by him for approval of State PWD. The same consultant will also be available during the period of construction of the bridge so that any changes in designs/drawings required on the basis of site conditions will be carried out by him.

4. For works where Ministry permits alternative designs based on contractor's proposal the existing procedure shall continue.
5. This Circular supersedes instructions issued on the subject vide this Ministry's Circular letters No. NHI-37(2)/70 dated 2.4.1970 and NH VI-50(3)/83 dated 15.7.85 and 16.12.86.
6. It is requested that contents of this circular may be brought to the notice of all officers in your Department concerned with National Highways and other Centrally Sponsored Schemes. Ministry may be apprised about the action taken in this regard.
7. The receipt of this Circular may please be acknowledged.

Enclosures to Circular No. RW/33044/2/88-DO II dt.the 19-1-89

ANNEXURE - I

Steps to be taken for Project Preparation, Sanction of Estimates and Award of Work as per revised Procedure Outlined in Letter No. RW/33044/2/88 Dated 19.1.89.

1. Carry out topographical and hydrological investigations. Take 3 or 4 preliminary bores for deciding hydraulic particulars, type of foundations and span arrangement for the bridge.
2. Take borings at each foundation location to finalise soil parameters.
3. Prepare complete structural designs and working drawings for the bridge.
4. Submit complete technical proposal including structural designs and drawings for approval of the Ministry.
5. After accord of approval to the technical proposal by the Ministry, prepare detailed bill of quantities, tender papers and pre-qualification documents for proceeding with the call of tenders.
6. Submit detailed estimate based on bill of quantities for obtaining sanction of the Ministry.
7. Call tenders and award work.
8. Finalise construction methodology, equipment planning and construction programme. Modify the same based on contractor's proposal, if required.
9. Prepare in advance details for quality assurance, acceptance criteria and documentation.
10. Start construction work at site with all approved drawings available in advance.

121.2.47

No.RW/NH-33022/2/90-DO II

Dated the 20th August, 1990

To

The Chief Engineers (dealing with National Highways), Public Works Departments of all States and Union Territories; Director General (Works) Central Public Works Department; Director General Border Road.

Subject: Provision for Road Safety in estimates for National Highway Projects.

India has one of the highest accident rates in the world and the number of road accidents is steadily rising. In 1988 around 50,000 lives were lost and 200,000 persons injured in road accidents. In financial terms, road accidents entail an annual loss of around Rs. 1,000 crores.

2. While road accidents can have many causes, it is accepted that the accidents can be reduced through careful attention to road design and other engineering measures. While doing so, emphasis should be on adoption of simple low cost improvements, and inculcation of a "safety-conscious design process". The overall approach should be to build "forgiving" highways through features such as wide shoulders, guard rails, and flat side slopes, so that an out of control vehicle leaving the road will possibly be less damaged.

3. Important safety measures which could be considered are:

Improvement of specific intersections which account for roughly one third of all accidents.

- (ii) Comprehensive improvement of accident-prone sections especially in terms of geometrics, surface condition, provision of signs and markings etc.
- (iii) Use of retro-reflective road signs, and thermoplastic road markings with beads for better night visibility.
- (iv) Proper attention to hill/ghat sections in terms of signs, markings, no overtaking zones, speed limit signs, guard rails, and provision of truck climbing lanes on sections with steep grades.
- (v) Provision of transition guard rails and flat side slopes on approaches to bridges and high embankments etc.
- (vi) Upgrading of unmanned railway level crossings to manned ones, or provision of automatic audio visual signals, signs and : rumble strips as an alternative.
- (vii) Removal/prohibition of speed breakers on National and State Highways.
- (viii) Installation of flood level indicators at submersible bridges; and
- (ix) Provision of adequate arrangements for guidance, regulation, and safety of traffic flow alongwith warning signs/markings etc. at construction sites.

4. It has been observed generally that many a times due consideration is not given to road safety aspects while preparing project proposals for improvement of road and bridge projects. In order to provide proper guidance on the requirements of road safety and improvement in traffic flow, a check list of points to be considered while preparing proposals for National Highway projects has been prepared and is enclosed as Annexure - I.

5. The above check-list should be kept in view while formulating proposals for National Highways works in future and suitable provisions for road safety features made in the estimates. In compliance with this, a copy of the check list along with remarks against each item, should be appended to all estimates for road improvements submitted to this Ministry. These instructions may please be circulated to all the concerned officers for guidance and compliance.

Annexure I

Enclosure to Circular No. RW/NH - 33022/2/90 - DO II dt 20.8.90

Check List of road safety features to be considered in preparation of road projects.

1. *Horizontal Profile*

Whether this section of road has following deficiencies (with respect to Geometric Design Standards given in IRC: 73 - 1980) and if so, whether provision for their improvement has been made:

- (a) Sub-standard horizontal curves.
- (b) Inadequate sight distance for the design speed especially at horizontal curves and intersections.
- (c) Inadequate super-elevation on horizontal curves.
- (d) Lack of extra, pavement widening on curves

2. *Vertical Profile:* Whether the following aspects have been taken care of (as per IRC: 73 - 1980)

- (a) Improvement of any sharp longitudinal gradients.
- (b) Provision of properly designed vertical curves at all grade changes.
- (c) Coordination of the vertical alignment with the horizontal alignment.

3. *Cross Sectional Elements*

- (a) Whether the following components are adequate:-
 - (i) Existing/proposed road width for design for traffic volume corss-slope / condition of pavement and shoulder (as per IRC: 73 - 1980)
 - (ii) Embankment/out slopes as per IRC: 36 - 1970.
- (b) Whether the full cross section of road has been taken across culverts and minor bridges upto 30m span.

4. *Road Intersections*

- (i) Whether the intersections have been designed/improved for expected traffic at the and of design period.
- (ii) Whether islands/channelisers in the intersection area in rural sections are provided with mountable type kerbs and suitably painted.
- (iii) Whether medians/islands/approcahes to intersections are provided with properly laid out guidance systems in the forms of signs and pavement markings as per IRC: 35-1970

5. *Traffic Control Devices*

- (a) Whether traffic control devices such as signs, signals, road markings have been provided in accordance with relevant IRC Standards (IRC: 67-1977, IRC: 93-1985 and IRC: 35-1970) including need for retroreflective signing and then thermo plastic pavement markings for high-traffic density corridors.
- (b) Whether delineators as per IRC: 79-1981 provided, wherever required, to guide the traffic.

6. *Safety Features*(a) *Railing barriers in hazardous locations*

Whether railing/crash barriers, adequate shoulders and side slopes have been provided for safety at hazardous locations, approaches to narrow bridges, high embankments etc.

(b) *Road-Rail at grade crossing*

Whether there are any unmanned/manned road-rail crossings and whether suitable warning signs/signals, imposition of speed limits, and rumble-strips on both sides have been provided as per Ministry's circulars.

(c) *Flood level indicators*

Whether these are provided at the submersible bridges and causeways.

(d) *Pedestrian facilities*

Whether the following (as per IRC: 103-1988) are needed and provided for:

(a) Footpaths of adequate width with suitable surfacing at busy intersections in urban/semi urban areas.

(b) Railing barriers with pedestrian crossing at inter-sections to control the movement of pedestrians.

(e) *Speed Breakers*

Whether there are any existing speed breakers. If so, whether provision made for their removal.

7. *Ancillary Items*(a) *Shoulders*

Whether paved shoulders have been proposed in high traffic density corridors and other vulnerable locations such as approaches to bridges, urban areas etc.

(b) *Laybys and Busbays*

Whether the need for the following components has been examined and suitable provisions made.

(i) Parking laybys as per Ministry's type drawings in Sections having heavy truck parking demand.

(ii) Appropriate layouts for check barriers as per IRC: 41-1972 and collection plazas as per Ministry's type designs and

(iii) Pick up bus stops as per IRC: 80-1981 for rural highways and IRC: 70-1977 for urban areas.

(c) *Access Points and Median Gaps*

Whether any access points of median gaps are less than 750 m apart. If so, whether provisions, like service road to control access, need inclusion.

(d) *Service Roads*

Whether provision of service road considered in built-up areas for access control.

(e) *Safety in construction Zones*

a) Whether plans made for diversion/controlling of traffic during execution of work; and

b) Whether provision made for barricading diversions, alongwith signs, markings, reflectors, night lighting etc. for traffic control/guidance during construction phase as per section 112 of Ministry's specification for Road and Bridge Works and other circulars and directives.

(f) *Hill/Ghat Sections*

Whether Safety needs especially in terms of signing/markings, delineation, no overtaking/speed limit zones, guard rails, climbing lanes, passing areas etc. considered.

(g) *Location of trees/vegetation*

Whether removal of trees other vegetation, which may prove hazardous due to their proximity to travel path, blocking the sight line or encroaching on the requisite vertical clearance is included in the proposal.

121.2.48

No. RW/NH-11060/1/87-DOI

Dated the 28th August, 1992.

To

The Secretaries of States/Union Territories, Public Works, Departments,
(Dealing with National Highways)

Subject: Expeditious award and completion of National Highway Projects.

In a high-level meeting held in the Ministry recently, it was observed that quite often the State Governments are taking a long time to award contracts for NH projects after sanction by this Ministry. This has the effect of indirectly increasing the cost of the Projects. Moreover, the works are not being completed in reasonable time after approval by the Ministry.

2. Considering the above it has been decided that henceforth all sanctions in respect of National Highway works will be subject to the following time schedule:

- | | | |
|------|--|--|
| (a) | Award of contract/commencement of works: | Maximum within one year from the date of sanction. |
| (b) | Completions of works: | |
| (i) | Projects costing less than Rs. 50 Lakhs: | A maximum of three years from the date of sanction |
| (ii) | All other projects: | A maximum of five years from the date of sanction. |

3. It may please be noted that henceforth sanctions of projects which have not been started within one year from the date of sanction will automatically lapse after one year, unless specifically agreed to by the Ministry due to any extenuating circumstances.

4. The State Public Works Departments are requested to streamline the process of award of NH works and amend their existing procedures whenever necessary for complying with the above requirements. The time schedule(s) prescribed in this letter will be strictly applied in future.

5. It is requested that contents of this letter may please be brought to notice of all officers in the PWD dealing with NH works.

121.3 AGENCY AND OTHER CHARGES & RECEIPTS

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
121.3.11	NH-11023/1/87-DO I Dt. 27.9.89	Admissibility of Agency charges to the State PWDs in respect of R.O.Bs/R.U.Bs.	121.3/5
121.3.11A	NH-11023/1/87-DO I Dt. 31.10.89	Admissibility of Agency charges to the State PWDs in respect of R.O.Bs/R.U.Bs.	121.3/5
121.3.12	RW/NH-11052/2/87-DO I Dt. 10.1.90	Accounting of expenditure incurred on purchase of inspection vehicles, petrol, oil and lubricants, stationery, telephones etc. & repair of inspection vehicles/jeeps for NH Works.	121.3/6
121.3.13	RW/NH-11052/2/87-DO I Dt. 21.3.90	Accounting of expenditure on construction of store-sheds, office building, quarters, purchase of furniture and T&P articles from out of contingencies in respect of NH Projects.	121.3/6

No. NH-11023/1/87-DOI

Dated the 27th September, 1989.

Subject: Admissibility of agency charges to the State PWDs in respect of ROB/RUBs.

Sometime back Chief Engineer (NHs), Tamil Nadu PWD had requested that the State PWDs are entitled to agency charges for the RUBs/ROBs projects constructed by the Railways on account of the following exercises undertaken by the State PWDs.

- (i) Detailed investigation, selection of suitable alignment, location of the project, fixing up of road levels are all attended to by the State PWDs;
- (ii) Proposals are initiated by the State PWDs and they are also fully involved in the payment to the Railways as well.
- (iii) Work of execution of ROB/RUBs is not dealt with directly by Ministry of Surface Transport with the Railways, but through the State PWD.
- (iv) Frequent inspection of ROB/RUBs, monitoring progress, contacting Railway officials on related matters, scrutiny of estimates, modifications of estimates is all done by the officers of the State PWD.
- (v) Officers of the State PWDs accompany the officers of the Ministry for inspection of the works.
- (vi) The Railways are engaged only in construction as any other contractor.

2. This matter was discussed in a meeting by DG(RD) & Additional Secretary with the ADGs and all the Chief Engineers at Headquarters on 11th April this year. After discussing all aspects of the matter, it was observed as under:

- (a) Where the Government of India is making direct payment to the Railways for carrying out any works, no departmental charges is admissible to the State Government.
- (b) Where the State Government obtains proposals and estimates from Railways and furnish the same to the Ministry for sanction and actual payment is incurred through the State Government, normal agency charges are admissible to the State Government.

3. This issue was taken up with the Internal Finance. Finance Wing did not agree to the proposal quoted in paras 2(a) & (b) above. They categorically pointed out that whenever the job is required to be done by the Railways for which departmental charges are paid to them, the State PWDs are not entitled to the agency charges. All the technical officers in the Roads Wing, are, therefore, requested to ensure that no agency charges are allowed to the State PWDs in respect of ROB/RUBs constructed by the Railways where departmental charges are paid to the Railways.

121.3.11-A

No. NH-11023/1/87-DO-I

Dated the 31st October, 1989.

To

The Secretaries (dealing with National Highways) Public Works Department of all States and U.Ts.;
Director General (Works), CPWD; Secretary, BRDB.

Subject: Admissibility of agency charges to the State PWDs in respect of Road Over-bridges/Road Under-bridges.

It has come to the notice of this Ministry that some of the State PWDs are projecting agency charges at 9% in respect of estimate for Road over-bridges/Road under-bridges to be constructed by the Railways as deposit works. As the Ministry of Railways is charging 12½% as Departmental charges as provided in para 1049 of the Railway Code, the admissibility of 9% agency charges claimed by some of the State PWDs has no justification. In view of persistent demand by a few State PWDs, this matter has again been examined in consultation with the Finance wing of this Ministry. Since the Departmental charges being paid to the Railways are to cover the cost of tools and plants, establishment and supervision etc., which is similar to the elements of agency charges paid to the Executing Agencies, it has been decided that payment of agency charges to the executing agencies in addition are not permissible in respect of ROB/RUBs where Departmental Charges are paid to the Railways. State PWDs are, therefor, requested not to include agency charges in the estimates for ROB/RUBs in respect of N.H. works which are executed by the Railways as Deposit Works.

No. RW/NH-11052/2/87-DO I

Dated the 10th January, 1990.

To

The Secretaries (Dealing with National Highways)
Public works Department of all States and Union Territories.

Subject: Accounting of expenditure incurred on purchase of inspection vehicles, petrol, oil and lubricants, stationery, telephones etc., and repair of inspection vehicles/jeeps for NH works.

I am directed to refer to this Ministry's letter No. RW/NH-III/P/18/81 dated 6th December, 1984 requesting that expenditure incurred on purchase of petrol, oil and lubricants, repair of jeeps, purchase of stationary and telephones etc. should not be charged to the work estimates and is to be met out of the agency charges payable to the executing agencies. It has now come to notice that purchase of inspection vehicles including jeeps is being claimed from out of the work estimates of National Highways. Since use of inspection vehicles is a part of supervisory work, the expenditure incurred on the purchase and repair of inspection vehicles including jeeps is not a correct charge to the work and should also be met out of the agency charges. It is, therefore, requested that these instructions may kindly be brought to the notice of all field organisations of the PWD dealing with Centrally sponsored Road/bridge works.

No. RW/NH-11052/2/87-DO I

Dated the 21st March, 1990.

To

The Secretaries (dealing with National Highways),
Public Works Departments of all States and Union Territories.

Subject: Accounting of expenditure on construction of store sheds, office building, staff quarters, purchase of furniture and T&P articles from out of the contingencies in respect of NH projects.

I am directed to refer to the correspondence resting with this Ministry's policy circular letter of even number dated 10th January, 1990 regarding the expenditure on purchase of inspection vehicles, POL stationary, telephones etc. and repair of inspection vehicles for the NH works. It has further come to the Ministry's notice that expenditure on construction of store sheds, office building, staff quarters, purchase of furniture and T&P articles is being claimed out of the contingencies provided in NH projects.

2. Expenditure on above referred items is not a correct charge to the contingencies of NH projects and should not be so booked. It is requested that these instructions may kindly be brought to the notice of all field organisations of the PWDs dealing with Centrally sponsored road/bridge works.

121.4 PROCEDURE FOR SUBMISSION OF CASES TO MINISTER, MOF, PIB, EFC & WORLD BANK

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
121.4.29	RW/NH-11052/2/86 - NH III/DI Dt 5.6.92	Price/Purchase preference for production and servicing of Public Enterprises.	121.4/34

No. RW/NH-11052/2/86-NHIII/DI

Dated the 5th June, 1992.

To

The Secretaries (dealing with National Highways), Public Works Departments of all States and Union Territories; Director General Border Roads.

Subject: Price/Purchase Preference for Production and Servicing of Public Enterprises.

I am directed to refer to this Ministry's letter of even number dated 5th February, 1988 for grant of 10% price preference to Public Sector Undertakings. In this connection, Ministry of Industry (Department of Public Enterprises) in their O.M. No. DPE/13(19)/91-Fin. dated 7th May, 1992 have revised the policy directions. A copy of their O.M. is enclosed for ready reference. It will be observed therefrom that the Government has since decided to do away with the scheme of giving price preference to Public Enterprises. It is, therefore, requested that the latest policy directions contained in the Ministry of Industry (Department of Public Enterprises) O.M. dated 7.5.1992 quoted above may kindly be followed strictly for all N.H. projects. Whether for award of contracts or procurement of any materials.

Enclosure to letter No. RW/NH-11052/2/86-NHIII DI dated the 5th June 1992.

Subject: Price/Purchase preference for Production and Servicing of Public Enterprises.

As the Administrative Ministries/Departments are aware, a scheme of purchase/price preference for the goods and services of public enterprises in competition with those of the private sector in the matter of purchase by Government Departments and other PSES was in operation since June, 1971. The underlying objective behind this scheme was that the capacity created in the public sector should be fully utilised. The scheme provided for price preference not exceeding 10% to the public sector enterprises.

2. The policy of giving purchase/price preference to public enterprises has been recently reviewed by the Government in the light of the New Industrial Policy Statement made in July, 1991 which laid emphasis on giving greater thrust to performance improvement. In the context of liberalisation and opening of many areas to the private sector, it is necessary that public enterprises function on commercial principles in an environment of competition. Thus, the protection so far provided to the public sector in the form of price/purchase preference is no more relevant in the present environment. Considering all these changes, the Government has since decided to do away with the scheme of giving price preference to public enterprises. A copy of the order issued vide D.O.M. No. D.P.E./13(19)/91 Fin. dated 13th January, 1992 to this effect is enclosed.

3. It has, however, come to notice that in spite of withdrawal of the facility of price Preference so far enjoyed by the public enterprises, there are still instance wherein some of the enterprises are pressing the administrative Ministry to get them price preference from Government Departments. This approach is against the new policy and needs to be curbed. The public enterprises are now expected to function on commercial principals.

4. Ministries/Department of Govt. of India are requested once again to ensure that the latest policy described above is strictly followed.

Copy of letter No. PPE/13(19)/91-Fin dated the 13th Jan. 1992 of Ministry of Industry

Office Memorandum

Subject: Price/Purchase preference for production and servicing of Public Enterprises.

Reference is invited to O.M. No. BPE/GL-008/80/23.1.80/BPE/MM dated 15.10.80 on the above subject. (Copy enclosed).

In the new environment of a liberalised Industrial Policy and the emphasis on performance improvement of public enterprises to function on commercial principles etc., further protection in the term of price/purchase preference is not quite relevant in the new competitive environment. The matter was reviewed by the Government and the decision is as under:-

- (a) Instead of granting price Preference to public enterprises Government may grant purchase preference to the public enterprises.
- (b) In all such cases, while the quoted prices of public enterprises is not within the 10% of the lowest valid price bid, such a price bid may be rejected without any further consideration.
- (c) Where the quoted price is within 10% of the lowest price, other things being equal, purchase preference may be granted to the public enterprise concerned, at the lowest valid price bid.
- (d) The above purchase preference may be made operable for a period of 3 years as transition within which public enterprises should adjust themselves to the new environment of competitiveness and efficiency so that the entire policy of price/purchase preference may be withdrawn within the next 3 years, from the date of issue of this O.M.

121.5 REVISED ESTIMATES, PERMISSIBLE EXCESS & CHANGE OF SCOPE

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
121.5.19	RW/NH-11026/1/89 DO I dt. 1.12.89	Processing of revised estimates for works on NHs or under other centrally financed schemes.	121.5/17
121.5.20	RW/NH-11026/1/89 DO I (Pt) dt. 26.9.90	Expeditious acceptance of tenders for works on National Highways.	121.5/17

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No. RW/NH-11026/1/89-DOI

Dated the 1st December, 1989.

To All R.Os/E.L.Os Ministry of Surface Transport, (Road Wing)

Subject: Processing of revised estimates for works on NHs or under other Centrally Financed Schemes.

I am directed to say that the matter relating to furnishing of comments on revised estimates (relating to works on NHs or under other Centrally Financed Schemes) by R.Os/E.L.Os has been examined in the Ministry and it has been decided that in future revised estimates would be processed in the Roads Wing without waiting for comments of R.Os/E.L.Os on each and every case. However, comments of R.Os/E.L.O on specific issues relating to original or revised estimates would be called for by officers at the Headquarters, as and when considered necessary. In that event, R.Os/E.L.Os would be expected to give a quick response to the queries made, so that there is no delay in processing the revised estimates. This may please be noted for compliance.

121.5.20

No. RW/NH-11026/1/89-DO I(Pt)

Dated the 26th September, 1990.

To

The Secretaries (Dealing with National Highways), Public Works Departments of all States and Union Territories; Director General (Works), CPWD; Secretary, Border Road Development Boards.

Subject: Expeditious acceptance of tenders for works on National Highways.

I am directed to State that detailed instruction for preparation and submission of revised cost estimates have been issued by this ministry from time to time. It has been observed that when the revised estimates, based on enhanced tender cost, are received in this Ministry, in many cases the validity of the tender is about to expire leading to re-tendering and ultimate higher cost of the project. In order to avoid recurrence of such cases, it is requested that the following points may please be kept in view:

- (i) Where the excess over the sanctioned estimates does not go beyond the value determined on the basis of current schedule of rates by 15% the State PWDs should ensure that the tenders are settled before the expiry of the validity date of the tenders.
- (ii) In other cases, where reference has to be made to the Ministry for approval of the revised estimates, it should be sent well in time and, in any case, before three months of the expiry of the validity date of the tenders.
- (iii) In order to ensure the above requirements, the State PWDs, while inviting tenders may ask for atleast six months validity of the tenders in the case of major jobs and four months in other cases.
- (iv) While forwarding these cases, the State PWDs should clearly bring about the validity date of tenders related to the revised cost and if possible should send advance information to this Ministry.
- (v) The State PWDs should also actively interact with this Ministry so that the revised estimates are sanctioned well before the expiry date of tenders.

121.6 DELEGATED POWERS TO STATES & SPLITTING OF WORKS

Code No. Circular No. & Date

Brief Subject

Page No.

121.6.17 RW/NH-11063/1/87-DO I (Pt.)
dt. 24.7.90

Splitting up of NH works -
regarding

121.6/18

No. RW/NH-11063/1/87-DOI (Pt.)

Dated the 24th July, 1990.

To

The Secretaries (dealing with National Highways),
Public Works Departments of all States and Union Territories.

Subject: Splitting up of National Highway works - regarding.

I am directed to refer to this Ministry's letter No. RW/NH-III/P/25/84 dated 4th August, 1984 forwarding the relevant portion of the recommendation of the Vohra Committee relating to splitting up of NH works. It was impressed upon the State PWDs that in order to encourage well qualified contracting firms or cooperatives of small contractors and in the interest of quality construction, splitting up of NH works may not be resorted to. It was also brought out that in unavoidable circumstances where splitting up of works is considered necessary prior permissions of this Ministry may be obtained. In our subsequent policy circular letter No. RW/NH-III/P/25/84 dated 20th June, 1986 clarification in this regard was also given to all the State PWDs. The circumstances where splitting up of projects can be resorted to were indicated therein.

2. It has now been observed that some of the executing agencies are not following strictly the guidelines issued by this Ministry as quoted above. This has resulted in adverse reports from the Comptroller and Auditor General. Such actions of the executing agency not only compromise with the quality of work but create complications. It is, therefore, again reiterated that the policy instructions as communicated in our letters quoted above may kindly be strictly adhered to. These instructions may also kindly be brought to the notice of field formation handling the National Highway works.

122.1 RESOLUTION GOVERNING CENTRAL ROAD FUND

Code No. Circular No. & Date

Brief Subject

Page No.

122.1.2 NH-28030/1/87-OR
dt. 21-10-88

Central Road Fund

122.1/3

No. NH-28030/1/87-OR

Dated the 21st October, 1988.

To

The Chief Secretaries to all State Govts. and Union Territories.

Subject: Central Road Fund.

I am directed to say that the question of augmenting the Central Road Fund had been under consideration of the Government of India for quite sometime. It has now been decided to augment the Central Road Fund by enhancing the levy from 3.5 paise per litre on petrol to 5% of basic price of petrol and also by bringing diesel within the purview of the Central Road Fund. The revised resolution governing the Central Road Fund was approved by the Parliament on 13.5.1988. A copy of the revised resolution is enclosed for information and guidance.

I am further to say that the guidelines for the sanction of estimate from Central Road Fund are under consideration of the Government of India. As soon as the guidelines are finalised and the additional amount of accruals is available the State Govt. will be informed of their share of the accruals and they will be requested to forward their proposals for financing from Central Road Fund.

Enclosure to Ministry's Circular No. NH-28030/1/87-OR Dated the 21.10.88

RESOLUTION GOVERNING THE CENTRAL ROAD FUND AS PASSED BY THE LOK SABHA/RAJYA SABHA ON THE 13TH MAY, 1988.

RESOLUTION

In supersession of the Resolution on Road Development adopted by the Parliament (Rajya Sabha on the 1st April, 1976 and Lok Sabha on the 18th June, 1977), This House hereby resolves that:

1. There shall continue to be set apart an amount not less than 5 per cent of basic price of the duty of customs and of excise levied on motor spirit and diesel and the proceeds thereof shall be applied for the purposes of development and maintenance of roads.
2. (1) The proceeds of such an amount so set apart in any financial year, reduced by duty attributable to taxed motor spirit and diesel used in aviation during the same period, shall be credited as a block grant to a separate Road Fund to be maintained in the Public Account of India.
- (2) for the purpose of this Resolution taxed motor spirit and diesel shall mean motor spirit and diesel upon which the duty of customs or excise duty has been paid and in respect of which no rebate of such duty shall have been given.
3. (1) The accruals to the Road Fund shall be allocated by the Central Government in the following manner:
 - (a) 1/2 per cent of the accruals from the Fund be utilised for defraying the cost of administering the fund.
 - (b) 35 1/2 per cent of the accruals from the Fund be utilised by the Central Govt. for development and maintenance of National Highways.
 - (c) Balance 64 per cent of the accruals from the Fund be utilised by the State/Union Territories for development and maintenance of the State Road on the basis of petrol and diesel consumption in each State/Union Territory.
- (2) The balance of accruals to the Road Fund till the date of the adoption of the revised resolution by the Parliament will be allocated by the Central Government in the manner as provided in para 3(1) above.
- (3) The portions allocated for expenditure in the various States and Union Territories shall be retained by the Central Government until they are actually required for expenditure in the manner hereinafter specified.
- (4) If in the opinion of the Central Government, the Government/Administration of any State/Union Territory has at any time:
 - (a) Delayed without reasonable cause the application of any portion of the Road Fund allocated or re-allocated, as the case may be, for expenditure within the State or Union Territory the Central Government may resume the whole or part of any sums which it may at that time have held for expenditure in that State or Union Territory.
- (5) All sums resumed by the Central Government from the account of any State/Union Territory Govt. as aforesaid shall be re-allocated between the credit accounts of State/Union Territory Govts. including the defaulting State in the ratio of the main allocation for the financial year preceding the year in which the re-allocation is made.
4. The balance to the credit of the Road Fund or of any allocation thereof shall not lapse at the end of the financial year.
5. The Central Road Fund shall be utilised for financing such of the schemes connected with roads as the Central Govt. may approve.

122.2 PROCEDURE

<i>Code</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
122.2.5	NH-28012/3/88 - Policy (OR) dt. 3.1.89	Formulation of State Sector Road Development Programme to be financed from the CRF for the year 1989-90 and 8th Five Year Plan	122.2/9

No. NH-28012/3/88-Policy (OR)

Dated the 3rd January, 1989.

To

The Chief Secretaries,
(All State Governments/Union Territories).

