

No. RW/RD/33047/4/86/NH-Std.

Dated the 10th November, 1987

To

1. The Chief Engineers of States and Union Territories PWDs dealing with National Highways and other Centrally Financed Roads.
2. The Director General (Works).
3. The Director General Border Roads.

Subject: Providing special conditions in the Contract Documents for bridge works on National Highways and other Centrally Financed Roads with a view to introducing new techniques and cutting down delays.

It has been noticed that there has been very slow progress in the introduction of new technologies/ construction methods in the execution of bridge works on National Highways and under other Centrally Financed Schemes. Further, there has been delay in the timely completion of a number of bridge works due to certain lacunae in the Contract Documents. Keeping the above factors in view, it has been decided that suitable special conditions as given hereunder should be provided in the Contract Documents for bridge works :

1.1 Tools and Plants

The tenderer shall give detailed list of tools and plants (alongwith all relevant data) to be used by him for the execution of the bridge work.

1.2 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 specialisation
- (iv) Details of design assignments handled during the past 5 years.

1.3 Number of Sets of Staging and Shuttering

Depending upon the quantum of work, it should be clearly stipulated that the Contractor shall have to arrange certain minimum number of sets of staging and shuttering for the work of foundations, sub-structure and superstructure.

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

1.4 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.

1.5 Unacceptable Type of Structure

The following types of bridge structures or structural components shall not be acceptable.

...
(to be incorporated, if needed).

1.6 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 equipment. 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.

2. It is requested that the contents of this circular may please be brought to the notice of field formations for strict compliance in future.

APPENDIX I

Enclosure to letter No. RW/RD/33047/4/86/NH-Std. dated 10.11.1987

Clause No. Minimum requirement of sets of staging and shuttering

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 for different components as stipulated hereunder :

- | | |
|---------------------------------------|------------|
| (i) For well-foundation | _____ Nos. |
| (ii) For other items of sub-structure | _____ Nos. |
| (iii) For super-structure | _____ Nos. |

Use of slip form shuttering wherever feasible will be preferred.

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 of submittal 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, along with 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 drawing 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 the 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 drawings for the use of the Engineer and his Representatives 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 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 authorized Representative. The certificate of Completion of Works as per the provisions of Clause _____ hereof shall not be issued by the Engineer in the event of the Contractor's failure to furnish the aforesaid "as-constructed" drawings for the entire Works.
- (10) If, by reason of any failure or inability of the Contractor to issue or supply within the time periods mentioned aforesaid, the initial/modified/approved sets of detailed designs or working drawings, as the case may be, in accordance with Sub-Clauses (1), (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 the Contractor in accordance with Sub-Clause (3) and (4) of this Clause, the Contractor suffers delays, then the Engineer shall take such delays into account in determining any extension of time which the Contractor is entitled under Clause _____ hereof.