

No. RW/33013/1/86-NHVI

Dated the 15th December, 1986

To,

The Secretaries to the State Govts/UTs. (dealing with NH and Centrally Sponsored Works)

Subject: Guidelines on the use of Built Up Spray Grout (BUSG) as a pavement base course on National Highways

In view of very heavy traffic plying on National Highways it is observed that the existing inadequate pavements need considerable overlay thickness to cater for the traffic projected over a 10-year period from the anticipated date commissioning the facility. More often the overlay requirement needs to be made up through several strengthening layers. This is achieved generally by providing a combination of granular layer (s) and/or BUSG layer overlaid by bituminous base course layer(s) and/or wearing courses of richer specifications. Since consolidation of WBM keeping the traffic on is often found difficult, recourse is made to BUSG base course in such situations. It is, however, observed that in case of existing flexible road pavements with thin bituminous surfacing, a profile corrective course (levelling course) prior to strengthening course is invariably needed. The guidelines for providing profile corrective course (levelling course) issued in this Ministry's letter No. RW/NHVI-67(6)/86 dated 1.7.86 envisage use of bituminous premixed material, machine mixed and machine laid, over the existing deformed thin bituminous pavement surfaces and deprecate use of BUSG/bituminous penetration macadam type material/construction for profile corrective course (levelling course). Questions have been raised whether BUSG layer as pavement base course could be provided over a profile correction layer of relatively denser material like bituminous macadam and where the profile corrective course (levelling course) forms an integral part of the strengthening layer, could it be allowed in case of a BUSG layer also. These questions have been carefully considered and the following procedure is recommended to be followed for design and execution:

- (a) It is not advisable to lay BUSG layer over a profile corrective course of superior specification i.e. bituminous macadam material, type B, envisaged in Ministry's letter No. RW/NHVI-67(6)/86 dated 1.7.86.
 - (b) Where the profile corrective course (levelling course) is to form an integral part of strengthening layer due to its thickness being less than 20 mm, as envisaged in Clause 4.2(a)(i) of Ministry's letter No. RW/NHVI-67(6)/86 dated 1.7.86, it shall not be applicable verbatim to BUSG layer for strengthening. In such a situation, the correction shall be done by bituminous premixed material, type A, in the first instance and then BUSG layer overlaid on it.
2. The following important precautions shall be taken while providing BUSG as pavement base course:
- (a) BUSG layer where overlaid on a bituminous premixed material (type A), as stipulated in (b) above, it shall be ensured that adequate pavement layer drainage arrangements are provided so that the surface water penetrating through BUSG layer goes not get accumulated at the interface of the two, which may otherwise cause damage to the BUSG pavement layer.
 - (b) 75 mm BUSG layer, as per Ministry's specification No. 505, shall not be overlaid by another BUSG layer.
 - (c) BUSG layer shall not be used in the final top layer of the strengthening course (s) where it is provided for the full requirement of 10-year traffic projection.
 - (d) Since BUSG is a manually laid course and has more voids compared to other bituminous material courses, machine mixed and machine laid, it shall be immediately covered by subsequent pavement course or wearing course, as the case may be, or at least as envisaged in clause 505.5 of Ministry's specifications. However, in no case it shall be opened to traffic without being covered.
3. It is requested that suitable instructions on the subject may please be issued to all concerned.