Subject: Formulation of State sector Road Development Programme to be financed from the Central Road Fund for the year 1989-90 and 8th Five Year Plan.

I am directed to refer to this Ministry's letter No. NH-28020/1/87-OR(AUG) dated 21st October, 1988 addressed to Chief Secretaries of all State Governments/Union Territories intimating details of revised resolution passed by Parliament on 13.5.88, resulting in enhanced accruals to the Central Road Fund. Consequent to this, the Government of India have framed revised guidelines, for utilisation of funds which envisage assigning of priority to already sanctioned project. Thereafter the accruals shall be utilised in the following manners:

- (i) Development of State Highways and Major District roads carrying heavy traffic with emphasis on construction of missing bridges, cross drainage works and rehabilitation of bridges, construction of parallel service roads of bypasses constructed on National Highways (at least 65 per cent)
- (ii) Engineering aspects of road safety covering improvement of traffic junction, road marking, signalling, construction of subways and over bridges (at least 5 per cent).
- (iii) Research and Development and development of data base (at least two per cent).
- (iv) Development of other Districts and village roads (not more than 15%)
- (v) Preventive maintenance by way of strengthening (heavy density corridors).
- (vi) Training of Highway Engineers.

2. Actual assessment of accruals is likely to take some time. However, according to the preliminary assessment, a sum of Rs. ____ lakhs is likely to accrue to your State Government/Union Territory administration in your Central Road Fund annuals. Accordingly, I am to request that a new programme of road development may please be prepared and forwarded to this Ministry for approval urgently. In preparing the programme, the following points may be kept in view:

- (i) The programme should be balanced and should conform the guidelines indicated herein.
- (ii) Various works under each category should be arranged on order or priority.
- (iii) The cost of each work should be based on actual requirements and realistic cost estimates keeping in view the likely escalation during the construction period.
- (iv) The proposals shall include broad features indicating scope of the work, the existing position and the improvements desired, specification proposed, extent of preliminary survey and investigations conducted, traffic projections etc.
- (v) Justification for inclusion of each proposal in the programme.

3. I am also to draw your particular attention to the following:

- (i) No agency charges will be payable for the execution of works included in the programme;
- (ii) Future maintenance and upkeep of the project(s) after completion will be the responsibility of the State Government concerned;
- (iii) State Governments will have to ensure that individual project(s) are sanctioned within a period of two years from the date of approval of the work, failing which the work will be deemed to be deleted from the programme, unless revised administrative approval of Government of India is issued;
- (iv) Audit will admit expenditure on receipt of audit authorisation by this Ministry which will be based on the particulars of technically sanctioned estimates sent to the respective State/Union Territory Governments.

The State Governments are, therefore, requested to draw up a list of works to be included under this programme for a period of five years, to be coterminous with the Five Year Plan. I am, therefore, directed to request that a list of proposals for inclusions in the programme for the period 1989-95 be identified immediately and forwarded to this Ministry, alongwith the estimated cost and other supporting data by 28th February, 1989.

Enclosure to Ministry's Circular No. NH-28012/3/88 Policy (OR) dt. 3rd January, 1989.

Statement indicating tentative accruals to Central Road Fund for 1988-89 on the basis of sale of petrol and mobile diesel oil for 1987-88.

(Rs. in lakhs)

S.No.	Name of State/ Union Territory	Tentative accruals of C.R.F. for 1988-89
States		64%
1.	Andhra Pradesh	2075.91
2.	Arunachal Pradesh	33.00
3.	Assam	510.44
4.	Bihar	1399.09
5.	Goa	156.58
6.	Gujarat	1968.24
7.	Haryana	1003.57
8.	Himachal Pradesh	35.96
9.	Jammu & Kashmir	246.76
10.	Karnataka	1557.22
11.	Kerala	1119.29
12.	Madhya Pradesh	1530.75
13.	Maharashtra	3977.56
14.	Manipur	52.31
15.	Meghalaya	78.94
16.	Mizoram	32.81
17.	Nagaland	56.24
18.	Orissa	518.00
19.	Punjab	1798.85
20.	Rajasthan	1393.33
21.	Sikkim	12.93
22.	Tamil Nadu	2618.75
23.	Tripura	41.82
24.	Uttar Pradesh	3108.93
25.	West Bengal	1500.70
Total		26927.98
Union Territories		
26.	Andaman & Nicobar	39.01
27.	Chandigarh	93.17
28.	Dadra & Nagar Haveli	6.56
29.	Delhi	1662.36
30.	Lakshadweep	2.25
31.	Pondicherry	83.08
Total		1886.43
Grand Total		28814.41

130 TENDERS, CONTRACTS & ARBITRATION

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
130.34	RW/NH-33045/1/88-DOII dt. 3-8-1988	Special conditions to be incorporated in contract documents for Road & Bridge works on N.Hs. and other centrally financed works – regarding.	130/42
130.35	NH-11024/1/88-DO I dt. 28.11.88	Prequalification of contractors for NHs & centrally sponsored works – Advance action thereto	130/45
130.36	NH-11024/1/88-DO I dt. 23.1.89	Guidelines regarding procedure to be adopted for the prequalification of the tenderers for the execution of major road and bridge works on NHs and under other centrally sponsored schemes.	130/46
130.37	NH-11024/1/88-DO I dt. 7.2.89	Guidelines regarding procedure to be adopted for the prequalification of the tenderers for the execution of major road and bridge works on NHs and under other centrally financed schemes.	130/46
130.38	NH-11024/1/86-DO I Dt. 23.5.89	Invitation of tenders for the execution of works on NHs and other centrally financed schemes – Need for adoption of uniform policy by the State PWDs relating to advertisement in the Newspaper/Journals	130/46
130.39	NH-33044/2/88-DO II 1100.27-A dt. 30.12.89	Preparation of tender documents for bridge works on National Highways and on other centrally sponsored schemes – specifications for crated boulders.	130/47
130.39-A	RW/NH-11024/2/89 - DO I dt. 28.2.90	Constitution of a committee on development of Road & Bridge contracting industry.	130/48
130.40	RW/NH-11052/4/89-DO I dt. 18.9.90	Execution of works on NHs and under other centrally financed schemes – Level at which tenders should be invited.	130/49
130.41	RW/NH-11052/5/90-DO I dt. 25.10.90	Appointment of Arbitrators in respect of NHs and other centrally sponsored works – settlement of cases etc., in advance.	130/50
130.42	RW/NH-11052/7/90 - DO I dt. 8.10.90	Defect liability period in respect of bridges on NHs and other Centrally Sponsored Schemes.	130/50
130.43	RW/NH-11024/1/86-DO I dt. 26.2.91	Guidelines regarding the procedures to be adopted for prequalification of tenderers for the execution of major Road & Bridge works on NHs and under other centrally financed schemes – modifications in the procedure.	130/50
130.44	RW/NH- 11024/1/86 - DO I dt. 18.3.91	Guidelines regarding procedure to be adopted for prequalification of tenders for execution of works on NHs and under other centrally financed schemes.	130/51

No. RW/NH-33045/1/88-DOII

Dated the 3rd August, 1988

To

The Chief Engineers of State PWDs and Union Territories dealing with National Highways and other Centrally Financed Roads; Director General (Works), Central PWD; Director General Border Roads.

Subject: Special conditions to be incorporated in the Contract Documents for Roads and Bridge works on National Highways and other Centrally financed works - regarding.

It has been observed that the existing contract documents for execution of National Highways and other Centrally financed Road and Bridge works do not fully meet the requirements to achieve the goals of quality assurance as envisaged in various Ministry's Circulars and Ministry's Specifications for Road and Bridge Works (2nd Revision) and are also silent in respect of some important requirements of Contract Management. In order to have a comprehensive tender document to ensure fulfilment of the various requirements, a model tender document for National Highways and Centrally aided works was circulated inviting comments with a view to finalising it. The various comments received are under examination and it may take sometime to issue the final tender document for adoption. Till such time, the following conditions should be incorporated in the present tender document with immediate effect. This will be applied only to the works to be put to tender henceforth and shall not apply to the already contracted works.

2. Special conditions

A. Applicable in case of both Road and Bridge Works:

(1) Construction Equipment:

- 1.1 The methodology and equipment to be used on the project shall be furnished by the Contractor to the Engineer well in advance of commencement of work and approval of the Engineer obtained prior to its adoption and use.
- 1.2 The Contractor shall give a trial run of the equipment for establishing its capability to achieve the laid down specifications and tolerance to the satisfaction of the Engineer before commencement of work, if so desired by the Engineer.
- 1.3 All equipment provided shall be of proven efficacy and shall be operated and maintained at all times in a manner acceptable to the Engineer.
- 1.4 No equipment or personnel will be removed from site without permission of the Engineer.

(2) Work Programme and Methodology of Construction

The Contractor shall furnish his programme of construction for execution of the work within the stipulated time schedule together with methodology of construction of each time of work and obtain the approval of the Engineer prior to actual commencement of work.

(3) Revised Programme of Work in case of Slippage

In case of slippage from the approved work programme at any stage, the Contractor shall furnish revised programme to make up the slippage within the stipulated time schedule and obtain the approval of the Engineer to the revised programme.

(4) Action in case of Disproportionate Progress

In case of extremely poor progress of the work or any item at any stage of work which in the opinion of the Engineer cannot be made good by the Contractor considering his available resources, the Engineer will get it accelerated to make up the lost time through any other agency and recover the additional cost incurred, if any, in getting the work done from the Contractor after informing him in writing about the action envisaged by him.

(5) Setting out

Setting out the work as spelt out in Clause 109 of Ministry's Specifications for Road and Bridge Works (2nd Revision) will be carried out by the Contractor.

(6) Public Utilities

Action in respect of public utilities will be taken by the Contractor as envisaged in Clause 110 of Ministry's Specification for Road and Bridge Works (2nd Revision).

(7) Arrangement for traffic during construction

Action for arrangement for traffic during construction will be taken by the Contractor as envisaged in the contract documents and spelt out in Clause 112 of Ministry's Specifications for Road and Bridge Works (2nd Revision).

(8) Quality Control

The onus of achieving quality of work will be on the Contractor who will take actions as stipulated in Section 900 of Ministry's Specifications for Road and Bridge Works (2nd Revision).

(9) Ministry's Specifications for Road and Bridge Works (2nd Revision)

The Ministry's Specifications for Road and Bridge Works (2nd Revision) will form part of the contract documents and the Contractor will be legally bound to the various stipulations made therein unless and otherwise specifically relaxed or waived wholly or partly through a special clause in the contract document.

(10) Documentation

The Contractor will prepare drawing(s) of the work as constructed and will supply original with three copies to the Engineer who will verify and certify these drawings. Final as-constructed drawing(s) shall then be prepared by the Contractor and supplied in triplicate along with a micro film of the same to the Engineer for record and reference purposes.

B. Applicable in case of Road Works only

- (1) (To be incorporated as a special condition only where it is applicable and for works put up for Tendering upto 31st March 1990). The details of the paver, specified in the clause 504.3.5, will be relaxed in the case of Bituminous Macadam (clause 504) where it is going to be covered by any wearing course other than semi-dense Bituminous Concrete (clause 510)/Bituminous Concrete (clause 512) or by a base course of Dense Bituminous Macadam (clause 507) with the proviso that it can be laid by means of self propelled mechanical paver with suitable screeds capable of spreading, tamping and finishing the mix true to the specified lines/grades and cross sections.

C. Applicable in case of Bridge Works only

(To be incorporated as a special condition, wherever applicable)

(1) Design Capability

The tenderer shall indicate whether design, wherever required as per conditions of Bid, will be carried out in-house or with the help of consultants. If in-house, the details of designs carried out over the past 5 years should be indicated. If designs are to be prepared by back-up Consultants, the following data shall be furnished:-

- (i) Name of the Company.
- (ii) Key personnel alongwith their professional qualifications; present position held in the Company and total experience.
- (iii) Number of engineering staff under each category of specialization.
- (iv) Details of design assignments handled during the past 5 years.

(2) Number of sets of staging and shuttering and the equipment

Depending upon the quantum of work involved and the time frame envisaged in the Contract, it should be clearly stipulated that the contractor shall have to arrange certain minimum number of sets of staging and shuttering as well as the equipment of certain size and number which will have to be fully justified with the time cycle for use from erection till release stage for the work of foundations, substructure and super-structure. In the case of the Departmental designs, State PWDs will have to mention these requirements and for Contractor's own designs the numbers required shall have to be mentioned and fully justified.

A sample clause for inclusion in the Contract Documents is enclosed at Appendix I.

(3) Time schedule for submission and approval of designs and drawings

A strict time schedule for submission and approval of designs and detailed working drawings should be stipulated and there should be a provision in the Contract Documents for suitable penalty if the contractor delays the submission of designs and drawings.

A sample Clause for inclusion in the Contract Documents is enclosed at Appendix II.

(4) Unacceptable or preferred type of structural arrangement

The following are some of the examples of unacceptable or preferred types of bridge structures or structural arrangement (to be incorporated, if needed):-

- (i) Drop in spans with halved joints (articulations) shall not be permitted.
- (ii) For cantilever construction, preference be given to box type cross-section with diaphragms provided at supports and without allowing any sudden change in depth.
- (iii) For long span bridges having beam and slab type of superstructure, the number of longitudinals shall not be less than 3.
- (iv) Multi-span deck continuity may be preferred unless soil conditions dictate otherwise e.g. deltaic regions, areas with soft founding strata etc. where it may not be suitable.
- (v) Trestle type frames for substructures shall not be allowed.
- (vi) Pile foundations shall not be accepted within the flood zone of the river.

(5) Use of batching plants and pumping of concrete

(To be incorporated for major bridges having overall length more than 200 metres).

Concrete shall be efficiently transported to the point of delivery by using suitable concrete pumps of adequate capacity or self-propelled concrete transport equipments. The method of transportation of concrete shall be clearly outlined by the tenderer at the time of submission of tenders. It shall be ensured that the contractor uses concrete batching and mixing plants having time control device.

3. It is requested that the contents of this policy circular may please be brought to the notice of all concerned for strict compliance with immediate effect.

4. The special conditions circulated with this Ministry's letter No. RW/RD/33047/4/86/NH (Stds) dated 10.11.1987 for inclusion in bridge contract documents are superseded by this circular.

Appendix-I

Enclosure to letter No. RW/NH-33045/1/88-DOII dated 3.8.88

Clause No. Minimum Requirement of Sets of Staging and Shuttering as well as the Equipment

In order to ensure completion of the bridge within the stipulated period, the contractor shall have to arrange a minimum number of sets of staging and shuttering as well as the equipment of the required size for different components as stipulated hereunder:

(i) For Well foundations	(a) Staging & Shuttering	: * _____ Nos.
	(b) Equipment (indicate size)	: * _____ Nos.
(ii) For other items of substructure:	(a) Staging & Shuttering	: * _____ Nos.
	(b) Equipment (indicate size)	: * _____ Nos.
(iii) For superstructure	(a) Staging & Shuttering	: * _____ Nos.
	(b) Equipment (indicate size)	: * _____ Nos.

Use of slip form shuttering wherever feasible will be preferred.

NOTES:

1. In the case of the departmental designs the Engineer shall have to mention these requirements.
2. For the contractor's alternative designs, the requirement shall have to be mentioned by the contractor which will have to be fully justified with the time cycle for use from execution till release stage for the work of foundations, substructure and superstructure.
3. The number of sets of different type of staging, shuttering and equipment shall in no case be less than two.

Appendix II

Enclosure to letter No. RW/NH-33045/1/88-DOII dated 3.8.88

Clause No. Submission and approval of Designs and Drawings

- (1) Within sixty (60) days from the receipt of the Letter of Acceptance of his Tender, the Contractor shall submit to the Engineer six sets of signed detailed designs and working drawings for the first set of foundations of the bridge for scrutiny and approval.
The detailed designs and working drawings for the various balance items of work, including Temporary Works, shall thereafter be submitted progressively in six sets, within a period of two hundred and forty (240) days from the receipt of the Letter of Acceptance.
- (2) All detailed designs and working drawings submitted by the Contractor shall be bold, legible, clear/self explanatory and self-contained in all respects with suitable references to technical literature properly mentioned in general, and complete copies of the same enclosed alongwith, to facilitate expeditious scrutiny and approval by the Engineer.

- (3) Approval to the working drawings shall, if found to be in order, be accorded by the Engineer within 30 (thirty) days from the date of receipt of each such lot submitted by the Contractor; otherwise, the Engineer shall, within the above mentioned period, apprise the Contractor of his comments in writing on all such designs and drawings for compliance by the Contractor in accordance with the Basic Design Data and Performance Specification and/or codal provisions or principles of sound engineering practice.
- (4) Within 30 (thirty) days from the date of receipt of the comments of the Engineer mentioned in Sub Clause (3) hereof, the Contractor shall ensure that the revised designs and drawings, duly modified in the light of these comments, alongwith para-wise replies to the same, are submitted to the Engineer for necessary technical approval. The Engineer shall, within 30 (thirty) days from the date of receipt of the modified designs and drawings, arrange to accord his approval to all such revised working drawings after taking due cognizance, to the extent possible, of the Contractor's reply/clarifications to the comments earlier received by the Contractor and, if required, incorporating therein all additional modifications that may still be necessary, in the opinion of the Engineer, in the light of the above.
- (5) The Contractor shall, irrespective of the estimated quantities and/or dimensioned details furnished by him in the design notes, calculations, unit-priced Bill of Quantities, or the outline drawings accompanying his Tender for the work, carry out all changes that may, during the scrutiny and approval of the detailed designs and drawings, be considered necessary in the opinion of the Engineer for compliance with the Basic Design Data and Performance Specification or codal provisions as specified in the Contract, or as per principles of sound engineering practice as laid down or as directed by the Engineer, without any variation in the Contract Price and no extra charges consequent on any misunderstanding whatsoever, or otherwise, shall be allowed/entertained.
- (6) Notwithstanding the approval by the Engineer to the designs and drawings submitted by him, the overall responsibility for the method of construction and/or stability of the structure shall vest entirely with the Contractor in accordance with provisions of the Contract and the approval accorded by the Engineer shall not absolve the Contractor of his responsibility for the safety of the structure designed and constructed by him.
- (7) On receipt of approval to the Contractor's designs and drawings, the Contractor shall arrange to supply to the Engineer, within a period of 14 (fourteen) days from the date of receipt of such communications, twelve signed copies of the approved working drawing for the use of the Engineer and his Representative at Site. Four sets of all such drawings shall be signed by both the parties to the Contract for the purpose of identification and out of which two sets shall be returned to the Contractor.
- (8) One set of the authenticated drawings furnished to the Contractor, after approval as aforesaid shall be kept by the Contractor at the Site and the same shall, at all reasonable times, be available for inspection and use by the Engineer and the Engineer's representative or by any other person authorised by the Engineer in writing.
- (9) On completion of the Works, the Contractor shall arrange to furnish to the Employer the following:-
 - (a) Two bound sets of all "as constructed" working drawings for every component of the works, all such copies being on polyester film of quality to be approved by the Engineer or his authorised Representative.
 - (b) A set of finally approved design calculations on Polyester film of approved quality of each component of the bridge.

A certificate of completion of Work as per provision of Clause _____ hereof shall not be issued by the Engineer in the event of the Contractor's failure to furnish the aforesaid "as constructed" and a set of final design calculations for the entire works.
- (10) If, by reason of any failure or inability of the Contractor to issue or supply within the time period mentioned aforesaid, the initial/modified/approved sets of detailed designs or working drawings, as the case may be, in accordance with sub-clauses (4) and (7) of this Clause, the Contractor shall become liable to pay fixed and agreed liquidated damages, but not as penalty, for all such delays and the Engineer shall, in consequence thereof be entitled to deduct (without prejudice to any other remedy available to it under the law to deduct from any moneys due or which may become due to the Contractor under this Contract) the amount of such damages at the rate of 0.05 per cent of the contract price of the whole works per week of each such delay irrespective of the actual damages that may have been sustained by the Employer. The total amount of such liquidated damages stipulated in this Sub-Clause shall not exceed one per cent of the Contract Price of the whole works.
- (11) If, by reason of any failure or inability of the Engineer to issue within a time reasonable in all circumstances any drawing or order requested by Contractor in accordance with Sub-Clause (3) and (4) of this Clause, the Contractor suffers delay then the Engineer shall take such delays into account in determining any extension of time which the contractor is entitled under clause _____ thereof.

130.35

No. NH-11024/1/88-DO I

Dated the 28th November, 1988.

To

The Chief Engineers, (dealing with National Highways and Centrally Sponsored Works), PWDs of all State/U.Ts, Director General (Border Roads), Director General (Works) C.P.W.D.

Subject: Prequalification of Contractors for National Highways and Centrally sponsored works – Advance action thereto.

Prequalification of contractors for major road works costing Rs.1 crore and above is an important requirement and this process should be initiated well in time and achieved in a time bound programme adopting pragmatic procedure.

2. As soon as the technical proposal for a scheme has been approved by the Ministry, preparation of detailed estimate should be taken up and completed expeditiously by the Execution Agency. Concurrently with the submission of detailed estimate to the Ministry, the invitation of prequalification bids and evaluation thereof should be taken up by them and completed by the time the detailed estimate is sanctioned by the Ministry.

3. The Prequalification invitation, scrutiny and evaluation should be handled at the Chief Engineer's office to ensure uniformity, coordination and timely action.

4. A time bound programme for preconstruction stage of all major schemes should be drawn and progress of various activities such as prequalification, tender invitation and settlement etc; are systematically monitored with a view to cutting down delays in implementation of highway projects.
5. You are requested to bring the foregoing requirements to the notice of concerned field formations under your charge and confirm action taken in this regard.

130.36

No. NH-11024/1/88-DOI

Dated the 23rd January, 1989.

To

The Secretaries (dealing with NHs), Public Works Department of all States & Union Territories, The Director General (Works), C.P.W.D. The Director General (Border Roads).

Subject: Guidelines regarding procedure to be adopted for the pre-qualification of the tenderers for the execution of major road/bridge works on National Highways and under other centrally financed schemes.

I am directed to refer to the correspondence resting with this Ministry's letter No. NH-11024/1/86-NHIII/DOI dated 25.1.88, wherein detailed guidelines in respect of the procedure of pre-qualification of tenderers for execution of major road and bridge works on National Highways and under other Centrally financed schemes, were intimated. In para 2 of that letter, it was indicated that the pre-qualification procedure may be resorted to if the Project cost is Rs. 100 Lacs. and above irrespective of the length of the bridge/stretch of road. As the procedure prescribed by this Ministry, is causing delays in award of contracts and thereby execution of works, this Ministry has given careful consideration to this matter again & keeping in view the interest of speedy execution of work, it has now been decided that the limit for pre-qualification of tenderers for road and bridge works may be raised from Rs. 100 Lacs to Rs. 200 Lacs. However, where a road/bridge project of complicated or difficult nature is involved, it would always be open to this Ministry to stipulate the requirement of pre-qualification irrespective of the cost of the project. It is, therefore, requested that the above instructions may kindly be followed with immediate effect.

130.37

No. NH-11024/1/88-DO I

Dated the 7th February, 1989.

To

The Secretaries (dealing with NHs), Public Works Departments of all States & Union Territories, The Director General (Works), C.P.W.D. The Director General (Border Roads).

Subject: Guidelines regarding procedure to be adopted for the prequalification of the tenderers for the execution of major road and bridge works on National Highways and under other Centrally financed schemes.

I am directed to refer to this Ministry's letter of even number dated 23.1.1989 regarding raising the limit of project cost for prequalification of tenderers for National Highway road and bridge works from Rs. 100 lakhs to Rs. 200 lakhs. A doubt has been raised by some project officers as to whether the project cost is to be taken excluding agency charges (@ 9%) or it would include the agency charges. It is, herewith, clarified that the project cost for prequalification of tenderers would exclude the agency charges. It is, therefore, requested that the above clarifications may kindly be noted by all concerned for guidance and necessary action.

130.38

No. NH-11024/1/86 - DO I

Dated the 23rd May, 1989.

To

The Secretary PWDs of States and UTs dealing with NHs and other Centrally financed schemes, The Director General (Works) C.P.W.D., The Director General (Border Roads).

Subject: Invitation of tenders for the execution of works on NHs and other Centrally financed schemes - Need for adoption of uniform policy by the State PWDs relating to advertisement in the Newspaper/journals..

I am directed to refer to the guidelines relating to advertisements in newspapers/journals for invitation of tenders for the execution of works of NHs and under other Centrally financed schemes issued by the Ministry vide letter No. RW/NHIII/P/4/82 dated 21.8.1985 and to say that these have been reviewed in the light of experience gained so far and certain modifications have been considered necessary.

2. The modified guidelines shall be as under:

2.1 A copy of the Notice Inviting Tenders should be sent to the contractor's association(s), all divisions of the PWD within the district, concerned Superintending Engineers' Office, concerned Chief Engineers' Office, Local Municipalities and Collector's Office.

2.2 **Minor works costing upto Rs. 50,000/-**

For such cases, no advertisement for inviting Tenders need be inserted in the press.

2.3 **Works costing above Rs.50,000/- and upto Rs. 25 lakhs**

For such works, advertisement may be issued in three regional papers, one each in Hindi, English and the Local language. If local language happens to be English/Hindi, it would suffice if the advertisements for such works are issued in two regional papers, one in Hindi and the other in English.

In regions where there is no Hindi/English regional paper, the advertisement may be issued in two papers, one in local language and the other in English/Hindi.

2.4 **Works costing above Rs. 25 lakhs and upto Rs. 2 crores.**

For such works, advertisements may be issued in two national papers, one in Hindi and the other in English, the Indian Trade Journal, the Indian Highways and two regional papers, one in Hindi and the other in the local language.

In regions where there is no Hindi regional paper, the advertisement may be issued in two regional papers, one in English and the other in the local language.

2.5 **Works costing above Rs. 2 Crores**

For such works, the advertisement should be only for prequalification of tenderers. It may be issued in four national papers, two in Hindi and two in English, the Indian Trade Journal, the Indian Highways and two regional papers, one in Hindi and the other in the local language.

In regions where there is no Hindi regional Newspaper the advertisement may be issued in two regional papers, one in English and the other in the local language.

2.6 All advertisements as mentioned in paras 2.2 to 2.4 above, shall be issued only once. The costs for works mentioned above are total sanctioned costs including various centages.

3. It is requested that the above mentioned guidelines may be brought to the notice of Director Public Relations (DPR) or other concerned officers of the State Government for adoption in respect of works on National Highways and under other Centrally financed schemes. It may also be ensured that copies of the advertisements/NITs are suitably displayed in the offices of Assistant Engineers, S.D.Es/Executive Engineers/ Superintending Engineers and Chief Engineers of the State PWD for wide publicity.

4. It may be noted that the above mentioned guidelines will not apply to works for which International Competitive Bidding has to be resorted to. For such cases, specific instructions will be issued depending upon the requirements.

130.39
1100.27-A

No. NH-33044/2/88 - DO II

Dated the 30th December, 1989.

To

The Chief Engineers of the State PWDs Union Territories dealing with NHs and other centrally financed schemes, The Director General (Works), CPWD, The Director General (Border Roads).

Subject: Preparation of tender documents for bridge works on National Highways and on other centrally sponsored schemes – specifications for crated boulders.

Wherever boulders or crated boulders are required to be provided for bridge works on National Highways and on other centrally sponsored schemes, the tender documents and specifications should, in future, clearly specify the following:

- (i) The method of measurement of boulders indicating clearly whether voids shall be deducted or not. In case, voids are to be deducted, its percentage.
- (ii) Where crated boulders are used, the boulders shall be well hand-packed in the crates.

2. In general, the specifications for each item of work should be spelt out in the tender document as clearly as possible so that there is no confusion or ambiguity in the measurement and/or execution of that item of work.
3. It is requested that the above instructions may please be brought to the notice of all officers of your department for strict compliance during preparation of tenders and specifications.

130.39-A

No. RW/NH-11024/2/89-DO I

Dated, the 28th February, 1990

To

The Secretaries Public Works Departments of all States and Union Territories, The Director General(Works) C.P.W.D., The Director General, Border Roads, Engineer-in Chief's Branch, Army Headquarters, The International Airport Authority, The National Airport Authority.

Subject: Constitution of a Committee on Development of Road & Bridge Contracting Industry.

The Ministry of Surface Transport have constituted a Committee on Development of Road and Bridge Contracting Industry in the country. A copy of the terms of reference of the Committee is enclosed at Annexure 'A'. These can be broadly grouped into three categories relating to growth of contracting industry, mechanisation and indigenous manufacture of mechanical works and contractual issues.

