

Section-1

(A) Gradients

It is the rate of rise of Pave along the length of the road with respect to the horizontal. It is expressed as a ratio vertical unit for horizontal units. Sometimes the gradient is also expressed as a percentage i.e. $n\%$ (n in 100)

(B) Types of Gradients

(1)

This depends on the train length of the grade speed pulling power of the vehicle & the process of horizontal curve.

(2)

The IRC has recommended rolling gradient value of 1 in 30 on plain & rolling terrain 1 in 200 on mountainous ~~or~~ terrain on 1 in 10.7 on steep terrain.

(C)

Limiting Gradient

(1)

It is steeper than the rolling gradients

(2)

This gradient is adopted when the rolling gradient results enormous increase in cost of construction.

(3)

It may be frequency measure to limiting gradient.

(D) Exception Gradient

(1)

Exceptional gradient are very steeper gradients given at unavoidable situations.

(2) They should be limited for short stretches not exceeding about 100 m at a stretch.

(E) Minimum Gradient

It depends on the road fall type of soil and other site conditions.

A minimum of 1 in 500 may be sufficient for concrete drains. In 1 in 600 for a perv. soil drains are found to give satisfactory performance.