

No. NHI-41(2)/71

Dated the 20th January, 1971

To

The Chief Engineers of all State PWDs and Union Territories (dealing with roads)

Sub: Widening and Strengthening of National Highways and other Centrally Financed Roads—Specifications to be adopted for the Construction of Bituminous Macadam Base Courses

As you are no doubt aware, strengthening and widening of the National Highways pavements, and of certain other highways under Centrally financed programmes, is being taken in hand on a large scale during the Fourth Plan period. In fact a beginning in this direction has already been made with the Annual Plans for 1969-70 and 1970-71. Much of this work will involve the laying of a bituminous macadam base course, followed by application of another bituminous layer to function as the wearing surface.

2. Certain enquiries have emanated in this connection as to the exact specification to be followed for the construction of the bituminous macadam in the base courses. It is clarified in this context that, in general, the "Tentative Specification for Bituminous Macadam (Base and Binder Course)" Published by the Indian Roads Congress in 1967 is to be followed for this purpose. However special attention should be paid to the following points.

- (i) Grading of aggregates should conform to Grading No. 2 given in the above referred I.R.C. Specification for 50/75 mm thickness of bituminous macadam, as applicable. For ease of reference these gradings are reproduced below:—

IRC GRADINGS NO. 2 FOR AGGREGATE FOR THE BITUMINOUS MACADAM

Per cent passing ISI sieve No.	Compacted thickness of bituminous macadam	
	50 mm	75 mm
63 mm (2½ in)	—	100
60 mm (2 in)	100	90-100
40 mm (1½ in)	90-100	35-65
25 mm (1 in)	50-80	20-40
20 mm (¾ in)	—	—
12 mm (½ in)	10-30	5-20
10 mm (3/8 in)	—	—
4.75 mm (No. 4 ASTM)	—	—
2.36 mm (No. 8 ASTM)	—	—
75 micron (No. 200 ASTM)	0.5	0.5

- (ii) It has been observed that, barring any other factors relevant to the conditions obtaining at site, a binder content upto 3.5 per cent by weight of the total mix, usually yields a satisfactory mix for the bituminous macadam.
- (iii) Mixing should be carried out with the help of proper mechanical plant having arrangement for drying and heating of aggregate also,
- (iv) Preferably, mechanical paver-finishers should be employed for the laying of the mix.

3. In respect of (i) and (ii) above however it is mentioned that where in an existing contract for a work, a finer grading for stone aggregates with a higher bitumen content may have been specified the same shall be adhered to. Similarly if in any specific case a different grading for stone aggregates (IRC grading No. 1 or 3) and a different bitumen content are specified for any specific reason in a technical note accompanying sanction to a project, the same shall apply.

4. It is requested that the points brought out above may be kept in view while arranging execution of bituminous macadam work on the National Highways and other roads under Centrally financed projects.