2. It may be seen that Committee is required to look into important aspects relating to growth of contracting industry in Highway Sector with emphasis on use of modern equipment. These will be of interest to you and you may have valuable suggestions to make. With this objective in view and to facilitate the work of the Committee a Questionnaire as at Annexure 'B' is enclosed. You are requested to send your views and the reply to the Questionnaire latest by 31.3.90

ANNEXURE 'A'

Enclosure to Ministry's Circular No. RW/NH-11024/2/89 - DOI dt. 28-2-90

TERMS OF REFERENCE OF THE COMMITTEE REGARDING ROAD AND BRIDGE CONTRACTING INDUSTRY

1. To assess the present status of Road and Bridge Contracting Industry in the country.
2. To identify factors hampering the growth of industry.
3. Need for optimum mechanisation in road and bridge construction covering both National Highways and other roads.
4. To identify reasons for lack of interest in use of modern equipment and suggest remedial measures.
5. To examine the indigenous availability/manufacture of modern equipment for road and bridge construction, and suggest ways and means to improve the situation.
6. To recommend steps to be taken for overall improvement and growth of the Contracting Industry.
7. To examine the present system of registering/prequalifying contractors and to suggest changes if any required with a view to promoting the healthy growth of Contracting Industry.
8. To suggest measures to enforce accountability by contractors regarding completion of the contract within the agreed time & cost parameters.
9. To suggest measures for the avoidance of disputes between client & contractor. An analysis of the common causes of disputes may be made and the possibility of avoiding them by clearer enunciation of various contract clauses may be examined. Do model contract forms covering features common to all or most contracts exist?
10. What are the present sources of financing of the Contracting Industry? What, if any, are the problems and possible solutions in this area?
11. To examine the necessity or desirability of presenting a minimum value for a contract where a single project is capable of division into a number of packages.
12. Any other related matter which the Committee may deem fit.

ANNEXURE 'B'

COMMITTEE ON DEVELOPMENT OF ROAD & BRIDGE CONTRACTING INDUSTRY

QUESTIONNAIRE

A Status of Contracting Industry

1. (a) What in general is the position of contracting industry to execute highway projects in your State/organisation?
- (b) Are there enough contractors to take highway projects on turn-key basis costing more than Rs.2 crores?
- (c) Do they have experienced/qualified Engineers?
- (d) Do they have enough equipment?
- (e) What is the maximum value of single contract successfully executed in the last 3 years?

2. What do you consider are the main factors hampering the growth of Contracting Industry?
 - (i) Lack of enough work –
 - (ii) Lack of continuity of work –
 - (iii) Small size of contracts –
 - (iv) Any other factor (Please specify) –
3. In your opinion what steps should be taken for improvement and growth of Contracting Industry?

B Contracting Issues

4. (a) What system is being followed in your State/Organisation for:
 - (i) Registration of contractors.
 - (ii) Pre-qualification of contractors.
- (b) What changes you would like to suggest in (a) with a view to promote healthy growth of Contracting Industry?
5. (a) What system of contract document is being followed in your Organisation?
- (b) Is there any standard contract document for highway projects?
- (c) Would you prefer to follow a common document all over the country?
6. What specific clauses you would suggest for inclusion in the contract document to enforce accountability by contractors for completion of projects within the agreed time and cost parameters?
7. (a) What do you think are the common causes leading to disputes between client and contractors?
- (b) Which specific items/clauses give rise to such disputes?
- (c) What changes you would like to suggest?
8. (a) What minimum size of individual package in terms of money you would suggest for its general viability including investment in equipment?
- (b) Is it desirable to club packages into one contract? If so the minimum value thereof.

C Mechanisation

9. (a) What size of project in terms of amount you consider appropriate for mechanised work?
- (b) Do you think the present level of mechanisation is optimum?
- (c) Which specific items of work you would like to be executed with machines only?
10. What do you think are the reasons for lack of interest in the use of modern equipment?
 - (i) Non-stipulation of use of specific machines in tender/contract document.
 - (ii) Non-availability of indigenous equipment.
 - (iii) Lack of finance.
 - (iv) Import procedures & Restrictions.
 - (v) Low utilisation of existing equipment.
 - (vi) Any other reason (Please specify)
11. (a) Which of the equipment needed for work but are not indigenously available?
- (b) Would you prefer these to be imported or indigenously produced?

130.40

No. RW/NH-11052/4/89-DO I

Dated, the 18th September, 1990.

To

The Chief Engineers of State Public Works Department and Union Territories dealing with National Highways and other centrally financed scheme, The Director General (Works), Central Public Works Department, The Director General (Border Roads), The Chairman, National Highway Authority.

Subject: Execution of works on National Highways and under other Centrally Financed Schemes – Level at which tenders should be invited.

I am directed to say that the Vohra Committee on National Highway Agency System had, inter-alia, made the following recommendation in their Report:-

“Delay in the commencement of the work often results from the fact that the authority inviting tenders is not always empowered to accept them. While most tenders are invited at the level of the Executive Engineer, his powers to accept them is limited and in most cases, he has to send up the tender papers, after receipt and scrutiny, for approval by his Superintending Engineer and/or the Chief Engineer. In many cases the tender has to be referred back to the Executive Engineer for seeking clarifications and he may have to take up the matter with the Contractor. In order to cut down such delays, it would be advisable that tenders are called directly by the authority empowered to accept them.”

2. The above matter has been brought to the notice of State Chief Engineers from time to time at various forums but it appears that many of the tenders for National Highway works are still being invited at a level other than that empowered to accept the same. In order to minimise delays in the execution/completion of National Highway works, it may please be ensured that tenders are called directly by the authority empowered to accept them as recommended by the Vohra Committee. The above instructions may kindly be brought to the notice of all concerned.

130.41

No. RW/NH-11052/5/90 - DO I

Dated the 25th October, 1990.

Subject: Appointment of Arbitrators in respect of National Highways and other Centrally sponsored works – settlement of cases etc., in advance.

In order to settle disputes between the executing agencies and the contractors for National Highway projects, the process of arbitration inter-alia is invariably resorted to. In one of the World Bank aided projects, it has recently been observed that an Arbitrator was appointed in terms of contract conditions to settle disputes between the State PWD and the contractor but the terms and conditions of arbitration including fees, boarding, lodging etc., for the Arbitrator were not determined before the appointment. This had created problems afterwards when the payments were required to be made to the Arbitrator. It has, therefore, been decided that in future whenever Arbitrators are required to be appointed for settlement of disputes between the executing agency and the contractors for National Highway and other Centrally sponsored projects, all details regarding the fees, boarding, lodging and other terms and conditions must be settled in advance.

130.42

No. RW/NH-11052/7/90-DO I

Dated the 8th October, 1990.

To

The Secretaries (dealing with National Highways), Public Works Departments of all States and U.Ts, The Director General (Works), Central Public Works Department, The Secretary, Border Road Development Board.

Subject: Defect liability period in respect of bridges on National Highways and other Centrally Sponsored Schemes.

I am directed to state that it has been observed that bridges constructed on National Highways sometimes do not conform to the standards and the specifications as approved by the Ministry. In a few cases, immediately on completion of the bridges, some defects have come to the notice of the Ministry which need immediate remedial measures. Also there has been a demand for the State Public Works Departments that the present defect liability period of six months is not adequate to observe the performance of the bridge structures and should be increased. This matter was therefore, discussed in detail in the State Chief Engineers meeting held at Gandhi Nagar in October, 1989 during the 50th Session of Indian Roads Congress. The State Chief Engineers recommended that defect liability period in respect of bridges on National Highways may be increased from the present period of 6 months to 12 months.

2. The Central Government has accepted the recommendation of Chief Engineers and it has been decided that the defect liability period for bridges on National Highways and other Centrally Sponsored Schemes may be increased from 6 months to 12 months with immediate effect.

3. It is requested that the above instructions may be brought to the notice of all concerned for strict compliance.

130.43

No. RW/NH-11024/1/86 - DO I

Dated, the 26th February, 1991.

To

The Secretaries, and Chief Engineers of State Public Works Departments, Union Territories dealing with National Highways and other Centrally Financed Schemes, The Director General (Works), Central Public Works Department, The Director General, Border Roads.

Subject: Guidelines regarding the procedures to be adopted for prequalification of tenderers for the execution of major Road and Bridge works on National Highways and under other Centrally Financed Schemes – Modifications in the procedure.

It has been brought to the notice of this Ministry that the system of carrying out prequalifications of

contractors for individual projects (costing Rs.2 crores and above), as laid down under the existing procedure, is causing certain delay in the award of works after sanction. The matter has been examined in the Ministry and it has been decided that in consonance with the existing procedure of prequalification laid down in Ministry's letter No. NH-11024/1/86/NH-III/DI dated 25th January, 1988, read with letter No. NH-11024/1/88-DOI dated 23rd January, 1989, the following system may be adopted to expedite the prequalification of tenderers for NH works.

- (i) The process of prequalification should be initiated at the beginning of each calendar year (i.e. slightly ahead of the start of financial year) in a consolidated manner for all projects of similar scheme costing above Rs.2 crores likely to be taken up on the National Highways during the year. While issuing a common notice on these lines, the list of anticipated projects could be indicated and the contractors given the option to show interest for one or more of these as might suit them.
- (ii) Prequalification done on this basis should remain valid upto the end of the concerned financial year. If any of the proposed work is not taken up and slides into the next financial year, then prequalification for it should be done afresh along with anticipated works of the next year.
- (iii) Prequalification of contractors for projects of special nature, having requirements of special equipment, methodology of construction and/or techniques may, however, continue to be carried out individually, as per existing procedure.

2. This may please be brought to the notice of all concerned officers for immediate compliance.

130.44

No. RW/NH-11024/1/86-DO I

Dated the 18th March, 1991.

To

The Secretaries (dealing with National Highways), Public Works Departments of all States and Union Territories, The Director General (Works), Central Public Works Department, The Director General (Border Roads).

Subject: Guidelines regarding procedure to be adopted for prequalification of tenders for execution of works on National Highways and under other Centrally financed schemes.

I am directed to draw your kind attention to this Ministry's detailed guidelines issued vide letter of even number dated 25th January, 1988 and our letter No. NH-11024/1/88-DOI dated 23rd January, 1989 on the subject mentioned above and to state that some doubts have been expressed about restricting to a particular State prequalification of contractors in connection with execution of major road and bridge works on National Highways and under other Centrally financed schemes. As you are aware, if the prequalification of tenders is restricted to a particular State, the very purpose of getting the quality work done from experienced contractors having requisite qualified manpower and adequate funds does not serve the purpose. It is, therefore, made clear that selection of contractors for prequalifying them for NH projects will not be restricted to a particular State or area but is applicable to all over the country. This may kindly be brought to the notice of all field organizations under your control for compliance to the instructions issued in this connection.

141

LAND ACQUISITION

Code No. Circular No. & Date

141.8 NH-11029/2/87-NH III/DI
dt. 3-2.89.

141.9 RW/NH-11030/1/87-DO I
144.11 dt. 25.3.91

Brief Subject

Acquisition of land for NHs
and other centrally sponsored
Road/Bridge Works.

Acquisition of land for NHs.
See Code 144.11

Page No.

141/5

No. NH-11029/2/87-NHIII/DI

Dated the 3rd February, 1989.

To

Secretaries, PWDs of all the States and Union Territories, DG (Works) CPWD, DG (Border Roads).

Subject: Acquisition of land for National Highways and other centrally financed road/bridge works.

The undersigned is directed to refer to the Policy Circular letter No. IDA/W-20(21)/63 Dated 17.7.65, wherein it was provided that the land acquisition estimates should include the following items :

- (i) Likely expenditure on actual demarcation measurements and other field work including preparation of working drawings.
- (ii) Estimated amount of compensation for land and property thereon which is payable to owners of land and property. The prevailing rates for compensation payable to land property owners are broadly ascertained initially by the Executive Engineers from the Collectors of the Districts.
- (iii) Reasonable provision for work-charged establishments and contingencies which may be 2% and 3% of the amount of (i) & (ii) above. The provision for work-charged establishment is intended to cover the expenditure involved on the engagement of supervisory staff for demarcation, measurements and other field work including preparation of working drawings. The provision for contingencies is intended for meeting possible variations in the acquisition awards given by the Revenue authorities and the estimated amount of compensation and for departure in respect of the measurement work.
- (iv) 7½ agency charges on (i), (ii) & (iii) above. This is intended to include the departmental charges paid in the District Revenue Offices and other secretariat work.

2. Orissa PWD had, sometime back, intimated that the Central Land Acquisition Act, 1894, as amended in 1984 has been further amended by the State Government providing for approximately 20% of the probable estimated amount of compensation for the land acquisition towards the establishment cost, law charges and contingencies such as cost of publication of the notifications etc. These charges are required to be paid by the State PWD to the Revenue Department of the State Government for acquisition of land. It has, therefore, been decided, in consultation with Finance Wing of this Ministry, that in future land acquisition estimates should provide for the following items:-

- (i) Minimum statutory/obligatory charges covering the cost of Publication, establishment and other legal charges demanded by the Revenue Deptt, in accordance with the amended LA Act in the State.
- (ii) Actual amount of compensation for land and property thereon.
- (iii) Contingencies @ 3%. This would cover the likely expenditure on actual demarcation, measurement and other field works etc. including preparation of working drawings, which the PWD is required to incur.

3. No agency charges will be paid.

4. In case of such States where the Land Acquisition Act has not been amended, providing for extra legal charges to be paid to their Revenue Deptts., the Policy Guidelines for allowing the expenditure on land acquisition cases will continue to be the same as has been provided in the Ministry's letter No. IDA/W-20(21)/63 dated 17.7.65 noted above.

142. NH Property-Inspection Bungalows, Licencing Status, Access Control

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
142.17	NH/11044/1/87-NH III/D-I Dt. 12.9.88	Landscaping of traffic islands at NH inter-sections by private parties: Guidelines and requirements of Licence Deed	142/14
142.18	RW/NH-11044/1/87-DO I Dt. 25.4.91	Landscaping of traffic islands at NH intersections by private parties: Guidelines and requirements of Licence Deed.	142/16

No. NH/11044/1/87-NHIII/DI

Dated the 12th September, 1988

To

The Secretary, PWDs of all States/U.Ts. (Departments dealing with National Highways), The Director General, Border Roads, The Director General, Works, CPWD.

Subject: Landscaping of traffic islands at National Highway intersections by private parties: Guidelines and requirements of Licence Deed.

The Ministry has been receiving proposals from State PWDs for permitting private parties to landscape traffic islands at National Highway intersections at their own cost. The matter has been carefully considered in the Ministry and in partial modification of para 2.9 of the Ministry's Circular No. NHIII-P/15/75 dated 20th May, 1976, it has been decided that towards improving aesthetics at intersections, landscaping of traffic islands by private parties may be permitted by the State Chief Engineers subject to the following conditions :

- (i) Proposals for landscaping should be entertained only from registered companies, societies or charitable institutions.
- (ii) The landscaping proposal should have been prepared by a qualified Horticulturist/Landscape Architect.
- (iii) The fencing should be of open grill type in mild steel, and painted in white. Red reflectors/reflective tape should be fixed on the fence exterior at a number of points to indicate the presence of the fence during hours of darkness. To ensure that visibility is not obscured, height of the grill above the kerb should not exceed 0.6m and its top measured from road level should not be higher than 0.8m. The grill should be set back from the kerb face by 0.3m.
- (iv) The plantation to be provided on the island should comprise grass or low-growing flowering plants/bushes. Plants taller than 0.8m from road level should neither be planted nor allowed to remain on the island. In no case shall planting of trees on the traffic islands be permitted.
- (v) The landscaping work shall be organised in such a way that it does not affect the smooth flow of traffic. No material shall be allowed to be dumped/stored on the road surface. Details of the operation to be carried out for the landscaping work shall be got approved from the Road Authority.
- (vi) The entire cost of landscaping, planting, watering, fencing etc. shall be borne by the intending party. The party shall maintain the works at its own cost to the full satisfaction of the Road Authority.
- (vii) Any damage caused to the road surface, road structure and appurtenances because of negligence on the part of the party shall immediately be made good by it at its own cost.
- (viii) The party shall not be permitted to erect any hoarding or structure on the premises except for two small name plates each not exceeding 0.75m in width and 0.25m in height. In no case shall any board which is in the form of advertisement of the party of its products, or neon-signs, shall be permitted.
- (ix) The party shall agree to remove the entire landscaping work unconditionally at its own cost when the traffic island is required by the Road Authority for any future development purposes. No claim of compensation in this regard shall be entertained.
- (x) The area of landscaping by the party shall be available for use by the public. In no case shall the party sub-let any part of the area to any other party.

2. Cases satisfying the above conditions may be permitted by the State Chief Engineers under intimation to the Regional Officer of the Ministry. Before the party is permitted to start any work, it should be asked to execute a licence deed vide the format shown in Annexure-1. The licence should initially be valid for a period of 3 years, renewable for 3 year periods thereafter. A copy of the form for renewal of licence is enclosed at Annexure-2.

3. It is requested that the contents of the circular be brought to the notice of all officers of your Department dealing with National Highways.

ANNEXURE - 1

Enclosure to Ministry's Circular No. NH/11044/1/87-NH III/DI Dt. the 12.9.88

LICENCE FOR THE USE OF NATIONAL HIGHWAY LAND

AN AGREEMENT made this _____ day of _____ one thousand nine hundred and _____ between the President of India (hereinafter called the 'Government' which expression shall, unless excluded by or repugnant to the context, include his successors in Office and assigns) of the one part, and @ _____ hereinafter called "the Licensee"/the Licensees" (which expression shall, unless excluded by or repugnant to the context, include the said licensee's successor/Licensees' successors, heirs, executors and administrators) of the other part.

WHEREAS THE Licensee has/Licensees have applied to the Government for permission to landscape, beautify and maintain traffic island(s) on the Government land falling at the intersection of National Highway No. _____ in Kilometre _____ in the _____ Taluka of the _____ District and shown in the drawing attached hereto.

AND WHEREAS THE Government have agreed to grant such permission on the terms and conditions hereinafter mentioned.

@ here enter full details of the party in whose favour licence is issued.

Now, this agreement witnesseth that in consideration of the terms and conditions hereinafter contained and on the part of the licensee/licensees to be observed and performed, the Government hereby grants to the licensee/licensees permission to landscape, beautify and maintain the said traffic island(s) as per approved drawings attached subject to the following terms and conditions, namely:

- (1) That the licensee/licensees shall, within three/six months from date of receipt of the permission, but without interfering in any way with the road traffic, complete the landscaping and beautification of the said traffic island(s) to the full satisfaction of the Executive Engineer/ Divisional Engineer incharge of the National Highway according to the approved drawings and specifications.
- (2) That on completion of the said work including all the landscaping, plants and fencing which lie within the limits of Government road land shall become absolute property of the Government, subject to their maintenance being responsibility of the licensee/licensees.
- (3) The licensee/licensees shall at his/their own cost maintain the said landscaping and beautification works including the fencing in proper repair and condition to the satisfaction of the Executive Engineer/Divisional Engineer.
- (4) That upon a notice of three months given to the licensee/licensees for and on behalf of the licensor, the licensee shall at his/their own cost remove the said landscaping and beautification works including the fencing and restore the land to its original condition, if so required to do so by the Government or by any person duly authorised on its behalf. The licensee/licensees shall not be entitled to any compensation on account of such removal and restoration.
- (5) That the traffic island(s) shall not be used for any purpose other than that of landscaping or its maintenance.
- (6) That the licensee/licensees shall not, without the previous permission in writing of the Executive Engineer/Divisional Engineer in any way extend or alter the said traffic island(s) and the landscaping work executed thereon.
- (7) That the licensee/licensees shall at all times permit any duly authorised officer or servant of the Govt. to inspect the said traffic island(s) including the landscaping work executed therein. He shall keep the said traffic island(s) & the landscaping work thereon maintained in good order and shall not be entitled to close any right of way over or in respect of the same against Government or any member of the Public.
- (8) That the licensee/licensees shall be liable and keep the licensor indemnified for any loss or damage caused to the Government by drainage obstruction or any other like cause due to the said landscaping work on the traffic island(s).
- (9) That the permission granted by this licence shall not in any way be deemed to convey to the Licensee/Licensees any right into or over, or any interest in Government land other than the limited right that herein expressly granted.
- (10) That in case the said traffic island(s) including the landscaping works and fencing thereon is destroyed, this licence shall determine and the licensee/licensees shall not be entitled to claim any right to landscape any other traffic island in lieu of that so destroyed.
- (11) That during the subsistence of this licence, the said landscaping and beautification works including fencing shall be deemed to have been constructed and continued only by the consent and permission of the Government so that the right of the licensee/licensees to use the same shall not become absolute and indefeasible by lapse of time.
- (12) That if the licensee fails/licensees fail to execute any work which he has/they have agreed to execute under this agreement to the full satisfaction of the Executive Engineer/Divisional Engineer, the work shall be executed by the Executive Engineer & Divisional Engineer at the cost of licensee/licensees and the expenditure incurred shall be recoverable from the licensee as an arrear of land revenue without prejudice to any other remedies which may be open to Government in this behalf.
- (13) That no fee shall be charged for the licence.
- (14) That this agreement shall remain in force for three years from the date of execution in the first instance and be terminable by a notice of three months and the permission may or may not be renewed after expiry of the said period.
- (15) That the licence hereby granted shall not be transferred.
- (16) That the licensee/licensees shall bear the cost of stamp and execution of this Agreement.

Notwithstanding anything contained in clause 4(4), this licence may be cancelled at any time by the licensor through the Executive Engineer/Divisional Engineer for breach of any of the terms and conditions of the licence and the licensee/licensees shall not be entitled to any compensation for loss caused to him/they by such cancellation nor shall he/they be absolved from any liability already incurred by him/they under this agreement. The decision of the licensor in this regard shall be final.

IN WITNESS WHEREOF this agreement is executed in duplicate by the parties hereto on the dates mentioned below their respective signatures.

Signed by Shri (Name in full) the licensee/the constituted attorney of the licensees.

For and on behalf of the President of India, Under Secretary to the Government of India, Ministry of Surface Transport (Roads Wing)

In the presence of

1. Name in full with designation (signature)

Name in full with designation (signature)

2. Name in full with designation (signature)

Name in full with designation (signature)

N.B. Wherever alternatives such as "at"/from, his/their, licensee/licensees, Divisional/Executive, has/have etc. are given, only applicable portion should be typed in the fair licence deed.

ANNEXURE-2

Enclosure to Ministry's Circular No. NH/11044/1/87 NH III/DI dated 12-9-88

FORM FOR RENEWAL OF LICENCE FOR THE USE OF NATIONAL HIGHWAY LAND

AN AGREEMENT made this _____ day of (month) _____ of _____ (year*) _____ between the President of India (hereinafter called the 'Government' which expression shall unless excluded by or repugnant to the context be deemed to include his successors & assigns) of the one part and (name of the party) _____ hereinafter called "Licensee"/ "Licensees" which expression shall unless excluded by or repugnant to the context, be deemed to include his/their heirs its successors/their successors and assign of the other part (*be written in words)

WHEREAS an agreement dated _____ (hereinafter referred to as "the principal agreement") has been entered into between the Government and the licensee/licensees to landscape, beautify and maintain traffic island(s) on the land belonging to the government.

AND WHEREAS it has been agreed to by and between parties to those present to renew the said licence on the same terms and conditions as are set forth in the principal agreement.

NOW THEREFORE it is agreed by and between the parties that the principal agreement be and the same is hereby renewed for a period of three years from the date of expiration thereof.

The licensee/licensees shall bear the cost of stamping and execution of this agreement.

IN WITNESS WHEREOF this agreement is executed in duplicate by the parties hereto on the dates mentioned below their respective signatures of the President of India has signed this licence and the licensee/licensees has/have also signed this licence, the day, month and year first above written.

Signature by Shri (Name in Full) the licensee/the
Constituted attorney of the licensees

Signature by Shri (Name in Full) for and on behalf
of the President of India.

In the presence of

1. Name in full (signature) with designation
2. Name in full (signature) with designation

1. Name in full (signature) with designation
2. Name in full (signature) with designation

N.B. Wherever alternative such as his/their Licensee/Licensees, has/have etc. are given only applicable portions should be typed in the fair licence deed.

142.18

No. RW/NH-11044/1/87-DO I

Dated the 25th April, 1991.

To

The Secretary PWDs of all States/UTs. (Departments dealing with National Highways), The Director General, Border Roads, The Director General, Works, CPWD.

Subject: Landscaping of traffic islands at National Highway intersections by private parties: Guidelines and requirements of Licence Deed.

I am directed to refer to this Ministry's circular letter of even number dated 12th September, 1988, on the subject mentioned above and to state that it has come to our notice that some Govt. Organisations/Institutions have also shown interest for undertaking the beautification work of traffic islands at National Highway inter-sections. It has, therefore, been felt that condition No. 12 of the Licence Deed, the format for which was attached as Annexure-1 to our circular letter dated 12th September, 1988 quoted above may not be necessary. It has, therefore, been decided that condition No. 12 of the Licence Deed may not be insisted upon for such organisations which are Government Bodies/Government Institutions. The contents of this circular may be brought to the notice of all Officers of your department dealing with National Highways, for compliance of the above directions.

*Code No. Circular No. & Date**Brief Subject**Page No.*

144.11 RW/NH-11030/1/87-DO-I
141.9 Dt. 25.3.91

Acquisition of land for NHs.

144/30

144.11
141.9

No. RW/NH-11030/1/87-DO-I

Dated the 25th March, 1991.

To

The Secretaries (dealing with NHs), PWDs of all States and Union Territories, The Director General (Works) Central Public Works Department, The Secretary, Border Road Development Board.

Subject: Acquisition of land for National Highways.

I am directed to state that this Ministry has been requesting from time to time all the executing agencies in respect of National Highways to get the National Highway land registered in the name of Central Government. It has also been requested that the executing agencies should prepare land plans and other inventory of National Highway land so that this Ministry should have complete National Highway land records. This requirement will help the Government to process the National Highway land encroachments cases more effectively in the Courts of Law. However, it has also been observed that the National Highway system suffers from inadequate land width in certain stretches which come in the way of its proper development wherever required. It is, therefore, essential to have adequate National Highway land width conforming to standards. In this connection, kind attention is invited to our letter No. NH. III/P/72/76 dated 13.1.1977 containing the standard land width and other details required for National Highways. Also the IRC publication entitled "Geometric Design Standards for Rural (Non-Urban) Highways" (IRC: 73-1980) contains relevant requirements of land width which may be consulted. It is a priced publication and is available from the Secretary, Indian Roads Congress, Jamnagar House, Shahjahan Road, New Delhi - 110 011. It is, therefore, requested that all the executing agencies may kindly ensure that additional land may be acquired wherever necessary so that the National Highway land width conforms to the guidelines issued by this Ministry and to the IRC standards. In this regard estimates may be prepared and sent to this Ministry in a phased manner for grant of approval. The position regarding acquisition of additional land will also be discussed in the Review Meetings being conducted by this Ministry twice a year and the executing agencies should bring up-to-date position in such Review Meetings.

145. UTILITY SERVICES AND CANAL CROSSINGS

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
145.11	RW/NH-11037/1/86-DO-I Dt. 1.11.88	Location and shifting of utility services in respect of NH works	145/12

No. 1

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No. RW/NH - 11037/1//86-DO-I

Dated the 1st November, 1988.

To

The Secretaries (dealing with NHs), Public Works Departments of all States and Union Territories.

Subject: Location and shifting of Utility Services in respect of National Highway Works.

I am directed to refer to the correspondence resting with this Ministry's letter of even number dated 10.8.87 regarding advance action for location and shifting of Utility Services in respect of National Highway Works and to state that Tamilnadu Public Works Department had intimated that Ministry of Communication (Department of Telecommunications) had issued policy instructions to all their concerned General Managers in the country saying that the shifting charges of their utility services may be recovered from the concerned authorities asking for shifting the Utility Services. As the Department of Telecommunications have been permitted to lay their utility lines on National Highway Land without any payment to Road Authorities, the matter was taken up with them. Ministry of Communications have now reconsidered the whole matter afresh and have intimated that revised instructions have been issued by them saying that shifting of Utility Lines, wherever asked for by the Road Authorities, will be carried out by the Telecommunications Department at their own cost. It is, therefore, requested that the above policy instructions may kindly be brought to the notice of the field officers of the State PWD for compliance.

*Code No. Circular No. & Date**Brief Subject**Page No.*

160.16 RW/G-25013/2/89 - WA
dt. 21-9-90

Bridge-wise details of toll fee collected
on bridges costing more than Rs. 25 lakhs
and opened to traffic on or after 1-4-1976.

160/10

No. RW/G-25013/2/89-WA

Dated the 21st September, 1990.

