

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.