SECTION 33 – PAVEMENT DESIGN GENERAL

0709. The aim of pavement design is to determine the strength and thickness of material which should be placed over a particular sub grade soil in order to carry the required traffic loads. The pavement may be anything from a simple surfacing layer placed directly on the sub grade to a combination of surfacing base and sub-base.

0710. The standard method of design is based on the CBR value of soil strength. The CBR method is described in RESPB No. 5_D (WO Code No. 8679), Section 32. The most frequent cause of failure is deformation of the sub grade beneath the pavement, due to changes in the moisture content of the soil and it is therefore most important that soil tests should be carried out at the correct moisture content and degree of compaction (see RESPB No. 5_D, Section 32, Para 8).

0711. For hasty work, if CBR test equipment is not available the chart shown in Figure7.2 may be used to assess the CBR value.

0712. The design load is usually given in terms of the maximum wheel load to which the pavement will be subjected (see Table 7.1), factors being included to allow for the effects of multiple wheels, impact and repeated loading.

All purpose roads are normally designed for a 10,000-lb should be based on a 15,000-lb wheel load.

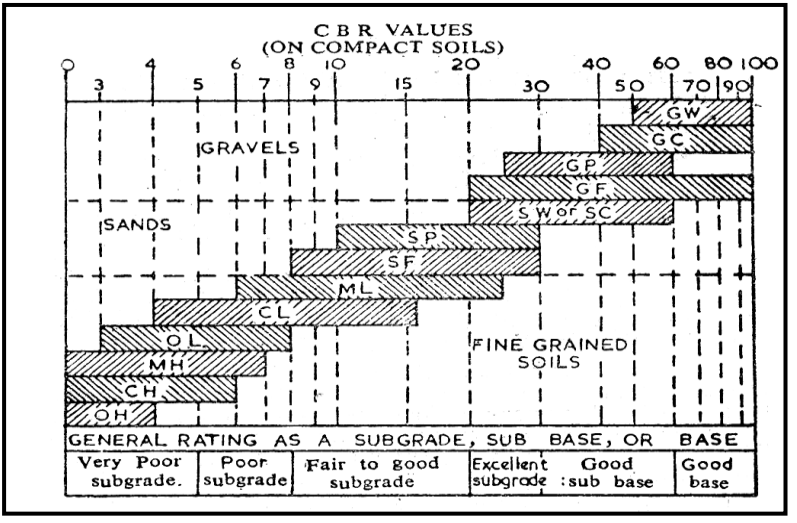

Figure 7-2: Approximate CBR Ranges for Compacted Soils
(Based on Casagrade Classification)

TABLE 7.1: LOAD CLASSES AND MAXIMUM SINGLE WHEEL LOADS

Load class of vehicle	Maximum single wheel load (lb)
(a)	(b)
4	2,500
8	5,500
12	8,000
16	10,000
20	11,000
24	12,000
30	13,500
40	17,000
50-120	20,000
150	21,000

Note: These are the maximum wheel loads that can fall within each class. They are not necessary representative of the majority of vehicles within each class.