To

The Chief Engineers, Government of Andhra Pradesh/Assam/Bihar/Goa/Gujarat/Haryana/Karnataka/Kerala/Madhya Pradesh/Maharashtra/Orissa/Punjab/Rajasthan/Tamil Nadu/Uttar Pradesh (Dealing with National Highways)

Subject: Bridge-wise details of Toll Fee collected on Bridges costing more than Rs. 25 lakhs and opened to traffic on or after 1.4.1976.

As per para 8 of the National Highways (Fees for use of permanent Bridges) Rules 1978, the executive agency concerned shall furnish to the Pay and Accounts Officer, National Highways, Ministry of Surface Transport, a quarterly statement showing month-wise the amount collected and remitted on account of fees proceeds in respect of each permanent bridge alongwith the remittance particulars. During the Audit Inspection the Audit has observed that though the state-wise collection of toll fee is available with the PAO, the Bridge-wise collection is not available. The Controller and Auditor General of India has observed vide para 13.16 of the report No. 12 for the period ending 31.3.88 that the Ministry had no means of watching whether the entire capital cost of a particular bridge had been recovered for taking action for discontinuance of the levy of fee.

2. It has, therefore, been decided that all the State Govts. where the bridge fee is being collected on the bridges as mentioned above will furnish an Annual Return in the enclosed proforma showing the bridge-wise/year-wise details of collection from the year in which the bridge was opened to traffic. The statement for the year ending 31.3.1991 may kindly be furnished by 30.9.90 as a reply is to be furnished to C&AG. This may kindly be given top priority.

*Code No. Circular No. & Date**Brief Subject**Page No.*170.12 RW/33044/2/88-DO II
dt. 13.1.89Creation of a separate Bridge Design
Cell in Highway Department for all
Centrally sponsored bridge works

170/15

No. RW/33044/2/88-DOII

Dated the 13th January, 1989.

To

The Chief Engineers of State Public Works Departments and Union Territories dealing with National Highways and other Centrally Financed Scheme, Director General (Works) Central Public Works Department; and Director General Border Roads.

Subject: Creation of a separate Bridge Design cell in Highway Department for all centrally sponsored bridge works.

It has been decided that all State Highway Departments should have separate Bridge Design Cells of their own for preparation and scrutiny of bridge designs for all centrally sponsored bridge works. It is, therefore, requested that an early action may please be taken to set up such cells wherever they are not already existing.

2. The receipt of this communication may please be acknowledged.

191. CEREMONIES

Code No. Circular No. & Date

Brief Subject

Page No.

191.5 RW/NH-11043/1/87-DO I
Dt. 20.4.90

Opening/Foundation Stone laying
ceremonies and naming of bridges etc.
in respect of NH works.

191/4

No. RW/NH-11043/1/87-DOI

Dated the 20th April, 1990.

To

The Chief Engineers (dealing with National Highways), Public Works Departments of all States and Unions Territories, Director General (Works), CPWD, and Secretary, Border Road Development Board,

Subject: Opening/foundation stone laying ceremonies and naming of bridges etc. in respect of National Highway works.

I am directed to refer to this Ministry's letter Nos. RW/NH-III/P/17/76 dated 17.3.76 and 15.1.85 on the subject of naming of bridges or holding various ceremonies such as foundation stone laying or opening of the major bridges on National Highways. These have been reviewed and it has been decided to issue the following consolidated revised instructions which will take effect from 1.4.90, in supersession of the earlier circulars on the subject.

I. *Naming of bridges on National Highways:*

There has been continuing pressure from various quarters that some stretches of National Highways or bridges thereon may be named after some political leaders or some other important persons of the area. Government of India do not consider it desirable to attach personal names to public works as far as possible. It is, therefore, requested that no stretch of National Highway or a bridge thereon may be named after any political leader or other important person of that area.

II. *Opening/foundation stone laying ceremonies:*

1. As the National Highways vest in the Central Government, all expenditure on construction/development/maintenance of National Highways is incurred by the Central Government. It is, therefore, incumbent on the part of the executing agencies to obtain prior approval on holding foundation stone laying/inauguration ceremonies from the Government of India. For this purpose, necessary proposals are required to be sent for approval of the Ministry along with the relevant details, well in advance so that the suggestions of the Government of India, if any, could be communicated to the State Governments well in time. In fact, when the foundation stone laying ceremony of a National Highway bridge is to be held or a road/bridge work is nearing completion, the State Chief Engineer is required to make a report about it to this Ministry which will take a decision about the day of the ceremony as well as the dignitary who would perform the function. It has, therefore, been decided as under:

- (a) Prior approval of this Ministry be obtained for such functions and copy of the request be invariably endorsed to our R.O./E.L.O.
- (b) The invitation cards be issued in the name of Union Secretary (Surface Transport) or Director General (Road Development) & Addl. Secretary whosoever is attending the function.
- (c) The Invitation cards be issued on behalf of the Ministry of Surface Transport, Government of India, in case the Secretary (Surface Transport) or Director General (Road Development) & Additional Secretary do not attend the function. The format of the invitation cards to be issued on such occasions are enclosed.

2. The expenditure on such a ceremony should be kept at a minimum level and should not exceed Rs. 1250/- in all which includes expenditure of a contingent nature like printing of Invitations, provision of shamianas, refreshments, garlands and photographs etc. It may also be ensured that the expenditure on all such functions in a State may not exceed Rs. 10,000/- per year. In case of important functions which are attended by the President/Vice President/Prime Minister of India, the expenditure ceiling will be decided by the Ministry on case to case basis. In order to exercise economy in expenditure, such functions should, however, be restricted only to important works such as four-laning/expressways, major bridges and bypasses and the number of invitees should be kept within a reasonable limit.

3. Care should be taken to ensure that due courtesy is extended to the elected representatives of the people such as Members of Parliament, Members of State Legislatures and Presidents of Panchayats, and special car parking tables and brochures etc., issued in connection with such functions, are supplied to them and suitable seating arrangements made for them.

4. While seeking the approval of this Ministry to the proposed function, you are also requested to furnish a draft speech to be delivered by the Chief Guest on such occasions. The draft speech should contain all relevant material pertaining to road development in the State.

Annexure to Ministry's Circular No. RW/NH-11043/1187-DOI dated, the 20th April, 1990

**FORMAT - I
(NATIONAL EMBLEM)**

The Secretary/Director General (Road Development) &
Additional Secretary
Ministry of Surface Transport
Government of India

request the pleasure of your company on the occasion of the foundation laying ceremony/inauguration of _____

_____ by _____

on _____, the _____ at _____
(day) (date, month & year) (time)

R.S.V.P.

**FORM II
(NATIONAL EMBLEM)
MINISTRY OF SURFACE TRANSPORT
GOVERNMENT OF INDIA**

request the pleasure of your company on the occasion of the foundation laying ceremony/inauguration of _____

_____ by _____

on _____, the _____ at _____
(day) (date, month & year) (time)

R.S.V.P.

*Code No. Circular No. & Date**Brief Subject**Page No.*

204.2

See Code 121.2.48

205 PLANNING TECHNIQUES

Code No. Circular No. & Date

Brief Subject

Page No.

205.4 DO No. NH-11052/8/89-DOI
Dt. 27-7-89

Estimates for works

205/5

DO. No. NH-11052/8/89-DO I

Dated, the 27th July, 1989

To

Secretary to Govt. of Public Works (Roads & Buildings) Deptt., Director General Border Roads.

Subject: Estimates for works

It is observed that a number of estimates are being sent to the Ministry for works which do not find a place in the Annual Plan 1989-90 or 7th Five Year Plan. On the other hand, estimates for works included in the Annual Plan 1989-90 are still awaited from the State.

2. You would appreciate that this manner of forwarding estimates causes lot of avoidable correspondence and works which could be sanctioned in time in the normal course get delayed on account of late submission. Moreover, this results in non-utilisation of earmarked funds and even surrender of funds in some cases. You would agree with me that this is not a very happy situation, especially when it is so difficult to find funds for highway works.

3. To streamline the procedure, I would suggest that you may please direct the concerned officers to concentrate on submission of estimates for those works which are already included in the Annual Plan 1989-90. If it is felt that a particular work is of inescapable nature and it is not finding a place in the Plan, then a special reference should be made to the Ministry giving full justification for the same. After Ministry approves its inclusion, technical proposal and estimates for the work could follow. In all other cases, the estimates for works not finding a place in the Annual Plan 1989-90 received in the Ministry will be returned unentertained. Same procedure should be followed in future also for works provided in the 8th Plan.

4. I would be grateful if instructions are issued to all concerned to submit estimates for Annual Plan 1989-90 works positively by 31.10.89 so that these can be processed for sanction well in time.

206. CONSULTANTS FOR NH WORKS

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
206.1	RW/NH-34041/62/89-DO II Dt. 12.1.90	Interim Guidelines for selection of Consultants for Highway/Bridge Projects on National Highways	206/1
206.2 <u>301.9</u> 1210.4	RW/NH-33054/35/89 DOII Dt 5.6.90	Soil/Sub-surface Investigations for road & bridge works on NHs and under other centrally sponsored schemes – Entrusting to prequalified geotechnical consultants.	206/16
206.3 <u>301.10</u> 1210.5	RW/NH-33054/35/89-DOII dt. 25.9.90	Soil/Sub-surface Investigations for road & bridge works on NHs and under other centrally sponsored schemes – Entrusting to prequalified geotechnical consultants.	206/21

No. RW/NH-34041/62/89-DO II

Dated the 12th January, 1990.

To

All C.Es., PWD of all States/UTs dealing with National Highways and other roads; Director General (Works), CPWD; Director General Border Roads; and National Highway Authority.

Subject: Interim Guidelines for Selection of Consultants for Highway/Bridge Projects on National Highways.

Use of consultants is becoming increasingly necessary for highway/bridge projects on National Highways. This is especially so in the case of bigger projects financed by international lending agencies like the World Bank and ADB. Apart from project preparation, consulting services may also be needed for specialised works such as research studies, traffic planning, bridge rehabilitation, construction supervision, etc.

2. The process of engaging the consultants involves a number of steps like Prequalification, Preparation of Terms of Reference, Invitation of Consultancy Proposals, Selection of the most suitable Consultant, Negotiations and finally award of the work. The entire exercise calls for a defined selection procedure to be followed.

3. With the above objectives in view, this Ministry has formulated "Interim Guidelines for Selection of Consultants" which are enclosed. These are focussed specifically on feasibility studies and project preparation, but are also applicable equally to other specialised jobs with necessary adaptation.

4. It is requested that the Interim Guidelines may be adopted with immediate effect in respect of consultancy services required for N.H. projects. Following points may please be kept in view in this regard:

- (i) Ministry's prior consent should be obtained when the need for any consulting services is envisaged;
- (ii) Prequalification and selection of consultants will have to be done normally through an Evaluation Committee set-up by the Ministry unless the State PWD is so authorised (see paras 5.6.1 and 11.1 of the Guidelines);
- (iii) Under emergent situations, the prequalification step could be omitted and proposals invited from select list of consultants in consultation with the Ministry. However, this will be done only exceptionally; and
- (iv) In due course, the Ministry intends to make a panel of consultants for different types of assignments so that the selection process is expedited.

5. Considering that a number of steps are involved in selection of a consultant (see para 4 of the Guidelines), the whole process needs to be carried out expeditiously. An indication of the total time period that might be taken and how this could be compressed, is given in para 14 of the Guidelines.

6. The Guidelines are interim at this stage and the Ministry will appreciate any suggestions to improve and refine them further.

Annexure to Circular No. RW/NH-34041/62/89-DOII dated 12.1.90

INTERIM GUIDELINES FOR ENGAGING CONSULTANTS FOR PREPARATION OF HIGHWAY PROJECTS (CONCERNING ROADS, BRIDGES, TRAFFIC PLANNING, OTHER SPECIAL STUDIES ETC.)

1. INTRODUCTION

1.1 In development of the highway system, a variety of projects would need to be conceived, evaluated, prepared and implemented. The projects may differ in scope but in each case, project conception, evaluation and preparation as a group of activities is as important as the actual implementation itself. Reason is that at initial stage when technical feasibility and economic viability of the projects are established, detailed field investigations are done, designs are developed, and cost estimates and implementation schedules are settled, these have a strong bearing on the quality and timely implementation of the project.

1.2 Accuracy and comprehensiveness of the surveys and investigations merit particular emphasis in project preparation. Objective presentation of the various project details in a systematic manner is equally important since the project document forms the very basis for technical, administrative and financial sanction of the work besides being vital for smooth implementation on the ground.

1.3 Towards achieving the objective of well conceived projects for incorporating innovative technology, and completing the work within the stipulated time, engagement of consultants possessing requisite expertise, knowhow, manpower and infrastructural support assume great relevance. Expenditure on such consultancy services is generally marginal compared to the total cost and will well pay for itself in several ways such as formulation of technically sound and economically viable projects, realistic cost estimation, innovative and cost effective designs, possibility of implementation without time/cost over-runs, etc.

1.4 The process of engaging a consultant involves a number of steps like prequalification, preparation of Terms of Reference (T.O.R.); invitation of consultancy proposals, selection of the most suitable consultant negotiations and final award of the work. The sequence involved is given in para. 4.1. The entire exercise will be considerably facilitated if appropriate selection procedures are followed. These guidelines have been prepared with this in view and contain recommendations about the method of selection of consultants for preparation of miscellaneous highway projects (concerning Roads, Bridges, Traffic Planning, Special Studies, etc.).

2. TYPE OF CONSULTANCY ASSIGNMENTS

2.1 General

Highway projects can vary widely in scope. One category is construction of new roads. Second is improvement of existing roads involving widening and/or strengthening, geometric improvements, reconstruction of weak/narrow cross-drainage structures, etc. A third type is specialised works such as design of improved intersections including interchanges, traffic safety works, high embankments, long span bridges, rehabilitation of distressed bridges, remedial measures for failed embankments/hill slopes, etc. Under the fourth category fall some special studies such as integrated transportation planning for an area, management of pavement systems, identification of expressway corridors etc.

2.2 Preinvestment or Feasibility Studies

2.2.1 For each of the work categories above, the first step would be to establish the need, justification, technical feasibility and economic viability of the project, in order to facilitate administrative decision to go ahead with the same. This is usually done through preinvestment or feasibility studies. In cases where need for the project is obvious and a decision has already been taken to go ahead, feasibility studies could be dispensed with and action taken straightway for project preparation.

2.2.2 The basic objective of a feasibility study is to examine possible alternatives through preliminary engineering studies and establish the need, justification and economic viability of the selected option. For example, in respect of improvements to an existing road, *inter alia* this will involve traffic studies covering O-D surveys at bypass locations, traffic projections, inventorisation of the road and road structures for identifying inherent deficiencies, preliminary surveys for improvements of geometrics, selection of suitable alignments for bypasses, preliminary pavement/overlay designs, rough cost estimates within a tolerance of $\pm 20\%$, economic evaluation of the improvement proposals, time scheduling of the construction etc. In short, results of the study are comprehensive enough for the authorities to take administrative decision whether to go ahead with the project.

2.3 Project Preparation

2.3.1 This is the second stage of operation which comes into play after the feasibility of taking up the project has been established and the administrative agency has taken the decision on the basis of preinvestment studies (vide para 2.2) to go ahead with its implementation. The work involved consists of detailed engineering, realistic cost estimation and other connected items relevant to preparation of the required working details and drawings for implementation. Besides other tasks, this will involve detailed surveys and investigations, geo-technical exploration, soil and material surveys, traffic studies, preparation of detailed designs and drawings, complete cost estimates, work specifications and tender documents for invitation of bids for construction work. This phase of work, i.e. project preparation, is a forerunner to technical approval and financial sanction of the project.

2.3.2 For administrative convenience and continuity of services, it will be usually preferable to engage the same consultant for both components of consultancy services, i.e. preinvestment (or feasibility) studies, and project preparation. Logic for this is that a firm which has carried out preinvestment study for a project, and is otherwise technically qualified to undertake the project preparation, will be in a better position to do so and also ensure consistency in basic technical approach especially in respect of the project cost on which the investment decision was based. If a different firm is chosen for detailed engineering, the cost and technical parameters of the final project could materially differ from those indicated at the preinvestment stage, thus posing problem in decision-making besides entailing delays in project formulation.

2.3.3 It will, therefore, be desirable to stipulate in the Letter of Invitation asking for consultants' proposals that the consultancy services would be for the complete package in two steps viz. feasibility study and project preparation (detailed engineering). It should, however, be made clear that satisfactory completion of feasibility study would be a pre-requisite for start of the second stage work, i.e. project preparation.

2.4 Special Studies

2.4.1 For projects involving special studies like development of transportation plan for an area, design of intersections/high embankments etc., an initial feasibility study will not be required, and the work on project could proceed straightway. For such cases, experience of the consultancy firm on similar works, and competence of the projected personnel for performing the job, will be crucial factors in the selection of the firm.

3. TYPES OF CONSULTING FIRMS

3.1 For purposes of these guidelines, consulting firms include, *inter alia*, consulting partnerships, private limited companies, public companies or corporations, government-assisted firms, government corporations, public sector organisations, training institutions, groups of associations of consulting firms, universities, and associations of practicing professionals.

3.2 Some consulting firms are a part of or are closely affiliated with other concerns e.g. construction firms or manufacturers of different products. Such firms will be acceptable if their qualifications and experience are otherwise suitable. But in the event of their selection, to ensure professional values, they must undertake to restrict their role to that of consulting services alone, implying an automatic disqualification for them and their associates from participating in that job in any other capacity (e.g. construction).

3.3 The above conditions apply also to "engineering firms" which undertake turnkey contracts.

4. PROCEDURE FOR ENGAGING CONSULTANTS FOR FEASIBILITY STUDIES AND PROJECT PREPARATION

4.1 The sequential steps involved in the selection process for consultancy services are as under:

- (a) Prequalification;
- (b) Preparing the Terms of Reference (TOR) for the assignment;
- (c) Making a broad estimate of Consultant's inputs in terms of time and the key personnel required on the basis of TOR;
- (d) Laying down the selection procedure;
- (e) Issuing letters of invitation (LOI) to short-listed Consultants to submit proposals;
- (f) Selection of the most suitable Consultant; and
- (g) Finalising contract negotiations with the selected firm.

4.2 Unless otherwise stated, TOR and LOI should be got vetted from the Ministry of Surface Transport (Roads Wing) before these are sent to the shortlisted consultants.

4.3 The various components of selection process are discussed further on in detail.

5. PREQUALIFICATION

5.1 Selection of Consulting firm for a particular project begins with preparation of "Short-list" of potential firms through the process of prequalification. Alternatively, if a prequalified panel of consultants is available, the same could be used and prequalification exercise dispensed with.

5.2 In case of emergent works, the prequalification process could be omitted with approval of the Ministry. In that event, a select list of consultants suited to the assignment under consideration can be drawn in consultation with the Ministry of Surface Transport (Roads Wing), and detailed proposals for feasibility studies/project preparation invited from them.

5.3 Basic objectives of prequalification are:

- (i) to confine invitation of consultancy services from firms possessing proven capability in the relevant field of work;
- (ii) to facilitate competition between well-qualified firms leading to selection of the one most suitable among them;
- (iii) to engage firms to come up with innovative new ideas in their proposals;
- (iv) to restrict the submission and evaluation of consultancy proposals to a manageable number; and
- (v) to enable a meaningful comparison and evaluation of the various proposals received.

5.4 For prequalification exercise, "letter of interest" could be sought through press advertisement, or by writing directly to firms known to have the necessary expertise, or a combination of the both. The advertisement (typical example for road upgradation project is given in *Annexure I*, which could be suitably modified for project-specific needs) should give only a brief outline of the proposed assignment, and not call for proposals *per se*. Firms should be asked first to submit a statement of capability and experience of key personnel, availability and details of inhouse computer and back-up services like survey and investigation equipment, previous experience on similar studies, back up of any other associates, etc. From the date of publication of advertisement to the closing date, at least 30 days should be allowed for replies.

5.5 Prequalification advertisement should be published in at least four National papers besides Indian Trade Journal and one regional paper if considered necessary. Moreover, it should be brought out in the magazine "Indian Highways" published by the Indian Roads Congress.

5.6 Evaluation of Pre-qualification Offers

5.6.1 For evaluating the pre-qualification offers to arrive at a shortlist of Consultants for the project under consideration, an Evaluation Committee would be set up by the Ministry. Alternatively, if the Ministry authorises, the above Committee could be set up by the Project Implementation Agency (State PWD/National Highway Authority/CPWD/DGBR/Local body etc.) An indicative composition of such a Committee is given below:

- | | |
|---|--------|
| (i) Chief Engineer (Roads) in the Roads Wing | Member |
| (ii) Chief Engineer (Bridges) in the Roads Wing | Member |
| (iii) Chief Engineer of the Project Implementing Agency dealing with the project under consideration. | Member |

Note: The above composition could be suitably restructured, as deemed appropriate by the Ministry, depending upon the project magnitude, complexity, importance and other related attributes. For example, in respect of specialised studies, or for projects of very large magnitude, the Evaluation Committee may include Ministry's ADG(R)/ADG(B) instead of the Chief Engineer. The Chief Engineer (Traffic & Transportation) may substitute for (ii) above for traffic and transportation projects, etc.

5.6.2 The following marking system for shortlisting of the Consultants is suggested for normal run of projects:

Details of Component	Marks
(i) Structure and organisation of the firm	5
(ii) Financial Status	5
(iii) Qualifications and experience of key personnel	55
(iv) Previous experience in similar assignments	25
(v) Availability of in-house computer and back-up services	5
(vi) Any additional points, e.g., possession of modern and more accurate equipment, innovative design package etc.	5

The above weightages could, however, be suitably modified commensurate with the project characteristics. These, as also the other evaluation criteria, should be decided by the Evaluation Committee in advance before actual receipt of offers from the Consultants. Guidelines for assigning marks for evaluation of prequalification offers in respect of a typical highway improvement project are given in *Annexure II* (These are meant for guidance of the Committee and are not to be disclosed to the Consultants).

5.6.3 While evaluating the personnel, higher weightage for the in-house experts than those proposed to be inducted from outside Organisations should be assigned. In addition, if some expert(s) is/are shown in the personnel list by two or more firms, such firms will be liable to suitable action against them. This could be either in the form of negative marking or rejection of their offer. The precise details in regard to the above two points will be appropriately decided by the Committee before actual receipt of Consultants' offers.

5.6.4 For aiding evaluation process, summary particulars including various components of the marking system, should be prepared on a suitable Format by the Project Implementing Agency for the offers received.

5.6.5 The Chief Engineer of the Project Implementing Agency who has called for the prequalification offers should furnish the following documents to the Ministry of Surface Transport (Roads Wing):

- (i) One copy each of the prequalification offers; and
- (ii) Three copies of summary particulars of the Consultants (as per para 5.6.4).

5.6.6 The Evaluation Committee should evaluate the offers on the basis of marking system referred to in para 5.6.2 above and finalise a 'Shortlist' of Consultants considered suitable for inviting detailed proposals from them. While finalising the shortlist, due consideration should

also be given to the magnitude of consultancy works already in hand with the prospective Consultants vis-a-vis their capacity to handle additional work commensurate with their infrastructural resources.

5.6.7 The 'shortlist' should be limited normally to a maximum of six firms, while it will be desirable to have at least three. In case the shortlist comes to less than three, the time limit for submission of prequalification offers could be extended, or alternatively proposals invited afresh.

6. TERMS OF REFERENCE (TOR)

6.1 TOR enunciate the client's requirements as well as modalities of the assignment which the Consultant would be expected to carry out. These are prepared initially for issue to shortlisted consultants, for them to submit their proposals covering the methodology of work, schedule of activities, reporting and manpower deployment, etc. After selection of the Consultant, the TOR as issued by the Project Implementing Agency in the first instance should be reviewed and modified based on the Consultants' comments during the contract negotiations. The TOR in the final form as modified should form an integral part of the contract which governs the work to be performed by the Consultant. These should, therefore, be as clear, precise and comprehensive as the type of assignment demands. Being crucial to success of the assignment, TOR should be reviewed and finalised with utmost care so that nothing important and relevant is left out. The Consultant's proposal which does not form part of the contract, is not a legal document, and should be discarded after the appropriate elements of the proposal have been incorporated into the contract.

6.2 TOR serve the following three purposes:

- (i) to inform the prospective Consultants of the objectives and intended scope of the work;
- (ii) to define the spread of Consultants' services for purposes of contract to be negotiated with the selected firm; and
- (iii) to confirm agreement between the client and the firm on the objectives and scope of the proposed assignment.

6.3 Normally, the TOR should contain the following:

- (i) background of the assignment;
- (ii) a precise statement of the objectives of the assignment;
- (iii) the scope, coverage and timing of the required services;
- (iv) the inputs (in terms of data, local services, support and facilities) to be provided by the client;
- (v) particulars of output required of the consulting firm (i.e. reports, inception report, final project report, field/geotechnical data, forecasts, design, drawings, specifications, tender documents etc.); and
- (vi) reporting and time schedule, etc.

6.4 TOR should explain the scope and form of the assignment with all the clarity possible, to obviate different interpretations. For preparation services including detailed engineering, the definition and coverage of the Consultants' tasks are largely dictated by the complexity of the project. If a preinvestment study has been conducted prior to detailed engineering, design standards and other criteria would normally have been settled. If such a study has not been undertaken, comprehensive coverage of the design parameters to be adopted will have to form part of the TOR. Further, use of any specific equipment, service or facility, if considered necessary must be clearly brought out in the TOR.

6.5 A Consulting firm appointed for any study shall be wholly responsible for the accuracy of the data and reliability of the output. In case any discrepancies are noticed during or subsequent to completion of the Consultancy assignment, including those observed during staking out, necessary modifications/reconciliations will have to be done by the Consultant without claiming any extra payment on this account. Consultants' responsibilities in this regard are clearly brought out in para 7 of the sample TOR (*Annexure III-A*).

6.6 While the client should supervise, review and approve the Consultant's work, modifications, if necessary, in the final documents prepared by the Consultant may be made only after due consultation with the firm.

7. BROAD ESTIMATE OF CONSULTANTS' INPUTS

7.1 A broad estimate of Consultants' inputs in terms of time involvement of the Key Technical Personnel should be made by the Project Implementing Agency in respect of proposed consulting assignment. This could be based on the perceived requirements of assignment in terms of level and type of personnel, and time required to be devoted in the field and office.

7.2 Since bid price for the assignment is also to be taken into account in the selection of consultants, the Letter of Invitation should normally include approximate man-months of Key Personnel (comprising team leader and experts incharge of individual sub-disciplines) expected to be required for the assignment. Providing man-months information is considered sufficient for the firms to get a good idea of the envisaged scope of work.

7.3 The rough cost estimate for the overall consultancy services should include cost of time inputs of key and other personnel, expenditure on travel and per diem, usage of office and engineering equipment, field investigation and testing, printing, stationary, vehicles and computer usage, overheads, contingencies and other physical inputs required for the services. The framing of these details will however be left to the Consultants, and would be reflected in their bid price, i.e. financial proposal. The reasonableness of these details will have to be appropriately assessed in the course of contract negotiations.

8. SELECTION PROCEDURE

8.1 Two types of selection procedures are available:

- (i) based wholly on the technical proposal, by calling the firm ranked first for negotiation as regards the fees to be paid; and
- (ii) involving a combination of both technical and financial proposals.

8.2 The relevant details of the selection procedure to be adopted for the project under consideration should be clearly mentioned in the Letter of Invitation.

8.3 For the normal run of highway projects under consideration, it is preferable to follow the evaluation procedure (ii) as indicated in para 8.1 above so that a technically competent proposal which is also reasonably competitive from financial angle, is finally chosen. The precise procedure to be adopted will be decided by the Ministry of Surface Transport (Roads Wing) in advance and incorporated in the Letter of Invitation.

8.4 Proposals must be evaluated on technical grounds whether or not price is to be a criterion for selection.

8.5 Where the selection procedure involves an evaluation of both technical and financial proposals, {(ii) of para 8.1}, a two-stage procedure, with technical evaluation being completed prior to opening any financial proposals, shall be followed.

8.6 Technical proposals will be evaluated using the following five principal criteria, with respective numerical ratings given as a guide:

	Marks
(i) Firm's experience in the field of assignment;	15
(ii) Adequacy of the proposed work plan;	25
(iii) Qualifications, competence and expertise of key personnel proposed to be employed on the project;	50
(iv) Availability of equipments/instruments; and	5
(v) Computer facilities (hardware and software)	5
Total	100

The above weights are suggested in respect of Consultancy Services for normal highway improvement projects. However, the relative importance of the above categories will vary with the type of assignment.

8.7 In the selection procedure based on evaluation of both technical and financial proposals, a score of 60 marks or more for the technical score will be deemed as satisfactory and the financial bids will be opened only for such proposals.

