ROAD PAVEMENTS – UNBOUND MATERIALS

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Road Pavements – Unbound Materials

NG 802 Compaction

1 Sub-Clause 802.5 (viii) permits combinations of different types of compacting equipment provided each type contributes its correct proportion of the total compactive effort. Thus if a machine when operated singly is required in Table 8/1 to apply a minimum of X passes and that same machine actually applies K passes, then the sum of the values of K/X for each of the types of plant used in combination should equal or exceed unity.

NG 803, 804 and 805 Granular Material Types A, B and C

1 Clause 804 excludes all gravels from Granular Material Type B. In practice clean boulders and cobbles retained on a 100 mm BS sieve can be crushed to produce a satisfactory Granular Material Type B.

2 The soundness test should initially be used for source approval of aggregates and thereafter only in cases where the Engineer suspects their durability. Where local experience indicates that an aggregate with a lower soundness value than that specified may be acceptable, this value should be inserted in Appendix 7/1. The water absorption test can be used as a routine check test of such aggregates. Where required, details of the tests should be scheduled in Appendix 1/5.

3 In the past gravel meeting the specification requirements for Granular Material Type C has performed successfully in Irish road pavements. In areas where suitable crushed rock is not available locally, consideration should be given to using gravel complying with Clause 805 on less heavily trafficked roads. Because of the variability in naturally occurring gravels, control of the quality of such materials is important.

NG 806 Wet-Mix Macadam

1 Experience has shown that limestone aggregate produces the most satisfactory wet-mix macadam. Satisfactory wet-mix macadam can be produced with aggregates other than limestone, but requires a higher rate of quality control testing than is necessary with limestone.

2 Past experience indicates that most well graded wet-mix macadams have an optimum moisture content of about 3%-4%, and that high in situ strengths can be mobilised in wet-mix macadam if it is compacted at about 0.5%-1.0% below the optimum moisture content in accordance with the requirements of Table 8/1. However the optimum moisture content for some unbound materials with low fines content may be difficult to determine accurately and, where uncertainty about the optimum moisture content occurs, guidance on the most suitable moisture content range for laying and compaction can be obtained by carrying out CBR tests at a range of moisture content so that the appropriate moisture content range for mobilising maximum strength can be determined. The compaction technique to be used for this purpose should be the vibrating hammer method described in BS 1377 : Part 4. Further information on this topic is given in An Foras Forbartha report RC 188 and Environmental Research Unit report RC 358.