

GROUND VIBRATION FROM HEAVY AXLE LOAD FREIGHT VEHICLES - WEST LAVINGTON 1989

Most complaints of vibration from trains received by the Civil Engineer are attributed to heavy axle load freight vehicles. When these complaints are investigated, they generally yield information about one particular type of vehicle, at one speed, and on one type of ground. The type of track, train speed and structure of the ground are all important factors in determining the level and frequency content of ground vibration from passing trains. Because of the number of factors involved it is difficult to make generalisations from the results at one site. Conversely, it is difficult to make generalisations about the relative merits of a vehicle type when comparing results of tests over different tracks.

An opportunity arose recently to make a direct comparison at one site of the groundborne vibration produced by six different heavy axle load freight vehicles, at a variety of speeds, when a series of tests was arranged on the Western Region. The purpose of these tests was to investigate the likelihood of structural damage to underbridges by heavy axle load freight vehicles.

Generally the vertical ground vibration produced for all the vehicles is the greatest vibration and increases fairly uniformly with speed. The exceptions are not significant.

The difference between results for different vehicles is likely to be significant in terms of perception.