8.8 Overall Rating

8.8.1 The overall rating of Consultants' proposals will be determined on the basis of a weightage system, with weightages for technical and financial proposals fixed in relation to principal characteristics of the services required. In the case of normal run of projects, like improvement of existing highways, construction of new roads or construction of conventional bridges, etc., technical score shall be given a weight of 70 per cent with financial proposal as 30 per cent.

8.8.2 For special studies/projects, which involve complex and highly technical parameters like long span bridges, bridge rehabilitation projects, high embankments, research schemes, etc., a higher weight for the technical scope ranging between 80 to 90 per cent may be assigned. The exact magnitude may be judiciously decided in relation to the complexity of the candidate project, in consultation with the Ministry of Surface Transport (Roads Wing).

8.9 In case the evaluation procedure (i) as defined in para 8.1 above, based wholly on the technical proposal, is adopted, only the financial proposal of the consultant ranked first from the technical angle should be opened and examined for contract price negotiations. Only after the negotiations with the highest ranked firm fail and it is decided to reject his proposal, the financial bid of the next ranked consultant should be opened and negotiations commenced, and so on till a successful contract is negotiated. After the negotiations with the selected firm have been completed and a contract agreement drawn, the un-opened bids of the remaining shortlisted firms should be returned by the Project Implementing Agency.

9. LETTER OF INVITATION (LOI)

9.1 The letter of invitation is a package of information sent to the shortlisted Consultants inviting them to submit responsive proposals. The letter should provide all the relevant information available, and generally cover the following:

- (i) A brief description of the assignment and its objectives;
- (ii) A copy of the Terms of Reference (T.O.R.);
- (iii) A copy of the supplementary information to the Consultants containing instructions about the information to be presented in the proposals including sample formats for manning schedule, activity schedule and curriculum vitae of Consultant's key personnel proposed for employment on the job;
- (iv) Visit requirements to the client's office and to the site (at Consultant's own cost and non-reimbursible);
- (v) Agency personnel whom the consultant should meet;
- (vi) Details of selection procedure - method and criteria of selection, weighting system for technical and price scores;
- (vii) Level of effort - the estimated number of man-months of key personnel;
- (viii) Time allowed for proposal submission - a minimum of about 45 days to be stipulated;
- (ix) Relationship with manufacturers or contractors;
- (x) Proposal submission - when, where and how the proposal should be submitted;
- (xi) Names and addresses of the other invited firms;
- (xii) A statement to the effect that (a) if firms do not have all the necessary in-house expertise, they should feel free to enter into joint ventures with other firm(s) to make up a complete team; and (b) a firm's name may only appear once (i.e. a firm may not be a joint venture partner in more than one consortium);
- (xiii) Validity period of the proposal (normally stipulated as 90 days reckoned from the last of submission of proposal), during which time the Consultants would maintain, without change, the personnel proposed for the assignment and their quoted price;
- (xiv) Likely dates of negotiation and commencement of the assignment;
- (xv) Classification that the cost of framing the proposal, site visits and negotiations for the contract is not reimbursible as a direct cost of the assignment;
- (xvi) Consultant's tax status and tax liability in respect of the remuneration of the consulting services;
- (xvii) Proposal to be submitted in five copies (one original and four copies)

9.2 A sample letter of invitation for a typical highway improvement project is at *Annexure III*. This is indicative only and should be suitably modified as per needs of the specific project. The letter draws reference to the T.O.R. and the Supplementary Information for Consultants which are to be attached to it. Samples of these two attachments are given in *Annexure III-A* and *III-B* respectively. Suggested format of curriculum vitae for key members of Consultant's team is at *Annexure III-C*, manning schedule at *Annexure III-D*, and for activity schedule at *Annexure III-E*.

10. SUBMISSION OF PROPOSALS BY CONSULTANTS

10.1 The shortlisted Consultants must submit their technical and financial proposals, complete in all respects by the due date, duly taking into account the provisions of the TOR, supplementary information for consultants and other details indicated in the LOI.

10.2 The technical proposal and the financial bid should be submitted in double cover with the technical proposal and the price bid sealed in separate envelopes, to be clearly marked "Technical Proposal" and "Financial Bid" for proper identification. In accordance with the prescribed two-stage procedure for proposal evaluation, the technical evaluation will be completed prior to any financial proposals being opened and compared.

10.3 The financial proposals submitted should provide a detailed price breakup taking into account the various budget items related to the study. The cost should cover all foreign and local costs of the consultancy services including those related to the personnel, field surveys and data collection, testing, travel, per diem, equipment, detailed engineering designs and drawings, project report, office supplies, attending meetings and related expenses, vehicle and computer usage, printing, stationery, overheads, contingencies etc.

10.4 The period of validity of the proposals should be 90 days from the stipulated last date for receipt of the proposals, during which the consultant will maintain without change, the personnel proposed for the assignment and their quoted price.

11. SELECTION PROCESS

11.1 For evaluating the technical and financial proposals and recommending the most suitable proposal for consideration by the Project Implementing Agency, a Proposal Evaluation Committee shall be constituted by the Ministry. Alternatively, if the Ministry so authorises, the above Committee could be set up by the State PWD. Its composition should be on the same lines as suggested for the evaluation of prequalification offers (see para 5.6.1).

11.2 Technical Evaluation

11.2.1 A consensus approach by the Committee for allocating marks and arriving at results in technical evaluation of the proposal is recommended.

11.2.2 Detailed break-up of the weightages for evaluating technical proposals is suggested in *Annexure-IV* for the guidance of the Evaluation Committee (not to be disclosed to the Consultants). The same could be appropriately modified by the Proposal Evaluation Committee, as per project needs. However, all the scoring criteria must be decided by the Evaluation Committee and the same forwarded to the MOST (Roads Wing) prior to receiving the Consultants' proposals.

11.2.3 While evaluating the personnel, higher weightage for the in-house experts than those proposed to be inducted from outside organisations should be assigned. In addition, if same expert(s) is/are shown in the personnel list by two or more firms, such firms will be liable to suitable action against them. This could be either in the form of negative marking or rejection of their offer. The precise decision in regard to the above two points will be appropriately taken by the Committee before actual receipt of Consultants' offers.

11.2.4 Personnel evaluation sheet to be used for rating of technical personnel together with illustrative computational methodology and suggested rating scale are shown in *Annexure - V*.

11.2.5 **Experience:** The experience of the firm is normally given less weight than for personnel because the prequalification procedure has already been gone through. In the evaluation, the firm's experience is usually considered in relation to specific aspects of the project having a bearing on the technical proposal, e.g. bridge design, pavement evaluation, geotechnical investigations etc.

11.2.6 **Work plan and methodology:** Work Plan is also given relatively less weight than the personnel because the TOR already spell out in detail the scope, coverage and methodology of the work. The firm's work plan should be examined for their understanding the nature of assignment for innovative ideas, and whether the approach proposed is a professional one covering all the tasks mentioned in the TOR.

11.2.7 Personnel

- (i) Since the success of an assignment largely depends on the capability, expertise and experience of the technical personnel, scrutiny of their curriculum vitae needs special attention. Among the personnel, the Team Leader plays a major part in satisfactory completion of the work and his suitability should, therefore, be given a critical look.
- (ii) To assess the qualifications and experience of proposed personnel, the curriculum vitae of key members in each discipline should be included with the proposal in the format given in *Annexure III-C*. These should be reviewed and the individuals rated with respect to the following two criteria:
 - (a) General qualifications - This includes education and training, membership of professional organisations and professional attainment, length of experience, type and level of position held, time with the firm etc; and
 - (b) Adequacy for the project - suitability to perform the duties for the particular assignment considering appropriate capabilities, skills and experience.

It is recommended that a weight of 30% be assigned to (a) above while 70% could be given to (b).

11.2.8 All categories should be marked on a scale of 100 and then multiplied by their weights. A passing grade of 60 should generally be set for each category, so that acceptable marks will range between 60 and 100. Consistency in applying the marking system should be the aim. This has special significance since price is a selection factor and absolute marks, not ranking, are taken into account in the second stage of evaluation.

11.2.9 The minimum level of acceptability should normally be set at 60 per cent. Final scores should be computed on the basis of average weighted scores of each evaluation category, i.e. firm's general experience, work plan, personnel and equipment/computer facilities, in accordance with the break-up of marks indicated in the foregoing paras. Any proposal with technical score of less than 60 should be rejected. For aiding evaluation process, appropriate personnel evaluation sheets and summary evaluation sheets based on the above weightages may be prepared by the Project Implementation Agency.

11.2.10 The firm with the overall highest weighted score, based on a combined rating of technical proposal and financial bid, should be selected and called for contract negotiations. In case more than one firm has the identical maximum score, the one with the highest technical score should be selected for award of the assignment and invited for negotiations.

11.2.11 A brief report on the evaluation process and results thereof shall be prepared by the Evaluation Committee with respect to the finally selected firm to be invited for negotiating the contract. The Report should indicate the salient points to be discussed with the firm during negotiations.

12. CONTRACT NEGOTIATIONS

12.1 Following decision about the winning proposal, the selected firm is invited for contract negotiations. The invitation in this regard should mention any additional information the firm is required to bring for negotiation, as well as any major reservations the client has regarding the work plan, staffing, other inputs, etc. so that the Consultant could pre-consider possible adaptations. If the draft contract was not forwarded to the firm with the Letter of Invitation, it should be sent to them at this time.

12.2 The objective of negotiations is to arrive at a mutually advantageous and clearly defined relationship conducive to smooth, proper and timely conduct of the work. The salient items to be discussed during negotiations are mentioned below. Amongst these, the work plan, staffing, client's inputs etc. should be taken up first before going into financial negotiations, as indicated below:

(i) Work Plan

Any suggestions made by the Consultants to improve the TOR should be discussed. The Consultant's proposal will not form part of the contract. Hence any acceptable suggestions must be suitably incorporated in the TOR. After the negotiations, the Consultant's proposal will have no legal status. Any difficulty with the Work Plan and methodology proposed by the Consultant should be resolved before finalising the TOR. Any ambiguities in the codal provisions and engineering practices etc. should also be settled before hand. As a result, there should be an agreed text of objectives and scope of work in the final TOR (see paras 2 and 3 respectively in Annexure III-A).

(ii) Staffing

Regarding staffing, clarifications should be obtained from the Consultant about the role of each key member of team. Staff substitution by the firm is undesirable at any point of time and particularly between receipt of the proposal and commencement of the work. However, if the proposed validity has elapsed, staff substitution may be discussed during negotiations and agreed upon provided the qualifications of substitute candidates are found suitable for the assignment. Consultant's bar chart on activity scheduling should be reviewed and agreed upon. Once the contract has been signed, the assigned staff may not be replaced except for very good reasons (e.g. sickness). During the assignment, if substitution becomes inevitable because of ill-health, or if one or more staff prove to be unsuitable for the job, the firm should withdraw him (them) and substitute by other suitable staff acceptable to the client. The competence of appropriate replacement staff would need to be established and the change should have the client's approval.

(iii) Client's Inputs

The data inputs to be normally supplied by the client would comprise traffic census data, road inventory data, foundation/other details of existing bridges, quarry charts, current schedule of rates etc. The other inputs could be counterpart professional staff to be assigned by the client for supervising and coordinating the Consultant's work in accordance with the contract. All these as also any facilities/help to be provided to the Consultant by the client should be finalised during negotiations.

(iv) Price Bid

(a) Negotiations on price are customary where the selection of the Consultant has been made wholly on the basis of his technical proposal. Where, however, price has been a factor in selection (i.e. for two-stage procedure based on composite rating of technical proposal and financial bid), there should normally be little scope for price reduction for obvious reasons, more so when any negotiation downwards is likely to be at the expense of quality. Such a practice should therefore be avoided and at best the price break-down and other back-up details furnished by the consultant may be sorted out for any inconsistencies/distortions.

(b) In respect of financial negotiations for the proposal selected on the basis of technical rating alone, the Consultant should be asked to render supporting back-up details based upon which the costs of different components of the consultancy project (as stipulated in para 8 of the sample LOI) have been arrived at. These would help in evaluating the reasonableness or otherwise of the price bid, and in negotiating a fair cost for the consultancy services. While assessing the price, due consideration for overheads, contingencies and price escalation should also be accorded.

(c) The payment schedule linked with the physical progress of the work should also be finalised during negotiations.

12.3 Successful contract negotiations should end with the joint concurrence between the Project Implementing Agency and the selected Consultant to a draft contract agreement.

13. Soon after the successful completion of negotiations with the selected firm and drawal of a contract agreement with them, the Project Implementing Agency should notify other shortlisted firms that they were unsuccessful for the consultancy services.

14. TIME FRAME FOR ENGAGING CONSULTANTS

14.1 Considering that a number of steps in engaging a consultant are involved, the entire exercise should be completed expeditiously. From this angle, the following time schedule should be adhered to:

Steps involved	Cumulative Time from start
(i) Invitation of letters of interest for prequalification (through press or otherwise)	½ month
(ii) Receipt of offers for prequalification	1½ month
(iii) Evaluation of offers and finalisation of shortlist	2 months
(iv) Finalisation of TOR and issue of Letters of Invitation to shortlisted Consultants for submission of detailed proposals.	2½ months
(v) Receipt of proposals	4 months

(vi)	Evaluation of proposals and selection of Consultant	4½ months
(vii)	Contract negotiations and sanction of consultancy estimate	5½ months
(viii)	Award of Work	6 month

- Note: 1. The above time schedule is indicative only and is easily subject to reduction commensurate with the needs/priority of the specific study.
2. In case of emergent works, steps (i) to (iii) above can be omitted. The select list of consultants can be drawn in consultation with the Ministry of Surface Transport (Roads Wing) and step (iv) initiated straightaway. In addition, time period for receipt of proposals (step (v)) and subsequent activities could be appropriately shortened so that the entire selection process is completed within three months.

Annexure I

*Interim Guidelines for Engaging Consultants***Sample Advertisement For Letters of Interest For Prequalification Of Consultants**

Government of

Survey, Investigation and Project Preparation for Upgradation of Section (km — to —) of N.H. No.....

1. Letters of interest are invited from qualified and experienced consulting firms who wish to be considered for prequalification to undertake survey, investigation and project preparation for upgradation of

Section (km. — to —) of N.H. No...

2. The scope of the proposed Consultancy Services will comprise:

- determination of the techno-economic feasibility and economic viability of four-laning or any other suitable alternative for the study section to cater to traffic needs for the design period and evolve the most cost-effective solution (pre-investment study);
- project preparation for the selected alternative, including field surveys and investigation, geo-technical exploration at bridge and high embankment sites, soil and material surveys and evaluation, detailed engineering designs, drawings and cost estimates for the proposed improvement works in accordance with standard codes, specifications and sound engineering practices in vogue in India;
- preparation of work and performance specifications and tender documents for invitation of bids for construction work; and
- to draw programme for implementation of project on the ground.

3. The consultancy work should be completed within twelve months (or specify period as desired) of the award of work.

4. Consultants, who are interested in being considered for the assignment should submit information in support of their capability and experience appropriate to the envisaged project i.e. structure of the firm, financial status, qualifications and experience of key personnel, details of previous experience on similar consultancy works, availability and details of in-house computer and back-up services like survey and investigation equipment and instrumentation, and foreign experts/associates assistance.

5. Letters of interest accompanied by supporting details should be submitted to the Chief Engineer, National Highways ... PWD, ... (give address here) by (give date here).

6. It may be noted that this notice is not a request for submission of project proposals. Based on a review of the Letters of Interest, a short list of Consultants considered suitable for the assignment will be prepared. The Consultants thus prequalified will then be invited to submit detailed proposals for the work.

Annexure II

*Interim Guidelines for Engaging Consultants***Guidelines for assigning marks for Evaluation of Prequalification offers for a typical highway improvement project****1. Structure and Organisation of the firm (5)**

This could be categorised as very good, good, satisfactory and unsatisfactory based on information supplied by the Consultants and 5, 4, 3 and 1 marks assigned respectively.

2. Financial Status (5)

Same as 1 above.

3. Qualifications and Experience of Key Personnel (55)

The expertise of personnel could be sub-divided into following components and marks assigned out of those shown against each, commensurate with the level of competence/experience in the field of assignment:

	Marks
(i) Survey and investigations	10
(ii) Laboratory testing and geo-technical studies	6
(iii) Traffic engineering and transport economics	10
(iv) Pavement and geometric design	12
(v) Bridge design	10
(vi) Estimating, specifications and bidding documents	7
Total	55

4. Previous Experience of Firm in Similar Assignments (25)

Marks could be sub-divided into:

- | | | | |
|-------|--|-------|-------|
| (i) | Feasibility studies | Marks | 4 |
| (ii) | Survey, investigations and geo-technical studies | | 5 |
| (iii) | Traffic studies and transport economics | | 4 |
| (iv) | Project preparation for roads (including specifications & bidding documents) | | 7 |
| (v) | Project preparation for bridges (including specifications and bidding documents) | | 5 |
| | | | <hr/> |
| | | | 25 |

Total

5. Availability of in-house Computer and Back-up Services (5)

- | | | | |
|------|---|-------|-------|
| (i) | Availability of in-house computer | Marks | 2 |
| (ii) | Back-up services (survey & investigation equipment and related instrumentation) | | 3 |
| | | | <hr/> |
| | | | 5 |

Total

Assign 2 marks to firms having in-house facility and 1 mark to those without. For back-up services, assign marks dependent upon level of adequacy.

6. Any Additional Points (5)

Marks could be awarded in case of any special/additional attributes of the firm as testified by them. These could be possession of more accurate survey equipment such as Distomats, pavement evaluation equipment like FWD, Deflectograph, availability of computer facilities for auto plotting, or special innovative designs.

Notes: (i) The break-up of marks given above is suggestive only and could be suitably modified by the Evaluation Committee in relation to the project attributes and requirements, before the Consultants' offers are received. For special studies, the marking system in paras 3-6 would vary depending on the type of assignment. For example, for a transportation study, experience on transportation studies, transport economics and the availability of the needed computer packages would need more weightage and some of the items in paras 3 and 4 would not be applicable. The same would apply to any special assignment for bridge design, or say maintenance management.

(ii) The above guidelines are meant for guidance of the Project Implementing Agency and are not to be disclosed to the Consultants.

(iii) Subgroupings for evaluation of key personnel and firm's experience (3 and 4) may be appropriately reduced/pruned by the Committee commensurate with project attributes and needs, before the offers are received.

Annexure III

Interim Guidelines for Engaging Consultants Sample Letter of Invitation to Prequalified Consultants

No.

Date.....

To

Subject: Consultancy Services for Feasibility study and project preparation for improvement to to section of NH in

Sir,

1. I am directed to inform that you have been shortlisted on the basis of details furnished by you in response to our advertisement inviting offers for shortlisting in connection with the above work.

2. You are hereby invited to submit technical and financial proposals in separate sealed envelopes for the above work for evaluation, and if selected, for negotiations which might ultimately lead to a contract between your firm and this Department.

3. The main objective of the proposed consultancy services is the preparation of a detailed project with the related documents for improving to section of National Highway No in the State of with the most appropriate proposals which are technically feasible and economically viable. Inter alia, this will include:

- (i) conducting feasibility studies for determining the optimal improvement measures for catering to traffic expected over a design period of 15 years and to establish the economic viability of such proposals;
- (ii) preparing a project of the needed improvement works after detailed field surveys, investigations, etc.; and
- (iii) preparation of work specifications and bid documents fit for tendering as also document for prequalification of contractors.

4. To enable you to submit a proposal, enclosed please find:

- (i) Terms of Reference, (T.O.R.), vide Annexure III-A.
- (ii) Supplementary information for Consultants (Annexure III-B) including suggested formats for curriculum vitae of key personnel (Annexure III-C), manning schedule (Annexure III-D), and activity schedule (Annexure III-E).

5. In order to obtain first hand information about the assignment and the local conditions, it is considered desirable that a representative of your firm visits the site. For this purpose, this Department has organised a site visit on For taking part in this, your representative should reach the office of the Executive Engineer, Division, at 9.00 hrs on You may also get any further information from Shri S.E. PWD, Tel (O) (R).

6. Your technical and financial proposals should duly take into account the provisions of the T.O.R. and the supplementary information for consultants. The proposal shall be submitted in double cover with the technical proposal and financial proposal sealed in separate envelopes, which are clearly marked 'Technical Proposal' and 'Financial Proposal' for proper identification.

7. Evaluation of the proposals will be based on a two-stage procedure with technical evaluation being completed first prior to any financial proposals being opened. Technical proposal will be evaluated using the following criteria:

	Marks
(i) Firm's experience about the type of assignment	15
(ii) Work plan	25
(iii) Qualifications and related experience of key personnel assigned to the project	50
(iv) Equipment/Instruments proposed for use	5
(v) Computer facilities	5
Total	100

It is upto the Evaluation Committee to suitably sub-divide the marks for the above items for individual attributes.

A score of 60 marks or more for the technical proposal will be deemed as satisfactory and the financial bids will be opened only for such proposals. The overall rating will be determined on the basis of a weightage system, in the ratio of 70 per cent for technical score and 30 per cent for the financial proposal.

8. Financial proposal, to be submitted in a separate sealed envelope, should provide a detailed price breakdown which should take into account the various budget items related to the work, for example:

(i) Key personnel man months	Rs.....
(ii) Other personnel man months	Rs.....
(iii) Travel/per diem	Rs.....
(iv) Equipment/Testing charges	Rs.....
(v) Postage, stationery, and other consumables	Rs.....
(vi) Computer time charges	Rs.....
(vii) Head Office expenses	Rs.....
(viii) Overheads	Rs.....

9. It is broadly assessed that about man months of key technical personnel would be required for successful completion of the proposed consultancy assignment. However, you should feel free to submit your financial proposal on the basis of man months and other budget items which you consider more appropriate for successful completion of the assignment.

10. You may please note that the Department may decide to stop the work upto the feasibility stage and not to proceed with project preparation, etc. For meeting such situations you may please quote in your financial bid a separate price for completing the feasibility studies and give an undertaking that you will be prepared to take up this work-item alone as decided by the Department.

11. The period of validity of your proposal will be reckoned as 90 days from the stipulated last date for receipt of proposals that is, during which you will maintain without change the personnel proposed for the assignment and your quoted price. The Public Works Department (State) will make its best efforts to select a consulting firm within this period.

12. Please note that the cost of preparing the proposal and of negotiating the Contract including field visits etc. is not reimbursable as a direct cost of the assignment.

13. Assuming that the Contract can be satisfactorily concluded by, you will be expected to commence the assignment by (date).

14. You may please note that invitation to submit proposals has also been sent to five other firms. These firms including yours are:

- (1)
- (2)
- (3)
- (4)
- (5)
- (6)

15. You may send your proposals individually, or jointly with any other firm whether included in the above short-list or not. In case of joint submission, a letter executed by both the parties agreeing to work jointly for the assignment should be enclosed with your proposal. Please note that in case an individual expert or a firm is shown to be associated with more than one firm submitting the proposals, all such firms may be liable to disqualification.

16. Your proposal in five copies (original and four copies) should be delivered to Shri... at the address..... on or before (date). Proposals delivered after that date will not be considered.

17. Please note that the remuneration you will receive from this contract will be subject to the normal tax liability in India.

18. Please also note that PWD.... is not bound to select any of the firms submitting proposals.

19. We would appreciate your informing us by telex/telegram in regard to the following:

- (a) your receipt of this letter of invitation;

(b) whether or not you will be submitting a proposal; and

(c) when submitting the proposal, the date and mode of delivery of the proposal.

20. The telegraphic address of this office is and the telex number is

Yours faithfully

ANNEXURE III-A

INTERIM GUIDELINES FOR ENGAGING CONSULTANTS

TERMS OF REFERENCE FOR THE PROPOSED CONSULTANCY SERVICES* FOR IMPROVING TO SECTION OF N.H. NO. IN THE STATE OF**

1. Introduction

1.1 The Project Road under consideration for improvement is an important section of NH between (km.....) and (km) in the State of The road having a length of ...km. traverses rich agricultural and mineral bearing areas having high potential for agricultural and industrial development and are the main cities/towns falling along the road.

1.2 The road at present has a two-lane carriageway. Seven day traffic counts at four locations along the road during the month of199. showed that the present average daily traffic on the road varies between and indicating the need for widening the road to 4-lanes. The number of commercial vehicles plying on the road is of the order of per day, and there are indications that many of the trucks are heavily over-loaded. The road pavement is in a poor condition, and is being maintained through frequent patching, pothole repairs etc.

1.3 The road is highly congested in reaches passing through the towns and At each location, the average delay to vehicles is of the order of 30 minutes. Further, the road crosses a double track railway line at km through level crossing which also adds up to the delay.

1.4 The project road being an important link in the trunk road system, it is considered desirable that the road be widened to 4-lanes along with other improvement works including bypasses/railway over-bridges where necessary for catering to the needs of traffic for a design period of 15 years.

2. Objectives

2.1 The main objectives of the consultancy services are:

- (i) to conduct feasibility studies for determining the optimal improvement measures for catering to traffic expected over a design period of 15 years, and to establish the economic viability of such proposals (feasibility study),
- (ii) preparing a project of the needed improvement works after detailed field surveys, investigations, etc; and
- (iii) preparation of work specifications and bid documents fit for tendering as also document for pre-qualification of contractors.

3. Scope of Consultancy Services

3.1 The scope of the consultancy services can be divided into three stages, namely, feasibility study, project preparation and tender documents. Though each stage has its own objectives to fulfill, some of the activities of one may overlap the other. The activities to be carried out by the consultant under each stage are brought out hereunder.

3.2 Feasibility Study

The activities to be performed by the Consultant will include, but may not be restricted to, the following:

- (i) Review of all available reports/information about the Project road and the project influence area and assess the impact, on demand for transport, of the development plans in the influence area.
- (ii) Analyse the traffic census data collected by the Department for the past five years at four locations along the project road. Conduct O-D Surveys for ascertaining the pattern of commodity movement along the road, as also at.... and for establishing the need for bypass. Conduct additional 3-day traffic counts at locations considered necessary for giving a complete picture of traffic flows.
- (iii) Sub-divide the project road into an appropriate number of homogeneous sections in accordance with uniform traffic volume.
- (iv) Conduct loadometer survey at a suitable location on the project road for one day to capture the spectrum of axle loads of trucks and to determine the vehicle damage factor (VDF). For buses, the VDF may be taken as 0.5.
- (v) Assess the possibilities of traffic diversing from other modes and other road routes, taking into account transport costs, seasonal accessibility etc.
- (vi) Project traffic expected on the road, section by section, in stages of 5 years, taking into account factors such as past trends, growth in vehicle population, population and income growth rates, elasticity of transport demand in relation to income etc.
- (vii) Conduct inventory of the road and road structures. Evaluate the present condition of the pavement by visual rating and roughness index measurements by bump integrator. Evaluate the strengthening needs of the existing pavement by conducting pavement deflection studies.
- (viii) Investigate all the existing bridges and culverts on the project road to determine their condition, adequacy of waterway openings, load capacity, and finally the need or otherwise of their widening or reconstruction.

Notes: 1. *** This is a sample TOR for a project of 4-laning NH Section. For actual cases, details will vary depending on individual situation and TOR would need to be appropriately modified as per project needs.

2. This sample TOR includes work on both feasibility study and project preparation. In case the requirement is only for one of these items, the contents should be modified accordingly.

- (ix) Based on the results of the O-D surveys, the condition of the existing road link and other related factors, establish the need or otherwise for bypass at ... and...
- (x) Establish and recommend appropriate design standards for the proposed improvements and prepare typical drawings such as those for typical cross-sections, curve improvements, intersections etc. Also prepare preliminary alignment drawings for the recommended bypass locations.
- (xi) Prepare rough cost estimate within a tolerance of $\pm 20\%$ for the proposed improvement works.
- (xii) Conduct economic evaluation of the proposed improvement works on the lines recommended in IRC:SP:30, and calculate EIRR for the various sections and for the project road as a whole. The construction period may be taken as ... years beginning...., and the evaluation should be for a horizon period of 15 years.
- (xiii) Conduct sensitivity analyses for the cases:
 - (a) Costs increase by 15%
 - (b) Benefits decreased by 15%
 - (c) A combination of (a) and (b)
- (xiv) On completion of the feasibility study, prepare draft feasibility report in three volumes having following broad coverage:
 - (a) Main Report covering the study methodology, traffic studies, cost estimates, economic analysis, conclusions and recommendations.
 - (b) Design Report-Covering road inventory, survey and investigation data, proposed design standards and specifications, preliminary designs covering pavement, culverts, bridges etc.
 - (c) Drawing-containing location map, typical cross-sections, typical drawings for bridges, culverts, junctions etc.

