

No. PL-30 (148)/74

*Dated the 25th November, 1974*

To

Chief Engineers/Additional Chief Engineers of all  
State Public Works Departments and Union Territories  
dealing with National Highway Works .

Subject : Proper design and construction of flexible pavements

Performance of flexible pavements is closely linked with the proper design/construction of the various components layers viz. subgrade, sub-base base and surfacing. Experience in the past has been that more durable and economical pavements with trouble free service could be achieved if due attention is paid to these aspects in the initial stages based on proper study and evaluation of all the concerned factors.

2. Essential principles of the design and composition of structurally sound pavements are well known and stand embodied in the IRC standard, IRC : 37 "Guidelines for the Design of Flexible Pavements". Specification for proper construction of the different component layers are also detailed in the Ministry's "Specification for Road and Bridge Works". Quality control measures to be taken during construction are further explained in the IRC publication, "Handbook of Quality Control for Construction of Roads and Runways". It is reemphasised that the above-referred design/construction guides should be scrupulously followed on National Highway works in future. The following points may specially be kept in view :—

- (i) Starting from subgrade, each pavement course (viz. subgrade in expected critical moisture conditions, sub-base and base) should be checked to ensure that it conforms to specification requirements and has the requisite strength as designed before the same is covered over by the subsequent course;
- (ii) Materials for the different pavement courses should be chosen with due regard to availability, quality, suitability and economics, the aim being to achieve a stable and durable pavement construction;
- (iii) Provided these meet the prescribed requirements of quality, locally available cheap materials like moorum/gravel/kankar/laterite with or without processing for improvement of strength characteristic should be preferred for sub-bases to bring down the cost of construction;
- (iv) Where the choice of material for sub-base falls on stabilised soil, the mix therefor should be properly designed keeping in view the strength expected to be achieved in the field relative to the method of construction to be adopted;
- (v) In areas having stone materials within economic leads, over-size stone metal WBM has been the obvious choice for sub-base courses. Even in such cases, where there is a danger of the subgrade soil intruding into the sub-base, first a sub-base layer of granular material/stabilised soil of proper quality and strength should be provided subject to this being possible at economic cost; and
- (vi) During construction, strict control over the quality of materials and work should be exercised through quality control tests. Requisite tests are mentioned in detail in the Ministry's Specification for Road and Bridge Works as well as the Handbook of Quality Control published by the Indian Roads Congress.

3. It is requested that these points may be brought to the notice of all officers in your department engaged on National Highway works.