3.3 Project Preparation

The activities to be performed by the consultant will, inter alia, cover the following:

- (i) Conduct an accurate instrument survey of the area for collecting all information for designing all improvement works, and establish horizontal controls on the ground for the final centre line of the road through reference pillars fixed in concrete, and vertical controls through a series of Bench Marks all along the road. All surveys and investigations should be as per recommendations contained in IRC:SP:19.
- (ii) Study the drainage, both surface and sub-surface, of the area and make recommendations about improving the same.
- (iii) Conduct a detailed soils and materials survey for purposes of pavement design and for ascertaining the location, availability and suitability of road construction materials.
- (iv) Conduct geo-technical investigations at locations where bridges/high embankments are proposed.
- (v) Based on the detailed surveys and investigations, prepare detailed working drawings on the pattern recommended by the relevant standards of IRC including those for road inter-sections, traffic guiding/control devices, wayside amenities, plantation scheme etc.
- (vi) Prepare Bill of Quantities for the proposed improvement works and detailed cost estimates. The rates should be based on the current schedule of rates, and for items not covered by the schedule, the same should be accompanied by rate analysis.
- (vii) Prepare an assessment of the impact of the proposed works on the environment.
- (viii) Assist the client in the preparation of land acquisition plans by supplying information about the position of the final centre line of the road as soon as this is finalised.
- (ix) Involvement during execution for correction/modification of designs/drawings, if so required, as a result of any deviations at site.
- (x) Formulate repair plan and carry out rating in respect of existing bridge structures.
- (xi) Prepare draft report on project preparation in four volumes as follows:
 - (a) Main Report covering the methodology, details of all the field surveys and investigations, details of proposed improvements, environmental impact assessment etc.
 - (b) Design Report covering design of pavement, bridges, culverts, road intersections, retaining walls, traffic guidance systems, roadside appurtenances etc., as also details of the material surveys conducted by the Consultant.
 - (c) Bills of Quantities and detailed cost estimates.
 - (d) Drawings Folder-containing working drawings for all the proposed improvement works on the lines and to the scales recommended by the relevant IRC Standards.

3.4 Specifications and Bid Documents

The specifications for the various items of works should be as per the Ministry's Specifications for Road and Bridge Works (latest revised edition). For any item not covered in the above book, the consultant should propose the appropriate specifications. The Conditions of Contract should also be on the lines of the model document prepared by the Ministry of Surface Transport for application to all National Highway works. These should also include equipment planning, scheduling of various construction activities and maintenance plan (manual) etc.

4. Reports and Documents

The Consultant shall submit to the client the following reports and documents at the time and in the number of copies indicated against each:

- (i) Progress report in adequate detail indicating the physical progress of the various items of work, for each month, to be submitted latest by the 10th of the following month, in five copies.
- (ii) Draft Feasibility Report, in three Volumes at the end of three months from start of work. This should be submitted in five copies.
- (iii) Final Feasibility Report, in three Volumes and in 10 copies, to be submitted within one month of the receipt of comments of the client on the draft report. This will incorporate all revisions deemed relevant following receipt of the comments and any further discussions with the client.
- (iv) Draft Reports on project preparation, in four volumes to be submitted within 9½ months of start of work. This should be submitted in five sets.
- (v) Final Reports on project preparation, in four volumes and in 25 copies, to be submitted within one month of the receipt of the comments of the client on the draft reports.
- (vi) Specifications and bid documents, in 25 sets to be supplied to the client within 15 days of submission of the final report on project preparation.

5. Time Schedule

The work in all respects, i.e. feasibility study, project preparation and bid documents, shall be completed within a period of 12 months from the date of signing the agreement between the client and the consultant. Scheduling of the work within this period is indicated below which should be adhered to:

Activity	Period w.e.f. date of agreement
(i) Mobilisation	1 month
(ii) Submission of draft feasibility Report (5 copies)	3 months
(iii) Approval of Feasibility Report by client	3½ months
(iv) Submission of Final Feasibility Report (10 copies)	4½ months
(v) Submission of draft detailed project report covering project preparation (5 copies)	9½ months
(vi) Approval of detailed project report by the client	10½ months
(vii) Submission of Final detailed project report (25 copies)	11½ months
(viii) Submission of fair copies of specifications and bid documents (25 sets)	12 months

6. Payment Schedule

Payment schedule for performing the work shall be as follows:

(i) Within one month of signing the agreement between the client and the Consultant	15%
(ii) On receipt of draft feasibility report	15%
(iii) On receipt of interim report on detailed engineering on completion of field surveys and investigations (6 months after signing of agreement)	25%
(iv) On receipt of draft project report (project preparation)	25%
(v) On receipt of approved bidding documents	20%

7. Responsibility for Accuracy of Project Proposals

The consultant shall be responsible for accuracy of the data collected, and the designs, drawings and estimates prepared by him as a part of the project. He shall indemnify the client against any inaccuracies in the work which might surface out at the time of ground implementation of the project, including staking out, and for this purpose he shall furnish bank guarantee for an amount to the extent of 20% of the total consultancy fees to be received by him. In such cases, the consultant will be responsible to correct the drawings including any resurveys/ investigations (including correcting the layout etc.) as required. The bank guarantee furnished shall be valid for a period of two years from the date of submission of the final detailed project report. The final instalment of 20% of the fees (see para 6.v) shall be released only on receipt of this bank guarantee.

8. Facilities and Data to be provided by the Client

The client would make available, on specific request, the following data/information free of cost. The client, however, is not responsible for the veracity or accuracy of the data supplied, and it is for the consultant to verify the same through his own data collection process.

- (1) Traffic census data for the past five years at locations, viz, km km km, and km
- (2) Inventory data of the road collected during the year
- (3) Foundation and other details of bridges at km, km, km, and km constructed in the last five years. Copies of these cannot be supplied, but the same can be inspected in the Office of Executive Engineer, Division on prior intimation.
- (4) Quarry chart showing the location of quarries/gravel sources along the road.
- (5) A copy of the current schedule of rates (year) for the PWD Circle in which the project road falls.

Interim Guidelines for Engaging Consultants
SUPPLEMENTARY INFORMATION FOR CONSULTANTS

Proposals

1. Proposals will be evaluated according to criteria given in the Letter of Invitation and should include the following information:
 - (a) A brief description of the firm and an outline of recent experience (in the last 5 years) on projects of similar nature.
 - (b) Any comments or suggestions of the consultants on the Terms of Reference, and a description of the manner in which the consultants would plan to execute the work.
 - (c) The composition of the team of key personnel which the consultants would propose to provide in Consultancy services and the tasks which would be assigned to each team member.
 - (d) Curriculum vitae of the individual staff members to be assigned to the work and of the Team Leader who would be responsible for supervision of the team. The curricula vitae should follow the format given in Annexure III-C.
 - (e) Estimates of the total time-effort that could be provided for the services, supported by bar-chart diagrams showing the man months for each expert. A sample of a suitable bar chart is given in Annexure III-D. Similarly, the time duration envisaged for each major activity should be enclosed. A sample chart for a highway improvement project is given in Annexure III-E for guidance.
2. Five copies of the proposals should be submitted to the Chief Engineer, National Highways..... P.W.D.
3. In preparing the proposal, the consultants should give particular attention to the followings:
 - (a) Members of the team should have the requisite experience under conditions similar to those prevailing in India. A good working knowledge of English is essential for personnel working on this assignment. Reports shall be in English.
 - (b) The key personnel comprising the consultant's team must be drawn from the permanent staff of the firm.

Contract Negotiations

4. The following information is given to acquaint the consultants with the manner in which the P.W.D. negotiates a contract with a consulting firm. Negotiations normally commence on a Monday, and depending on the nature and size of the assignment, may take from two to five days. The aim is to reach agreement on all points, with the consultants and the P.W.D. initialling a draft contract by the conclusion of negotiations.
5. Negotiations commence with a discussion of the consultant's proposal, the proposed work plan, staffing and any suggestions they may have made to improve the terms of reference, the work programme, staffing pattern and manning schedule, the activity schedule and reporting schedule. Once these matters have been agreed, financial negotiations will take place.
6. Having selected a firm partly on the basis of an evaluation of key personnel presented in the firm's proposal, the client expects to negotiate a contract on the basis of the experts named in the proposal and, prior to contract negotiations, will require assurances that these experts can, in fact, be made available. As the expected date of mobilization is given in the letter inviting proposals, the client will not consider substitutions after contract negotiations except in cases of unexpected delays in the starting date or incapacity of an expert for reasons of health or his leaving the service with the consultant. The desire of a firm to use an expert on another project will not be accepted for substitution of personnel.
7. The consultants should note that the client for this study will be the P.W.D., Government of Payment to the consultants will be made in accordance with an agreed schedule.

ANNEXURE III-C

Interim Guidelines for Engaging Consultants

SUGGESTED FORMAT OF CURRICULUM VITAE FOR MEMBERS OF CONSULTANT'S TEAM

Name -----

Profession -----

Years with Firm ----- Nationality -----

Proposed Position on Team -----

Key Qualifications:

(Under this heading, give outline of staff member's experience and training most pertinent to assign work on proposed team. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use upto half a page).

Education:

(Under this heading, summarise college/university and other specialised education of staff member, giving names of schools, dates attended and degree obtained. Use upto a quarter page).

Experience Record:

(Under this heading, list all positions held by staff member since graduation, giving dates, names of employing organisation, title of positions held and location of assignments. For experience in last ten years, also give types of activities performed and client reference, where appropriate. Use upto three quarters of a page).

Languages:

(Indicate proficiency in speaking, reading and writing of each language by "excellent", "good", "fair", or "poor").

Signature of Staff Member _____

Date _____

ANNEXURE III-D*Interim Guidelines for Engaging Consultants***SUGGESTED FORMAT FOR MANNING SCHEDULE OF KEY PERSONNEL FOR A HIGHWAY IMPROVEMENT PROJECT**

Sl. No.	Name of Expert	Position in Team	Duration-Months												Man-Months
			1	2	3	4	5	6	7	8	9	10	11	12	

Total: _____

- Notes: 1. Show only for key personnel.
 2. Show duration by solid line for continuous inputs and by broken line for staggered inputs.

ANNEXURE III-E*Interim Guidelines for Engaging Consultants***SUGGESTED FORMAT FOR ACTIVITY SCHEDULE FOR A HIGHWAY IMPROVEMENT PROJECT**

Sl. No.	Activity	Duration (months)												Total duration (months)
		1	2	3	4	5	6	7	8	9	10	11	12	
1.0	Feasibility Study													
1.1	Road/Bridge Inventory													
1.2	Traffic Studies													
1.3	Pavement Evaluation													
1.4	Preliminary Design													
1.5	Rough Cost Estimate													
1.6	Economic Evaluation													
1.7	Draft Feasibility Report													
1.8	Final Feasibility Report													
2.0	Project Preparation													
2.1	Ground Surveys and Investigation													
2.2	Materials Survey & Pavement Design													
2.3	Geo-tech. Investigation for Bridges and High Embankments													
2.4	Environmental Impact Assessment													
2.5	Draft Project Report & Draft Drawings													
2.6	Final Project Report & Final Drawings													
2.7	Tender Documents													

Note: The activity items are suggestive only, and will vary depending on scope of the project.

ANNEXURE IV*Interim Guidelines for Engaging Consultants***GUIDELINES FOR ASSIGNING MARKS IN THE EVALUATION OF TECHNICAL PROPOSALS FOR CONSULTANCY SERVICES FOR A TYPICAL HIGHWAY IMPROVEMENT PROJECT****1. Firm's Experience (15) to be subdivided into:**

	Marks
(i) Feasibility studies in the related field	2
(ii) Field surveys, investigation and geo-technical studies	2
(iii) Traffic engineering & transport economics	2
(iv) Highway/pavement design & detailing	4

(v) Bridge design & detailing	3
(vi) Estimating, Specifications & Tender Documents	2
	<u>15</u>

2. **Work Plan (25) to be sub-divided into:**

(i) Understanding of the study requirements and the services to be offered, and coverage of scope of work listed in TOR	5
(ii) Quality of approach and methodology proposed, including clarity, soundness and practicability of methods	7
(iii) Innovativeness and originality	3
(iv) Suitability and practicability of work programme	5
(v) Manning and activity scheduling	3
(vi) Presentation of proposal	2
	<u>25</u>

3. **Personnel (50) to be sub-divided into:**

(i) Team leader	12
(ii) Field Survey/geotechnical expert	8
(iii) Traffic Engineer	5
(iv) Transport Economist	5
(v) Highway Engineer	11
(vi) Bridge Engineer	9
	<u>50</u>

4. **Equipment/Instruments (5)**

Depending on the adequacy of equipment/instruments with the Firm (e.g. soil and material testing lab, drilling and other equipment for sub-surface investigation, etc.), marks may be assigned out of total 5 marks. Assign higher marks for in-house availability of modern and more accurate/rapid evaluation equipment such as Distomat for survey, FWD/Deflectograph for pavement evaluation, electrical resistivity meters and echo sounding equipment for sub-surface investigation, etc.

5. **Computer Facilities (5)**

Marks may be assigned depending on availability of computer facilities for this assignment. Higher weightage to be given for in-house availability of computer-aided and drafting facilities.

Notes: (i) The break-up of marks given in 1 to 3 above is suggestive only, is meant for guidance of the Proposed Evaluation Committee, and is not to be disclosed to the Consultants. These could, however, be appropriately modified as per project attributes and needs, before the Consultants proposals are received.

(ii) Subgroupings for evaluation of firm's experience, work plan and personnel (1 to 3) may be suitably reduced/pruned by the Committee as per project characteristics and needs, before receiving the proposals.

Note: In assigning marks to the individual experts, 30% weight be given to general qualifications and 70% for adequacy of the individual for the tasks assigned in the project (Typical example of personnel evaluation is at Annexure V).

ANNEXURE V

Interim Guidelines for Engaging Consultants

Project: Feasibility Study and Project Preparation for Improvement/Upgradation Cuttack - Bhubaneswar Section of NH-5 in Orissa

CONSULTANTS PROPOSAL - PERSONNEL EVALUATION SHEET

Position or Expertise	Max. Weight	Name	Age	General Qualification a/ 30%		Experience Related to Project a/ 70%		Overall	
				Rating	Percentage Applied (1)	Rating	Percentage Applied (2)	Rating 1 + 2	Weight b/
(1) Team leader	12			E	30	G	56	86	10.32
(2) Field Survey/Geotechnical Expert	8			G	24	A	42	66	5.28
(3) Traffic Engineer	5			G	24	G	56	80	4.00
(4) Transport Economist	5			A	18	G	56	74	3.70
(5) Highway Engineer	11			G	24	G	56	80	8.80
(6) Bridge Engineer	9			A	18	A	42	60	5.40
Total	50								<u>37.50</u>
(a) Percentage and criteria to be discussed and agreed upon by the Evaluation Committee				Rating: Excellent = 100					
				Good = 80					
(b) Weighted overall rating results to be transferred to Summary Sheet				Adequate = 60					
				Marginal = 0					

206.2
301.9
1210.4

No. RW/NH-33054/35/89-DO II

Dated the 5th June, 1990.

To,

Chief Engineers of State/UT, PWDs (dealing with NHs and other Centrally Financed Schemes), Director General (Works), CPWD, Director General, Border Roads, Chairman, National Highway Authority.

Subject: Soil/sub-surface investigations for road and bridge works on National Highways and under other Centrally sponsored schemes
- Entrusting to prequalified geo-technical consultants.

It has been seen that a large number of highway projects are being adversely affected due to improper soil investigations resulting in unreliable and inaccurate soil data. In order to ensure that the geo-technical data collected at the time of investigations for road and bridge projects are representative and reliable, the Ministry felt it necessary to prepare a Panel of Prequalified Geo-technical Consultants. Keeping this in view, the Ministry invited applications from experienced geo-technical consultants through a questionnaire issued to firms known for their capability and expertise, and also through an open advertisement in the leading newspapers. The Ministry appointed a Screening Committee to look into the applications received, who have recommended pre-qualification of the following firms under each of the categories mentioned below:

Categories (a) and (b) For road projects, high embankment design, soft ground treatment and minor bridges

- (i) ENGICON India Pvt. Ltd., Calcutta.
- (ii) RITES, New Delhi.
- (iii) HAQ Consultants, Jaipur.
- (iv) National Soil Testing and Research Laboratories, Chandigarh.
- (v) F.S. Engineers (P) Ltd., Madras.
- (vi) AFCONS, Bombay.
- (vii) Soil Rock & Foundations Engineering, New Delhi.
- (viii) Continental Consultants, Calcutta.
- (ix) Consulting Engineering Services (India) Pvt. Ltd., New Delhi.
- (x) Geo-technical Consultants Pvt. Ltd. New Delhi.
- (xi) Inter Continental Consultants and Technocrats Pvt. Ltd. New Delhi.

Category (c) For major bridges

- (i) RITES, New Delhi.
- (ii) F.S. Engineers (P) Ltd. Madras.
- (iii) AFCONS, Bombay.
- (iv) Consulting Engineering Services (India) Pvt. Ltd. New Delhi.

2. A supplementary list of Government Institutions capable of handling geo-technical investigations for the highway sector is also given at Appendix I. The State/U.T. PWDs could consider entrusting the geo-technical investigation work to one of these institutions in their respective regions subject to the proviso that adequate infrastructure to carry out the investigations meeting the requirements of the specific work is available with them and they are in a position to take up such works satisfying the prescribed targets for completion.

3. The present prequalification of the above mentioned geo-technical consultants for different categories of work will be in force upto March 1992.

4. The quotations for future geo-technical investigation work for road and bridge works on National Highways and under other centrally sponsored schemes may be taken only from the geo-technical consultants prequalified in para 1 above. However, such works could also be entrusted to Government institutions listed in Appendix I, subject to the proviso mentioned in para 2 above.

5. Before calling for quotations for any geo-technical investigation work, the terms of reference detailing the scope of work, the preferred method of testing, sampling procedure, type and number of samples to be taken, engineering parameters required for design and construction, the target for completion and essential equipment both field and laboratory required to be deployed on the work must be clearly specified. The State/U.T. PWDs should also supervise the method and the quality of investigation work through experienced Departmental

Officers (with the help of check list as given at Appendix 2 which is not job specific but suggestive only) or by engaging experienced supervision consultants. The check list can be modified as required depending upon the nature of investigations. This will also depend on the TOR for the investigations. A list of suggested essential laboratory and field equipment which the consultants should possess is given at Appendix 3 and should be insisted upon by including the same in the tender documents.

6. A record about the performance of the geo-technical consultants covering aspects like adequacy of laboratory and field equipment deployed, expertise of personnel, quality of investigations, reliability of data collected, completion time, etc. should be maintained and this Ministry kept periodically informed particularly with regard to any unsatisfactory performance.

7. The contents of this letter may please be brought to the notice of all officers in your Department dealing with works on National Highways and under other Centrally Sponsored Schemes.

Appendix 1 to Ministry's Circular No. RW/NH - 33054/35/89 - DO II Dated 5-6-90

LIST OF GOVERNMENT INSTITUTIONS CAPABLE OF HANDLING GEOTECHNICAL INVESTIGATIONS FOR THE HIGHWAY SECTOR

1. Central Soil & Materials Research Station
Olof Palme Marg, Hauz Khas, New Delhi - 110016.
 2. Central Water & Power Research Station
Pune - 411024, Maharashtra.
 3. Central Road Research Institute,
Mathura Road, New Delhi - 110020.
 4. Maharashtra Engineering Research Institute
Dindori Marg, Nasik - 400004, Maharashtra.
 5. Gujarat Engineering Research Institute,
Race Course, Vadodara - 390007, Gujarat.
 6. Highway Research Station,
Guindy, Madras - 600025.
 7. Andhra Pradesh Engineering Research Laboratories,
Himayetsagar, Hyderabad - 500030.
 8. Karnataka Engineering Research Station,
Krishnarajasagar, Karnataka - 571607.
 9. Soil Mechanics & Research Division,
Chepauk, Madras - 600005.
 10. U.P. Irrigation Research Institute,
Roorkee - 247667 (U.P.)
 11. Central Building Research Institute,
Roorkee. U.P.
 12. River Research Institute,
West Bengal, 2nd Floor, 11-A, Mirja Ghalib Street,
Calcutta - 700087 (W. Bengal)
 13. Irrigation Research
Narmada Bhavan, Tulsi Nagar Qtrs. 1250,
Bhopal - 462005 (M.P.)
 14. Kerala Engineering Research Institute,
Peechi - 680653 (Kerala)
 15. Irrigation & Power Research Institute,
Amritsar-143001 (Punjab)
 16. Department of Civil Engineering
Indian Institute of Science, Bangalore - 560012.
 17. Department of Civil Engineering,
Indian Institute of Technology,
Hauz Khas, New Delhi - 110016.
 18. Department of Civil Engineering,
Indian Institute of Technology,
Powai, Bombay - 400078.
 19. L.B.S. Centre for Science & Technology
Extra Police Road, Nandavanam,
Trivandrum - 695033.
 20. Department of Civil Engineering,
Motilal Nehru Regional Engineering College,
Allahabad - 211004.
-

Appendix - 2 to Ministry's Circular No. RW/NH - 33054/35/89 DO II Dated the 5-6-90.

CHECK LIST FOR SUPERVISORS

The following is the check list to be used by the personnel deputed for supervising geotechnical investigation works:

Name of Work and location :

Date of starting :

Dated of completion :

Indicate YES or NO by marking \checkmark or x against each question listed below:

A. Field work

A 1. Investigation for Embankment Soil

A 1.1 Has borrow area plan been prepared?

A 1.2 Has the thickness of the over burden been estimated?

A 1.3 Has the accessibility of the source been examined at site?

A 1.4 Has the quantity of soil from borrow areas after due allowance for compaction and wastages been estimated?

Whether the estimated quantity is 50 more than the required quantity?

A 1.5 Has the side wall of the test pit or exposed surface been trimmed to remove weathered or mixed soil?

A 1.6 Has the trimmed surface of wall of the test pit been examined to determine :

- Thickness
- Classification
- Description

of each stratum of material?

Has the above information been recorded on log form?

A 1.7 Have the representative samples been collected from each stratum?

A 1.8 Have the sample number and depth been marked on the log from?

A 1.9 Has the care been taken to prevent inclusion of materials from other strata while sampling an individual soil stratum?

A 1.10 Whether water table encountered? If so, whether water table level been recorded?

A 1.11 Has the field sample number been recorded?

A 1.12 Has the test pit or hole number been recorded?

A 1.13 Has the location of test pit or hole been recorded?

A 1.14 Has the name/number/other identification of the area been mentioned?

A 1.15. has the depth interval of sample collection been indicated?

A 1.16 Has the purpose of sample collection been mentioned?

A 1.17 Has the description of the collected sample indicated on the sack/container?

A 1.18 Have the duplicate identification tags (one outside and one inside of the container) been provided?

A 2 Sub soil

A 2.1 Have the location and spacing of bore holes been planned atleast at 30m interval for foundation of bridges?

A 2.2 Has the possible depth of exploration been estimated?

A 2.3 Has the method of drilling (preferably Rotary drilling) been adopted followed as per IS : 1892-1962 ?

A 2.4 Whether water table encountered, if so the level has been observed and recorded?

A 2.5 Have Standard Penetration tests been conducted at desired intervals as per IS : 2131-1963.

A 2.6 Have Dynamic cone penetration tests been conducted around drill holes as per IS : 4968 Part I-1976 where required in the scope of the work?

A 2.7 Have permeability tests been conducted in drill holes at desired intervals as per

- IS : 5529-Part I - 1969 (Tests in overburden)
- IS : 5529 - Part II - 1973 (Tests in bed rocks)

Where required in the scope of works?

A 2.8 Where required in the scope of work has the disturbed samples from SPT sampler been preserved for laboratory tests?

A 2.9 Have the undisturbed samples using thin walled samplers been collected at regular intervals as per IS : 2132-1972 ?

A 2.10 Have the collected undisturbed samples been waxed/sealed properly so as to reduce vibrations to a minimum during shipment?

A 2.11 Has care been taken in making the undisturbed samples as 'top' and bottom for proper orientation?

A 2.12 Has recovery ratio been determines and recorded?

A 2.13 Has care been taken to see atleast on or two drill holes drilled upto 5m into the bed rock for the bridge works?

A 2.14 Has in-situ vane Shear test on soft subsoil conducted as per IS : 4434-1976 (Borrow area soil and sub soil)?

B. Laboratory work:

B. 1 Has the Mechanical or particle size analysis been done as per IS : 2720 Part IV-1975?

- B. 2. Have the listed consistency limits tests been performed as per the relevant IS codes?
- * Liquid limit IS : 2720-Part V-1970
 - * Plastic limit IS : 2720-Part V-1970
 - * Shrinkage limit IS : 2720-Part VI-1972.
- B. 3. Has the Natural dry density/moisture content (for cohesive soils) been determined as per IS : 2720 Part XXIX-1975 ?
- B. 4. Have the following Triaxial shear tests on undisturbed remoulded. samples been conducted?
- * Unconsolidated undrained without measurement of pore pressure as per IS : 2720 part XI - 1970 (on all samples)
 - * Consolidated Undrained tests with pore pressure measurement as per IS : 2720 Part XII-1975 where reqd.
- B. 5. Have the one dimensional consolidation tests been conducted as per IS : 2720 - Part XV - 1965 ?
- B. 6. Have the GBR tests on subgrade material been conducted as per : IS 2720 - Part XVI - 1965 ?
- B. 7. Has the moisture content dry density relationship for borrow area soil determined as per IS : 2720 Part VII or VIII as prescribed?
- B. 8. Has the rock core samples been tested for crushing strength, classification and characteristics of rock as indicated in cl. 704.1
- (iv) App.I, IRC: 78-1983?

Appendix - 3 to Ministry's Circular No. RW/NH - 33054/35/89 DO II Dated the 5-6-90

SOIL/SUB-SURFACE INVESTIGATIONS FOR ROAD AND BRIDGE WORKS ON NATIONAL HIGHWAYS.

A. LIST OF EQUIPMENT (FIELD)

1. 100 mm(4") dia & 75 MM (3") dia post hole Augers with accessories.
 - * Motorised 30m : 2 Nos.
 - * Hand Operated 10m : 4 Nos.
2. Equipment for conducting DOPT & SPT with accessories : 2 Sets
3. Deep drilling/Field tests
 - * Standards drilling machine (Acker - Rotary Type) with accessories for drilling upto 100 m including water pumps of capacity 30 gallons/min. : 2 Sets
4. Samplers for collection of undisturbed & disturbed samples.
 - * SPT Sampler : 10 Nos.
 - * Brass tube samplers (38 mm dia) : 200 Nos.
 - * Core cutter samplers (100 mm dia) : 100 Nos.
 - * Piston tube samplers : 10 Nos.
 - Thin walled tube sampler
 - (100 mm dia) : 100 Nos.
 - (75 mm dia) : 50 Nos.
5. Field Vane Shear : 2 Nos.
6. Accessories for field permeability test (Packers, water meters, Pump of capacity about 90 liters/minute etc.): 1 Set
7. Electric Sounding probe (Water level probe) : 2 Nos.
8. Stop Watches : 2 Nos.
9. Plate load testing equipment with accessories. : 1 Set

B. LIST OF EQUIPMENT (LABORATORY)

1. Equipment for conducting Mechanical Analysis Test
 - * Sieve Shaker with provision for accommodating 20 test bottles. : 1 No.
 - * Set of sieves (BIS) : 1 Set
 - * Measuring jars of 1000cc capacity : 2 Nos.
 - * Pipette of 25 ml. : 3 Nos.
 - * Porcelain dishes : 50 Nos.
 - * Electric Oven : 1 No.
 - * Thermometer 50. C : 3 Nos.
 - * Stop Watch : 2 Nos.
2. Equipment for Limit Analysis
 - * Casagrande's liquid limit device
 - * Motorise/Manual. : 1 No.
 - * Cone penetrometer : 1 No.
 - * Shrinkage limit apparatus (if required) : 4 Sets
 - * Glass plate (50cm x 50cm) : 1 No.
 - * Moisture tin (50 mm-dia. X 12 mm ht.) with cover : 25 Nos.
3. Apparatus for conducting specific gravity test (50 ml) : 6 Sets.
4. Sample extruder (preferably motorised) for different sizes samples. : 1 No.
5. pH meter : 1 No.

6.	Balance		
*	Electronic Balances of different capacities		
*	10 kg	:	1 No.
*	5.kg	:	1 No.
*	800 gm.	:	1 No.
*	200 gm.	:	1 No.
7.	Moisture balance	:	2 Nos.
8.	CBR apparatus	:	2 Sets
9.	Shear Testing Machine		
*	Direct shear	:	1 Set
*	Triaxial shear testing machine with facilities: for pore pressure measurements/back pressure saturation (when required). (Sample size 38 mm X 76 mm)	:	4 Sets.
10	One 3 Gang Consolidometer or 3 Oedometers for testing 60 mm dia soil samples.	:	1 Set, 3 Nos.
11.	Standard Proctor Compaction Equipment		
*	Automatic/Manual	:	1 Set
12.	Laboratory Permeability Apparatus (with 6 permeability moulds)	:	1 Set

206.3
301.10
1210.5

No. RW/NH-33054/35/89-DO II

Dated, the 25th September, 1990

To

Chief Engineers of State/UT, PWDs (dealing with NHs and other Centrally Financed Schemes, Director General (Works), CPWD, Director General, Border Roads, Chairman, National Highway Authority.

Subject: Soil/sub-surface investigations for road and bridge works on National Highways and under other centrally sponsored schemes - Entrusting to prequalified geo-technical consultants.

Kind attention is invited to Ministry's letter of even No. dated 5th June, 1990 on the above mentioned subject. In accordance with the recommendations of the Screening Committee, further particulars received from geo-technical consultants were examined and the following firms are also pre-qualified under each of the categories mentioned below:

Categories (a) & (b)	For road projects, high embankment design, soft ground treatment and minor bridges
(i)	M/s.Nanji Kalabhai Patel & Co., Rajkot
(ii)	M/s.Nagadi Consultants (P) Ltd., Secunderabad
(iii)	M/s.M.K. Soil Testing Lab., Ahmedabad
(iv)	M/s. Gammon Nirman Ltd., Calcutta
(v)	M/s. Foundation Consultants, Barrackpore, 24 Parganas (North) West Bengal.
(vi)	M/s. Larson & Toubro Ltd., Madras
(vii)	M/s. K.N. Dadina (P) Ltd., Calcutta
(viii)	M/s. Cemindia Company Ltd., Bombay
(ix)	M/s. Engineering Consultants International, New Delhi

Category (c)	For major bridges
i)	M/s. Nagadi Consultants (P) Ltd., Secunderabad
(ii)	M/s. Gammon Nirman Ltd., Calcutta
(iii)	M/s. Foundation Consultants, Barrackpore, 24 Parganas (North) West Bengal.
(iv)	M/s. K.N. Dadina (P) Ltd., Calcutta
(v)	M/s. Cemindia Company Ltd., Bombay

2. The present pre-qualification of the above mentioned geo-technical consultants for each category of work will be in force upto March, 1992.

3. Other guidelines/instructions contained in Ministry's letter of even No. dated 5th June, 1990 may please be complied with.

301 SURVEY AND INVESTIGATION

Code No. Circular No. & Date

Brief Subject

Page No.

301.8 NH-11052/5/89-DO I
Dt. 4.5.89

Use of Modern survey equipment for
the NHs and other centrally sponsored
Highway Projects.

301/4

301.9

206.2

1210

See Code No. 206.2

301.10

206.3

1210.5

See Code No. 206.3

No. NH-11052/5/89-DOI

Dated, the 4th May, 1989.

To

All State/U.T./CES

Subject: Use of modern survey equipment for National Highways and other centrally sponsored Highway Projects.

Lately, a number of new types of survey equipment have been developed which are more accurate and reliable than the conventional ones. Such modern instruments are now available in India.

2. I shall be grateful if you could switch over to the use of such equipment in your State for project preparation and execution of National Highway works as well as other centrally sponsored projects, especially those funded by the international agencies.

3. If considered, you may please contact the Ministry for any further information in this regard.

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Co

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302 GEOMETRIC DESIGN

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
302.13	RW/NH-33045/5/90 - DO II Dt. 19-12-90	Typical Cross Section of 4 lane Divided Highway	302/11
302.14	RW/NH - 33022/4/92 - DO III Dt 29-6-92	Guidelines for Design of Median Openings on Divided National Highways	302/11

302.13

No. RW/NH-33045/5/90-D.O.II

Dated, the 19th December, 1990.

Subject: Typical cross-section of 4-lane Divided Highway

A sketch showing a typical cross-section of a 4-lane divided highway together with the kerb details for the dividing median is enclosed. This may please be adopted henceforth for 4-laning projects. This has the approval of Additional Director General (Roads).

The crust details of the existing 2-lane pavement as also the new 2-lane road, as shown in the sketch, are indicative only and would need to be modified as per specific project requirements.

302.14

No. RW/NH-33022/4/92-DO-III

Dated, the 29th June, 1992

To

All CEs of State PWDs and UTs (Dealing with National Highways), Director General (Border Roads), Director General (Works) C.P.W.D.

Subject: Guidelines for Design of Median Openings on Divided National Highways

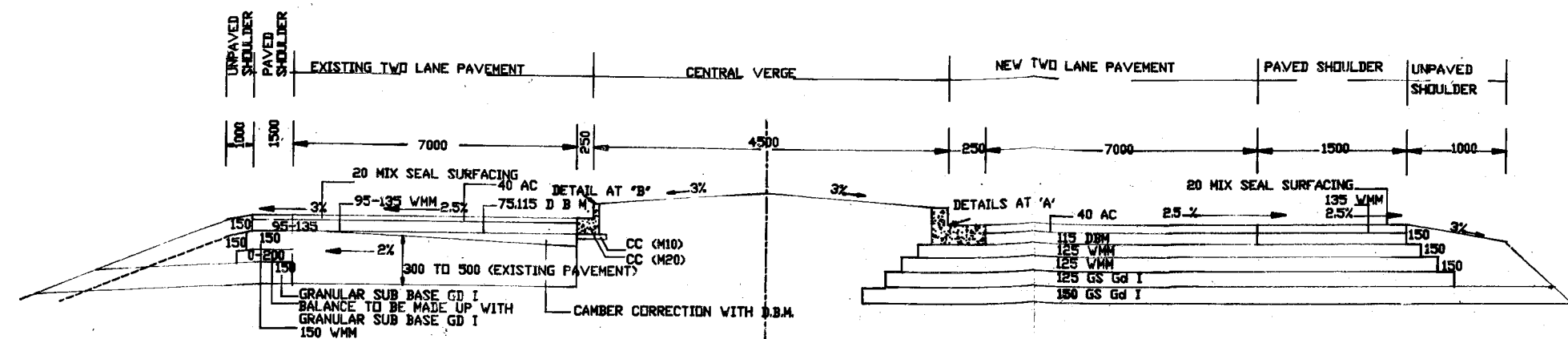
On divided highways, medians are being provided with the objective of segregating the two directions of traffic for improving safety against vehicle crossing and overtaking maneuvers. The width of such medians is governed by clause 6.6 of IRC:73-1980 "Geometric Design Standards for Rural Highways" which inter-alia recommends a minimum desirable width of 5 metres on rural highways. Median width could however be reduced to 3 metres where land is restricted. In urban areas, even less width is accepted occasionally.

2. In general, the medians would be continuous except at intersection. However, a certain number of openings in the medians are necessary at intervals at mid-block locations for U-turns or diversions of traffic from one carriageway to the other in the case of accidents or maintenance operations. Normally, such openings between intersections should be provided at intervals of about 2 km, but depending on local circumstances, the distance could be closer at times as necessary.

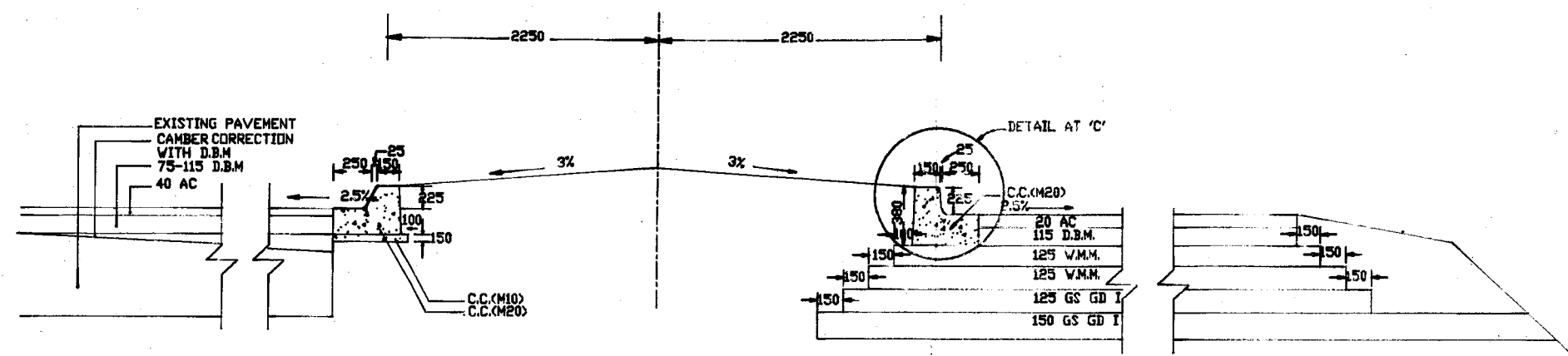
3. At present, there are no standard guidelines for median openings. Considering this need, the Ministry has prepared a type design for such opening as regards length and width of the opening to be adopted see Fig. 1. Ends of the median at opening should be bullet-nosed as shown (radius - one metre). Height of curb at the opening should be the same as adopted for the median in the general cross-section for the work.

4. In addition to geometric details as given in the Annexure, it is important that road reflectors and pavement markings of appropriate design should be provided at the nose points. Requirements in this regard are explained in the Annexure. It is also necessary that tapering portion of the median (as marked in Annexure) should be kept free of any obstructions like railings, bushes, signs etc. to ensure proper visibility for turning vehicles.

5. It is requested that this design may be followed for all median openings on the National Highways henceforth. In the case of existing openings, modifications may be made immediately as per the enclosed type design to ensure uniformity and safety. Instructions to this effect may please be issued to all officers of the PWD concerned with National Highways. Receipt of the circular may please be acknowledged.

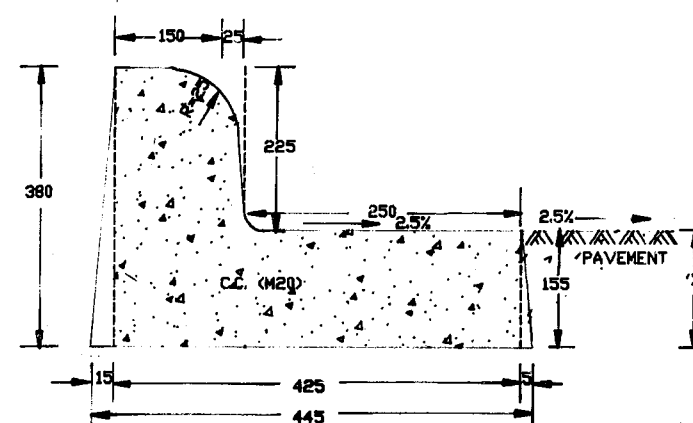


TYPICAL CROSS-SECTION OF A 4-LANE
DIVIDED HIGHWAY SHOWING KERB DETAILS
SCALE 1:50



DETAIL AT "B"
SCALE 1:20

DETAIL AT "A"
SCALE 1:20

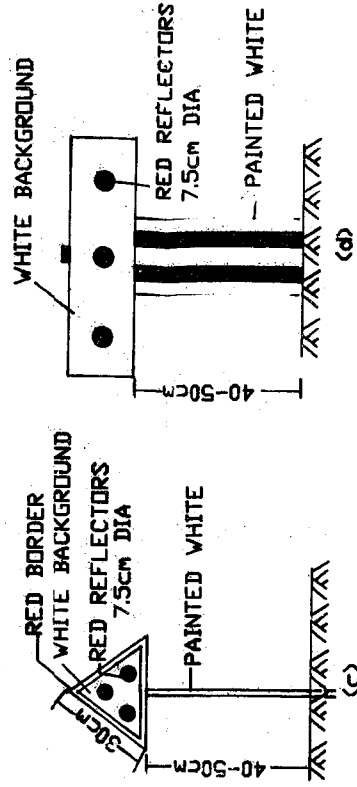
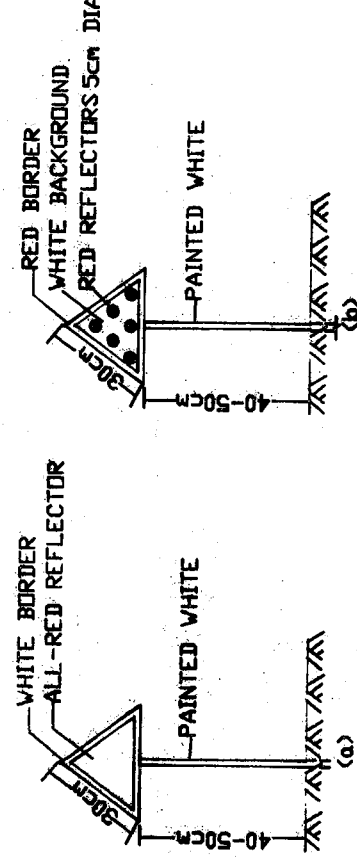
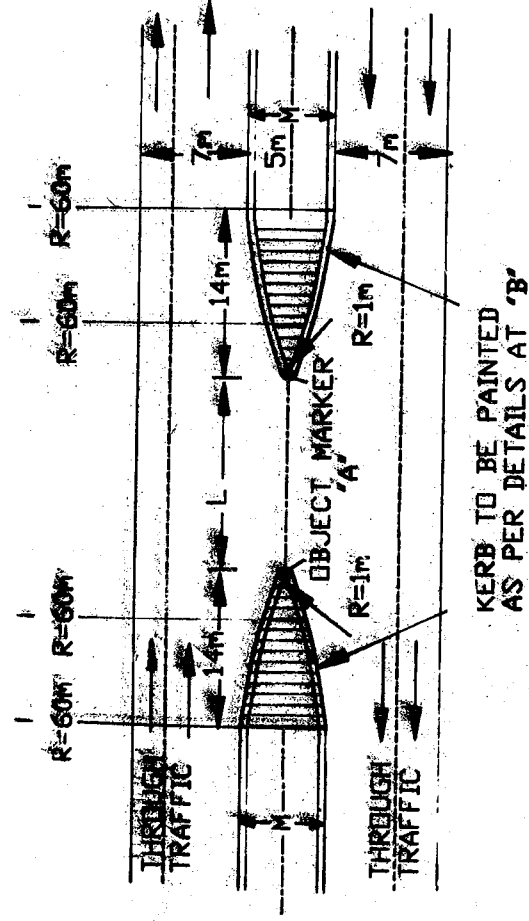


DETAILS OF BARRIER KERB-"C"
(NOT TO SCALE)
ALL DIMENSIONS ARE IN mm
DIMENSION LINES

NOTES:

1. ALL DIMENSIONS ARE IN mm.
2. THICKNESS OF HORIZONTAL PROJECTING SLAB OF KERB SECTION (SHOWN AS 'X' IN DETAILS OF BARRIER KERB AT 'C') SHALL MATCH WITH THICKNESS OF AC AND DBM FOR NEW TWO LANE PAVEMENT.
3. THE PAVEMENT COMPOSITION, AS SHOWN, IS INDICATIVE ONLY AND WILL NEED TO BE MODIFIED TO MEET THE SPECIFIC PROJECT REQUIREMENTS.

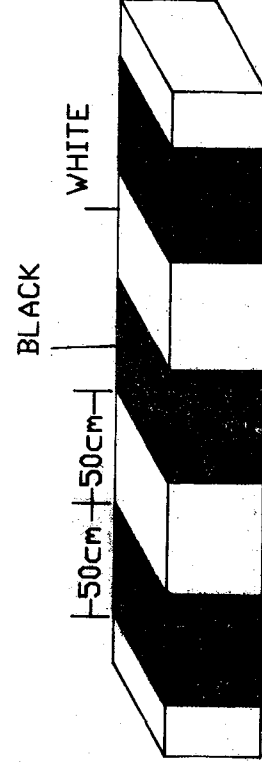
REVISIONS	FILE NO.	MINISTRY OF SURFACE TRANSPORT (ROADS WING)	
	DATED INITIALS	TYPICAL CROSS SECTION OF FOUR LANE DIVIDED HIGHWAY SHOWING KERB DETAILS	
	DRN. Sd/=		
	TRD. Sd/=		
	CHD. Sd/=		
Sd/=	Sd/=	Sd/=	DRAWING NO.
E.E.(R)Tfc&Tn	S.E.(R)Tfc&Tn	C.E.(R)Tfc&Tn	Tfc & Tn/185/DEC



ALTERNATIVE DESIGN OF OBJECT MARKERS TO BE PROVIDED AT POINTS MARKED 'A'

NOTES:-

1. HATCHED PORTION OF MEDIAN SHOULD BE KEPT FREE OF OBSTRUCTIONS SUCH AS RAILINGS, BUSHES ETC. TO ENSURE GOOD VISIBILITY, PREFERABLY THAT PORTION SHOULD BE PAVED.
2. REFLECTORISED OBJECT MARKERS SHOULD BE PROVIDED AT THE NOSE POINTS OF MEDIAN (MARKED 'A'). THESE SHOULD CORRESPOND TO ANY ONE OF THESE FOUR DESIGNS SHOWN ON THE DRAWING.
3. KERB MARKINGS SHOULD CONFORM TO THE SKETCH SHOWN.



KERB MARKING DETAILS AT 'B'

MEDIAN WIDTH (m)	1	2	2.5	3	5	10	15
LENGTH OF MEDIAN OPENING L	21	19	18	16	15	10	10

303 PAVEMENT DESIGN

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
303.5	RW/NH - 33035/1/87-NH Std/DO II Dt. 16.12.88	Discontinuation of use of bricks as soling in road pavement structure of NHs	303/9
303.6	RW/NH-33013/5/88-DO II Dt. 31.3.89	Strengthening of existing flexible road pavements - Guidelines on design of overlays.	303/9
303.7	RW/NH-33054/20/88-DO II Dt. 10.5.89	Guidelines regarding provision of paved shoulders on NHs	303/10
303.8	RW/NH - 33013/5/88 - DO II Dt. 11.3.92	Strengthening of existing flexible road pavements - Guidelines on design of overlays.	303/12

No. RW/NH-33035/1/87-NH Std./DOII

Dated, the 16th December, 1988.

To

Director General, Border Roads, Director General (Works), CPWD, All State & UT Chief Engineers dealing with roads.

Subject: Use of bricks as soling in road pavement structure of National Highways - Discontinuation of.

It is observed that brick soling is still being provided on some of the N.H. projects either as a single layer flat or on edge, or in multiple layers in different combinations, although this Ministry's book of Specifications for Road and Bridge Works does not have this as an item. It may also be added that Guidelines for the Design of Flexible Pavements, IRC : 37-1984, do not stipulate soling as a part of road pavement structure.

2. The functional behavior of brick-soling regarding uniform load transformation on road subgrade is doubtful. Moreover, its functioning is unpredictable when used in more than one layer in any combination. Brick soling causes undulations on road surface while in service and consequential distresses in road pavements.
3. In order to obviate the situation stated in para 2 above it is reiterated that bricks should not be used as soling in road pavement structures on the National Highways. Instead, granular sub-base, as envisaged in clause 401 of Ministry's Specifications for Road and Bridge Works (Second Revision) should be provided which permits use of brick-metal in addition to other materials. Obviously, the choice of material is dependent on fulfilment of the characteristics for sub-base specified therein and economical availability of that material.
4. It is requested that the contents of this letter may please be brought to the notice of all concerned for compliance in future.

303.6

No. RW/NH-33013/5/88-DO II

Dated, the 31st March, 1989.

To

The Chief Engineers of State PWDs/UTs dealing with National Highways & Centrally Aided Road Projects, Director General, Border Roads, Director General (Works) CPWD.

Subject: Strengthening of existing flexible road pavements - Guidelines on design of overlays.

It is observed that while working out the overlay requirements for strengthening of existing flexible road pavements, both IRC : 81 - 1981, "Tentative Guidelines for Strengthening of Flexible Road Pavements using Benkleman Beam Deflection Technique", and IRC : 37 - 1984, "Guidelines for the Design of Flexible pavements", are being used and values from both are compared. As the thickness of overlay by the two approaches, i.e. Deflection method and CBR, differs considerably, an ad-hoc decision has generally to be taken about the final overlay thickness.

2. Since IRC : 37 - 1984 is meant for new pavements basically, its application for determining overlay requirements of existing pavements is not correct. In view of this, it has been decided that for deriving the overlay thickness for exiting road pavements, the method prescribed in IRC : 81 - 1981 alone should be followed.
3. Accordingly, it may please be noted that henceforth proposals for strengthening of existing road pavements based on Deflection Method alone, i.e. as per IRC : 81 - 1981, will be entertained. It is, therefore, suggested that State PWDs may procure required number of Benkleman Beams on priority basis. Till such time these are not available for deflection measurements, the PWDs could take the help of institutions such as IITs, Engineering Colleges, State Research Laboratories, CRRI etc.
4. It is requested that the above instructions may be communicated to all concerned. The Ministry will welcome feed back on the subject.

No. RW/NH-33054/20/88-DII

Dated, the 10th May, 1989.

To

The Chief Engineers of States and UTs dealing with NHs and other Centrally Financed Schemes, Director General (Works), CPWD, Director General (Border Roads).

Subject: Provision of Paved Shoulders on National Highways - Guidelines regarding:

Road shoulders, properly built and well maintained, not only lend structural support to various layers of pavement, but also provide additional space for overtaking maneuvers, parking of disabled vehicles, and movement of slow moving vehicles such as scooters, two/three wheelers and bicycles. In this manner, shoulders help to reduce accidents and increase road capacity. On the other side, shoulders in poor shape, i.e. those having deep ruts or deformed profile constitute a traffic hazard besides affecting pavement performance to an appreciable degree, thereby increasing the total transportation cost.

2. Criteria for Paved Shoulders:

2.1 To get capacity benefit from shoulders, especially under mixed traffic conditions, it has been decided that subject to availability of funds, 1.5 metre wide paved shoulders may be provided on either side of two-lane National Highways in plain/rolling terrain in a selective manner. As regards four-lane sections, it is already in policy of the Ministry to construct paved shoulders in conjunction with the four-laning.

2.2 While initiating proposals for paved shoulders on two-lane sections, the following criteria should be kept in view:

- (i) The present traffic on NH should be generally around 10,000 PCUs, or more.
- (ii) The traffic should consist of sizeable percentage of slow moving vehicles.

2.3 Apart from above, provision of paved shoulders could also be considered when:

- (a) the concerned section is located in or near an urbanised area with considerable local traffic, or
- (b) a stretch is particularly accident prone mainly due to lack of paved width for overtaking and passing manoeuvres.

2.4 Final selection of lengths would be according to priority given to each section on the basis of traffic intensity and/or safety considerations and overall availability of funds.

3. Thickness of Paved Shoulders:

3.1 As far as practicable, paved shoulders, when constructed simultaneously with the central pavement, should have the same thickness as pavement of the main carriageway (see Fig.A). In the case of old NHs where the crust composition and thickness is variable and not well defined shoulder thickness could be fixed in an ad-hoc manner (see Fig.B) otherwise it would be as in Fig.A. Typical design of a paved shoulder will thus consist of:

- (i) A suitable thickness of granular sub-base with the bottom 150 mm portion preferably extended over the full formation width to ensure efficient drainage.
- (ii) A base course of Water Bound Macadam (WBM) or Wet Mix Macadam (WMM) in three layers of 75 mm each, with the top layer being primed; and
- (iii) A bituminous wearing course consisting of 2 coats of surface dressing, premix carpet, concrete mix seal, or semi-dense bituminous concrete carpet. The texture of the shoulder wearing surface should be different from the main carriageway to ensure clear contrast between them.

4. Shoulder Cross-section:

4.1 Typical cross sections of a National Highway with paved shoulders are shown in the enclosed sketches (Figs. A & B).

4.2 The paved shoulders should invariably be flanked by one meter wide earth berms. When feasible, the berms may be made of granular materials.

5. General Considerations:

5.1 Paved shoulders should not be provided in a piecemeal manner without giving due consideration to other improvements on the road section in question in the near future. Desirably, the construction of shoulders should be taken up in homogeneous sections and preferably together with strengthening of the main pavement.

5.2 Simultaneous with the provision of paved shoulders, narrow cross drainage structures in the concerned section must also be widened to full formation width.

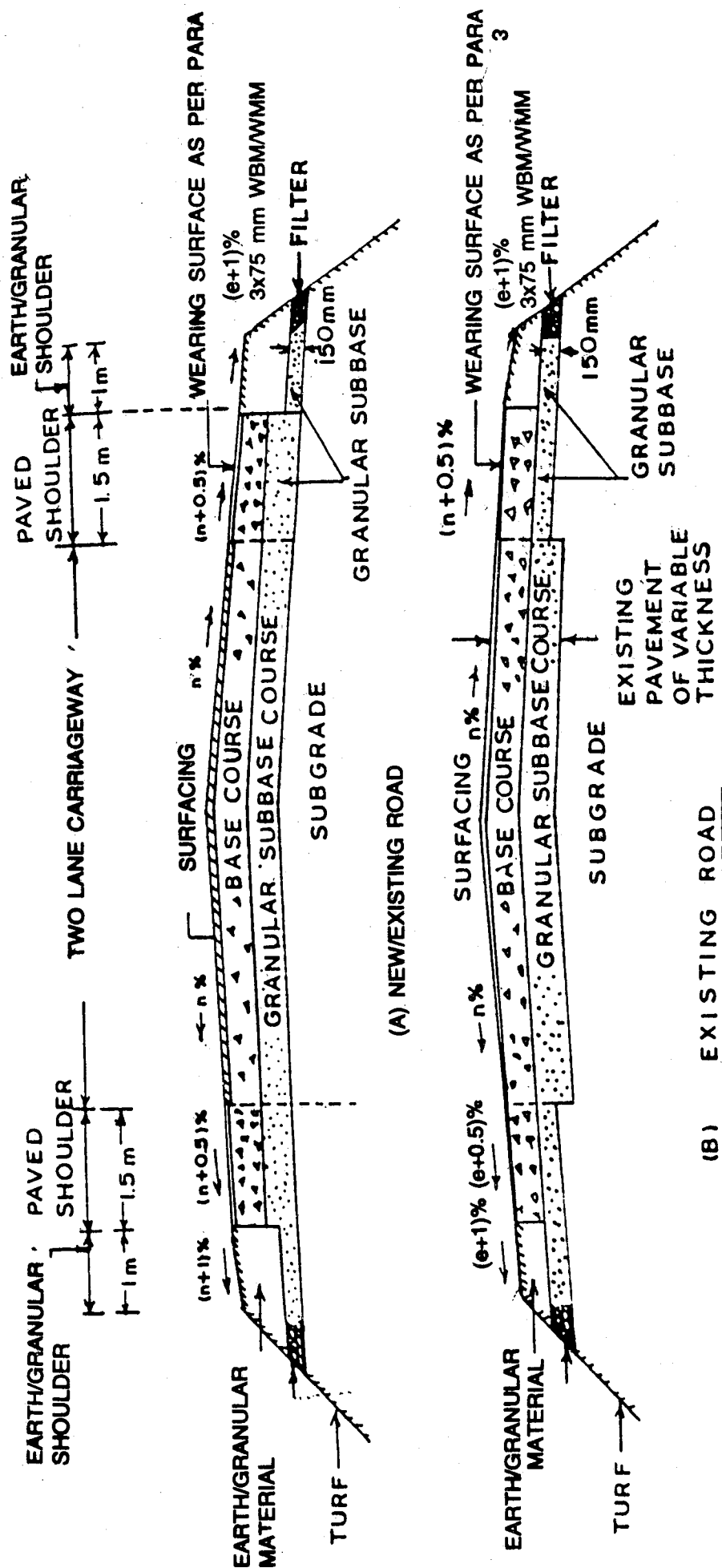
5.3 The carriageway and paved shoulders must be distinguished from each other by continuous yellow edge line marking.

6. Construction Sequence:

6.1 Where the paved shoulder is to be provided by the side of an existing carriageway, the sequence of construction shall be (i) strengthening of the pavement if envisaged, (ii) construction of shoulder on one side of the carriageway including earthen flank, and (iii) construction of shoulder on the opposite side. Step (iii) will be proceeded with only after step (ii) is completed.

6.2 In the case of new road construction, pavement and paved shoulders on both sides of carriageway should be constructed simultaneously in corresponding layers.

7. It is requested that the contents of this circular may please be brought to the notice of all concerned for compliance. The feedback on the experience with paved shoulders will be welcome.



FIGS. 2 A & B. TYPICAL CROSS SECTION OF PAVED SHOULDERS

NOTATION

 e = CROSS FALL (CAMBER) OF PAVEMENT.

WBM = WATER BOUND MACADAM.

WMM = WET MIX MACADAM.

NOTES:

1. $(e+1)\%$ CROSSFALL SHALL NOT BE LESS THAN 2.5 TO 3% ON GRANULAR SHOULDER AND 3 TO 4% ON EARTH SHOULDER - STEEPER VALUES SHALL BE USED FOR RAINFALL EXCEEDING 150 CM PER YEAR.
2. ON SUPERELEVATED SECTIONS THE SHOULDER SHOULD HAVE SAME CROSSFALL AS THE PAVEMENT.

FIG. TYPICAL CROSS SECTION OF PAVED SHOULDERS

No. RW/NH-33013/5/88-DO.II

Dated the 11th March, 1992.

To

The Chief Engineer of State PWDs/UT dealing with National Highways & Centrally aided Road Projects,
Director General Border Roads, Director General (Works) CPWD.

Subject: Strengthening of existing flexible road pavements - Guidelines on design of overlays.

Please refer to Ministry's circular letter of even number dated the 31st March, 1989 wherein it has been decided that for deriving the overlay thickness for existing road pavements, the method prescribed in IRC : 81-1981 alone should be followed.

2. As you may be aware, IRC : 81-1981 gave only tentative guidelines for overlay design on the basis of limited information that were available in the country at that time. In view of these limitations Ministry had sponsored the Research Scheme R-6, (Development of methods such as Benkleman Beam for evaluation of structural capacity of existing flexible pavement), the first phase of which is now completed. A Committee constituted by the Ministry to review pavement design procedure in the light of R-6 Phase I findings has also submitted its interim report recommending certain modifications in the overlay design procedure.

3. On the basis of the recommendations of the Committee the Ministry has tentatively decided to incorporate the following modifications in the overlay design procedure given in IRC : 81-1981 so far as overlay design for National Highways are concerned.

- 3.1 For measuring pavement deflection for Benkleman Beam, only C.G.R.A. procedure based on testing under static load shall be adopted.
- 3.2 Correction for temperature variation on deflection values measured at pavement temperature in the range of 20°C to 55°C for flexible pavements with bituminous construction of thickness 40 mm or more shall be 0.005 mm per degree centigrade change from the standard temperature of 35°C.
- 3.3 Correction for seasonal variation shall depend on type of subgrade soil, its field moisture content at the time of deflection survey and average annual rainfall in the area. For this purpose, subgrade soils have been divided into three broad categories, namely sandy/gravelly, clayey with low plasticity ($PI \leq 15$) and clayey with high plasticity ($PI > 15$). Similarly, rainfall has been divided into two categories, namely low rainfall (annual rainfall ≤ 1300 mm) and high rainfall (annual rainfall > 1300 mm). Moisture correction factors (or seasonal correction factors) shall be obtained from Figs.1 to 6 (enclosed) for given field moisture content, type of subgrade soil and annual rainfall. The determination of subgrade type and its field moisture content shall be made below the pavement at a distance of 60 cm from the pavement edge, if the lane width is less than 3.5 m and 90 cm when the lane width is more. For this purpose test pits shall be dug approximately every 250-500m depending on the uniformity of subgrade, topography of the area and road profile. Care should be taken to test the soil sample for field moisture content determination at the earliest possible time with due precaution to avoid loss of moisture from the sample. After collecting samples from the test pit and obtaining other data (such as pavement layers and their thickness) the pavement should be made good immediately.
- 3.4 Characteristic deflection for all design purposes should be taken as the mean deflection plus two time standard deviation.
- 3.5 The following values of allowable deflection for different traffic conditions shall be adopted.

Design traffic intensity in terms of Equivalent standard Axles in Million	Allowable deflection in mm
Upto 2	1.0
2 - 10	0.8
10 - 30	0.75
More than 30	0.70

- 3.6 The following layer equivalency factors in terms of granular base (WBM/WMM) may be adopted:

Built up spray grout	1.0
Bituminous macadam	1.5
Dense Bituminous macadam	2.0
Bituminous Concrete/Semi-dense bituminous concrete.	2.0

4. It may please be noted that henceforth proposals for strengthening of existing flexible pavements of National Highways should be based on Benkleman Beam Deflection Technique as given in IRC : 81-1981 but after incorporating the modifications indicated above.

5. It is requested that the above instructions may be communicated to all concerned for immediate adoption as regards future NH projects. Pavements designed and constructed on the basis of above procedure shall be monitored for at least five years and annual performance reports sent to the Ministry to serve as feedback for review of the suggested modifications. The Ministry would, therefore, welcome any possible feedback on application of the revised procedure.

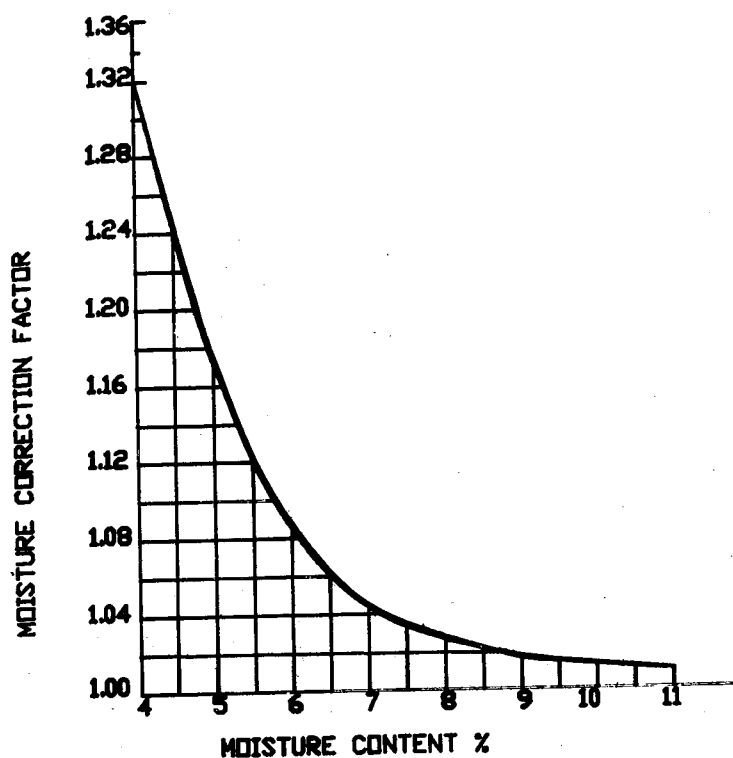


FIG. 1. MOISTURE CORRECTION FACTOR FOR SANDY GRAVELLY SOIL SUBGRADE FOR LOW RAINFALL AREA (ANNUAL RAINFALL 1300 mm)

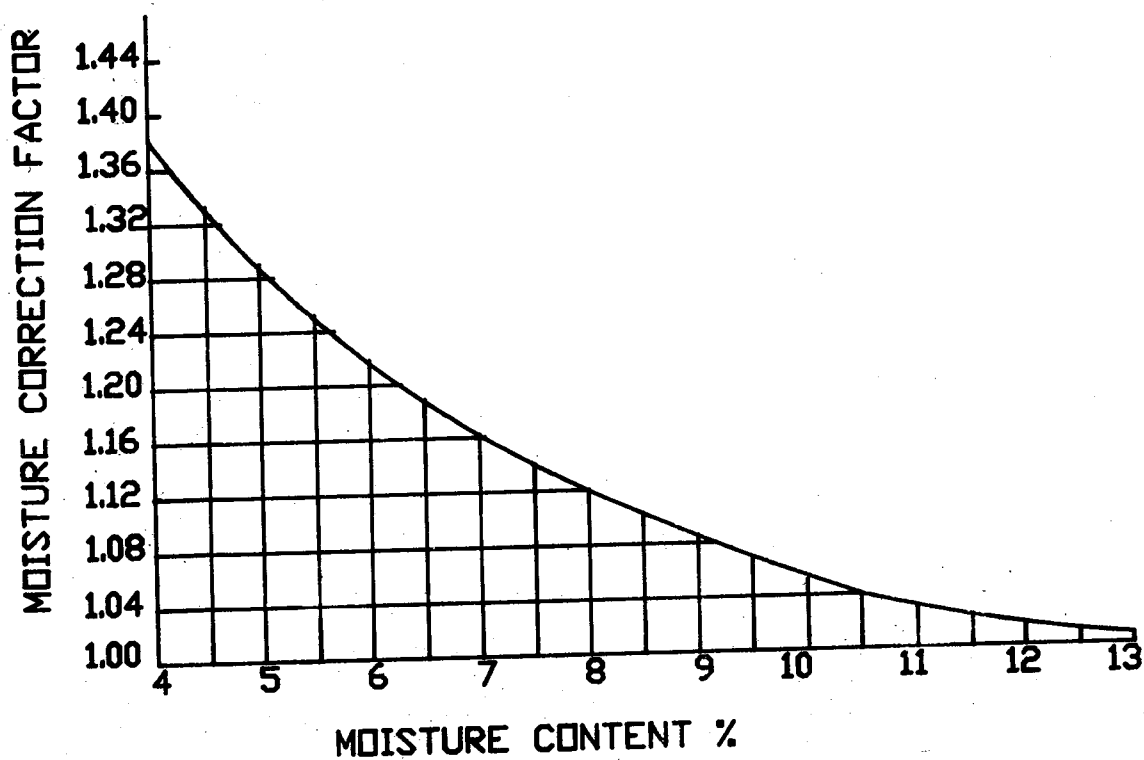


FIG. 2. MOISTURE CORRECTION FACTOR FOR SANDY/GRAVELLY SUBGRADE FOR HIGH RAINFALL AREA.

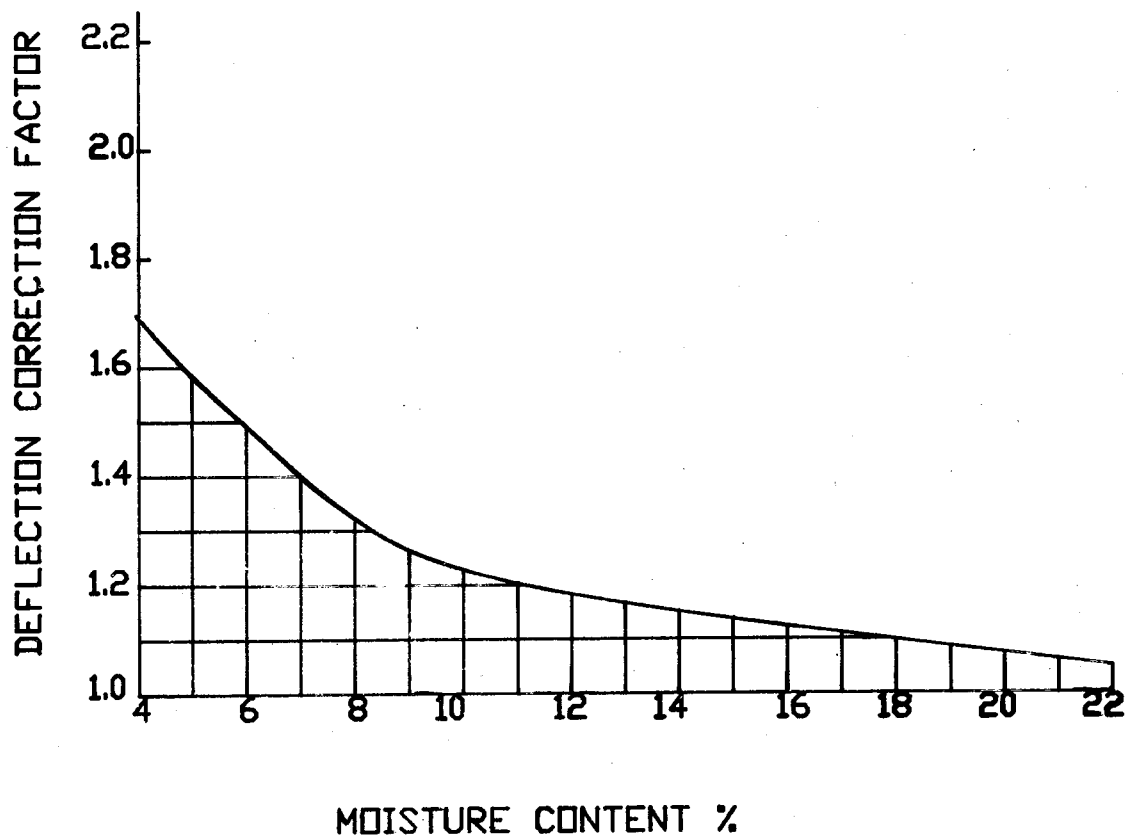


FIG. 3. MOISTURE CORRECTION FACTOR FOR CLAYEY SUBGRADE WITH LOW PLASTICITY ($PI < 15$) FOR LOW RAINFALL AREAS

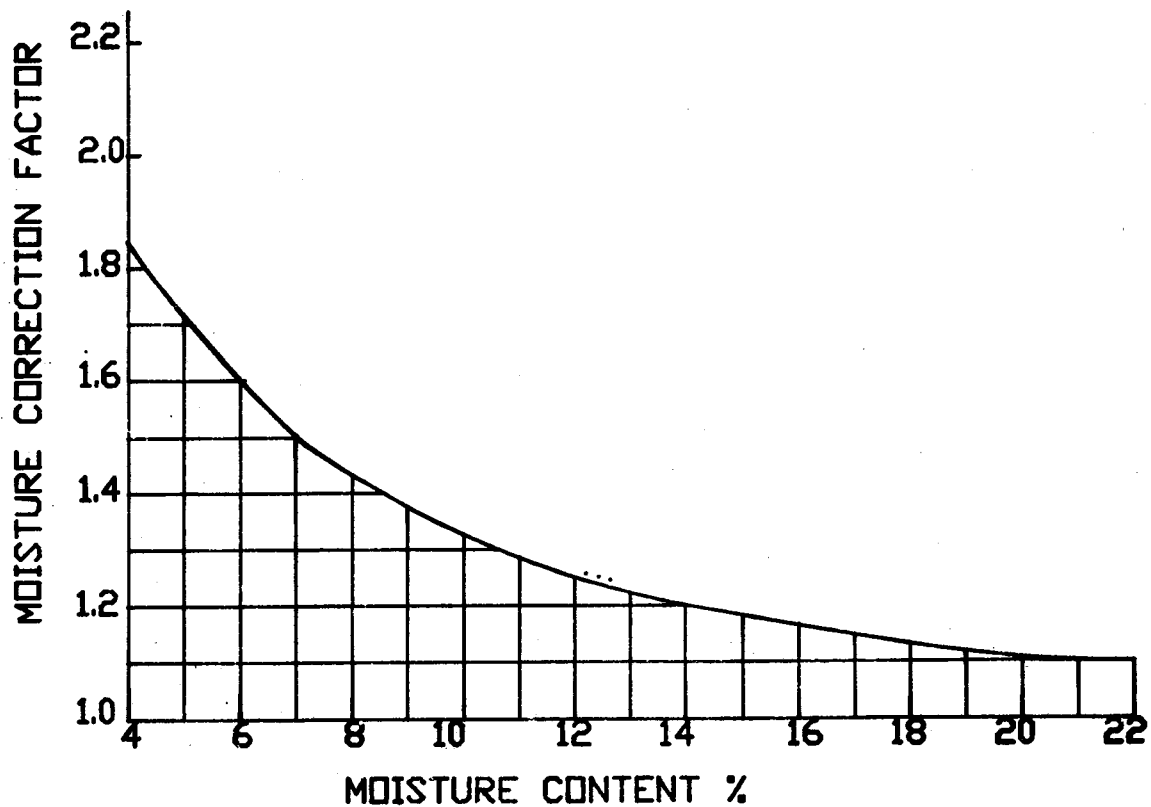


FIG. 4. MOISTURE CORRECTION FACTOR FOR CLAYEY SUBGRADE WITH LOW PLASTICITY ($PI < 15$) FOR HIGH RAINFALL AREAS.

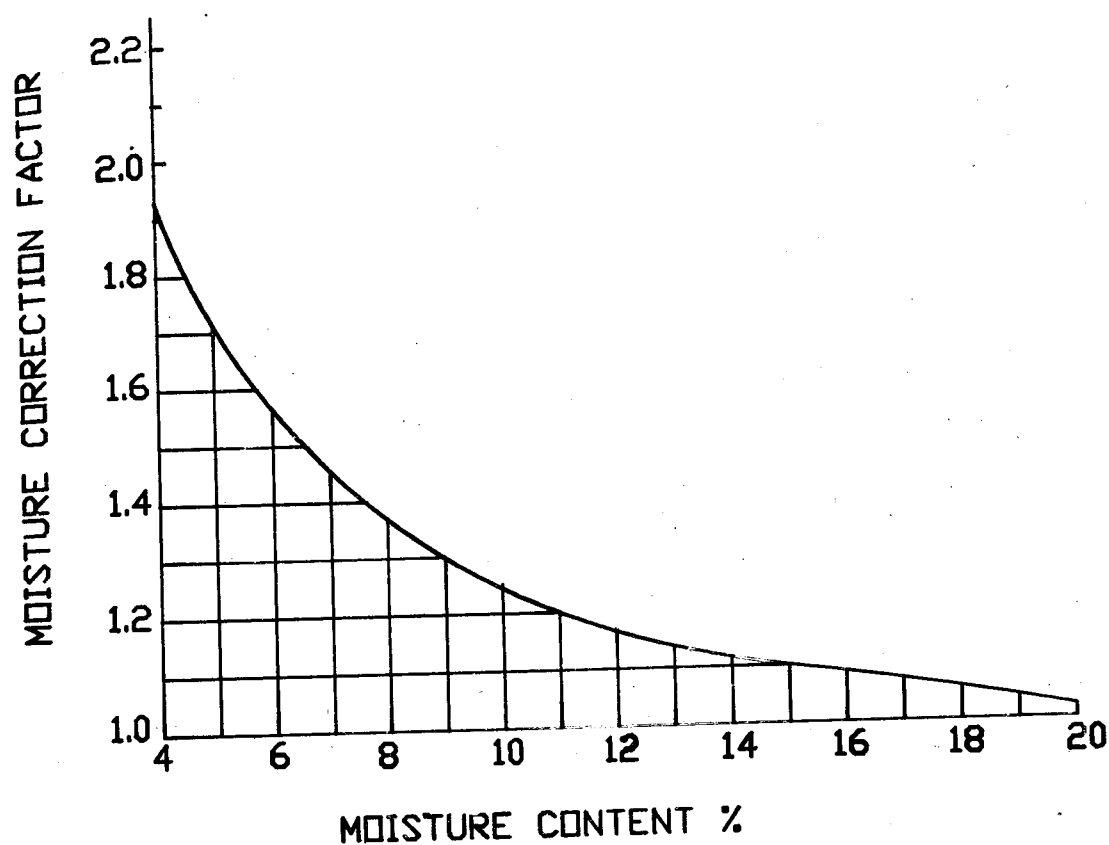


FIG. 5. MOISTURE CORRECTION FACTOR FOR CLAYEY SUBGRADE WITH HIGH PLASTICITY ($PI > 15$) FOR LOW RAINFALL AREAS.

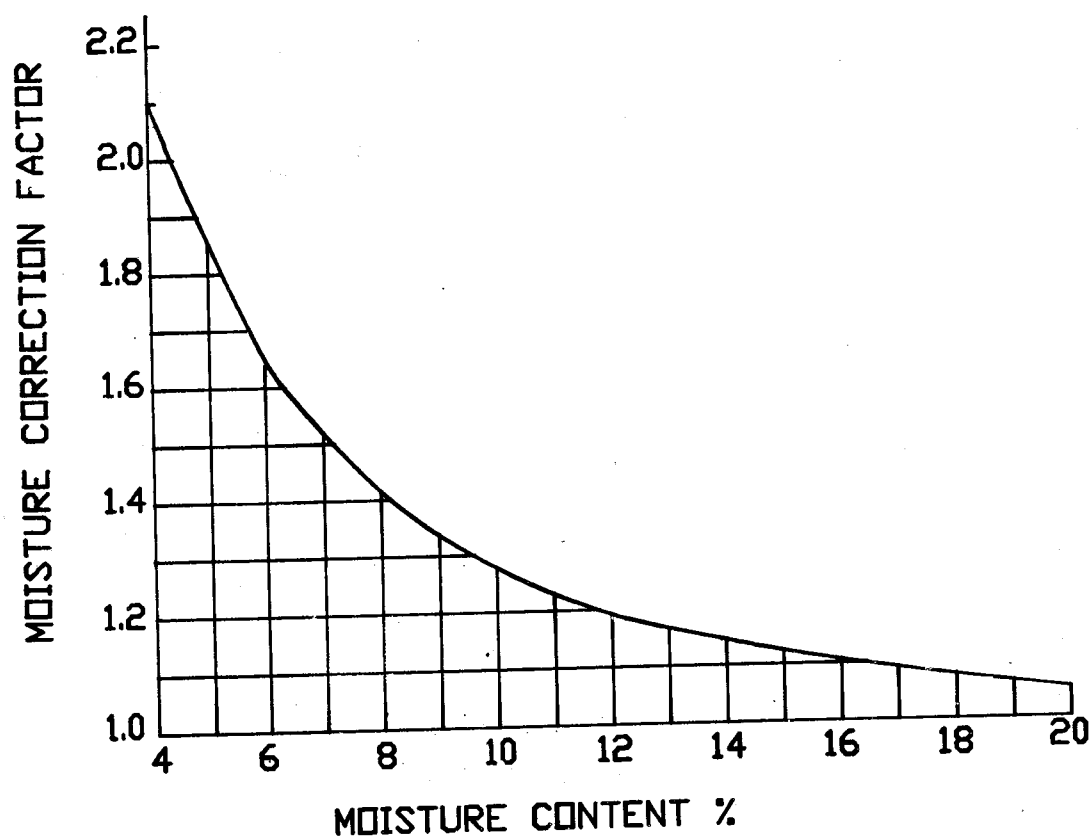


FIG. 6. MOISTURE CORRECTION FACTOR FOR CLAYEY SUBGRADE WITH HIGH PLASTICITY ($PI > 15$) FOR HIGH RAINFALL AREAS.

404.

BITUMINOUS CONSTRUCTION

<i>Code No.</i>	<i>Circular No. & Date</i>	<i>Brief Subject</i>	<i>Page No.</i>
404.15A	RW-24011/2/89-RMP	Use of Hot Mix Plants on	404/30
2600.5 A	Dt. 1-5-89	National Highway Works	
404.15 B	RW-24011/2/89-RMP	Use of Hot Mix Plants on	404/31
2600.5 B	Dt.20-7-89	National Highway Works	
404.16	RW/NH-33045/1/90-S&R	Use of bituminous emulsion for repairs	404/31
	Dt. 4-6-92	on NHs during the wet season & application of renewal coat in the immediate premonsoon period.	

404.15A
2600.5A

No. RW-24011/2/89-RMP

Dated, the 1st May 1989

To

All Regional Officers, All Regional SEs(M), at Bangalore, Calcutta, Jaipur, Guwahati, Lucknow and EE(M) Patna, All E.L.Os.

Subject: Use of Hot Mix Plants on National Highway works.

Ref: (1) Ministry's letter No. RW-RMP-16(3)/84 dated 1.1.1985.

(2) No. RW/RMP-16(3)/84 dated 18.3.88.

In order to obtain mix of required specifications and ensure quality of bituminous road works on National Highways, Ministry had issued detailed specifications and component arrangements of the Hot Mix Plants in Annexure to the letter No. RW/RMP-16(3)/84 dated 1.1.85 mentioned at reference 1. above.

2. In para 2 of Ministry's letter referred above, it was indicated that "while inviting tenders and allotting works to contractors, it may be specified that Hot Mix Plant should conform to component arrangements as per Annexure attached. This should also form part of the contract document. Work should not be allowed to be executed by the contractors with the plants which do not fulfil these minimum requirements". Subsequently, Ministry reiterated these instructions vide letter No. RW/RMP/16(3)/84 dated 18th March, 1988. A copy of the same was endorsed to you also. The States were also requested to follow these instructions strictly.

3. The technical requirements of HMP have been incorporated in the 'Revised Specifications for Road and Bridge Works' vide Clause No. 504.3.4 issued by Indian Roads Congress in 1988. These revised specifications have been made applicable with effect from 1.6.88 as per Ministry's letter No. RW/33035/1/87-NH-Stds/DII dated 14th March, 1988.

4. Despite all the above stipulations, it has been observed that a large number of hot mix plants belonging to the contractors and the State PWDs still do not conform to the specifications. It is, therefore, very essential that all out efforts be made to ensure that the contractors deploy only those Hot Mix Plants which conform to the specifications. If need be necessary modifications should be carried out to the existing plants so that they conform to the prescribed specifications. In no case, plant which do not conform to the laid down specifications should be used for the execution of NH works, as already being stressed by the Ministry time and again.

5. In order to achieve the above objective, it has been decided that all the hot mix plants be inspected by the field officers of the Ministry before commencement of work as under:

- (i) Inspection of plants belonging to contractors and State PWDs will primarily be the responsibility of R.Os and E.L.Os. However, these will also be inspected by Regional SEs(M) EEs(M).
- (ii) Inspection of plants belonging to the Ministry will be the responsibility of Regional SEs(M)/EEs(M).

Incompleteness or deviations in the plants should be pointed out with details to the State PWDs under intimation to the Ministry. For the plants presently deployed on central works consolidated report in the form of enclosed check lists should be sent to the Ministry latest by 30.6.89. Any deviations coming to the notice of the Ministry later will be considered a lapse on the part of concerned officers. Report(s) on the subsequent plants should follow.

Please acknowledge the receipt.

Enclosure to Ministry's Technical Circular No. RW-24011/2/89-RMP dated the 1-5-89.

CHECK LIST FOR HOT MIX PLANT BEING USED FOR NH WORKS

1. Name of State :
2. Name of Division :
3. Location of Plant: NH KM
4. Job Nos. on which Deployed :
5. Particulars of Hot Mix Plant :
 - (a) Make
 - (b) Model
 - (c) Whether Batch Type/Continuous/Drum Mix Type
 - (d) Machine No. :
 - (e) Capacity :

6. Whether belong To: Central/State PWD/Contractor

7. Whether fitted with

- (a) Cold feed system consisting of hoppers and gates:
- (b) Belt conveyor systems for cold feed.:
- (c) Dryer drum temperature measuring arrangement.
- (d) Secondary gradation control systems: (Applicable only for batch/continuous HMB)

or

For drum mix plant variable speed belt conveyors or other devices for accurate/proportioning of aggregates feed and screen for oversize rejection with appropriate control system.

- (e) Bitumen measuring and feed control system synchronized or manual.
- (f) Filler feed system.
- (g) Mixer unit twin shafts pug-mill type (applicable only for batch/continuous HMB)
- (h) Bitumen heating and supplying system and temperature measuring arrangement.
- (i) Dust collection system.
- (j) Any other feature.
- (k) Remarks, if any.

R.O./SE(M)/E.L.O.

404.15-B
2600.5-B

No. RW-24011/2/89/RMP

Dated the 20th July, 1989.

To

All Regional Officers, All Regional Superintending Engineers(M), at Bangalore, Calcutta, Jaipur, Guwahati, Lucknow, All Engineer Liaison Officers.

Subject: Use of Hot Mix Plants on National Highway Works.

Reference: Ministry's letter No. RW-24011/2/89-RMP dated 1st May, 1989.

Please refer to Ministry's letter mentioned above wherein it was requested that the Hot Mix Plants in your jurisdiction may be inspected and the information furnished to Ministry in the prescribed format by 30th June, 1989. Somehow this information has not been received yet.

2. It has been observed from some of the interim replies received from the Regional Officers that they have requested the State PWDs to collect the information in the prescribed format and submit the same to them for compilation and forwarding to the Ministry. This is not correct as the information is to be furnished by R.Os/ELOs/SEs(M) on their own independent of the State PWDs.

3. The necessity of inspecting each and every Hot Mix Plant by the Regional Officers themselves and submission of the information in the prescribed format had been explained during the recent Regional Officer's meeting held at New Delhi on 4th and 5th July 1989. It is therefore again requested that each and every bigger hot mix plant may please be inspected and information furnished in the prescribed format by 30th Sept. 1989 positively. The matter may be accorded high priority.

404.16

No. RW/NH-33045/1/90-S&R

Dated the 4th June, 1992.

To

Chief Engineers of all State PWDs/UTs dealing with National Highways, Director General (works), CPWD, Director General (Border Roads).

Subject. Use of bituminous emulsion for repairs on National Highways during the wet season and application of renewal coat in the immediate pre-monsoon period.

It has been noticed that the existing methodology of filling potholes, patching and similar minor repair works carried out on bitumen surfacings on National Highways during the wet season seldom produces satisfactory results. In many places, works of pothole filling have been observed to be carried out by simply filling with brick bats, stone aggregates and sometimes even local earth. Alternatively, where bituminous materials have been