

A REVIEW OF VIBRATION-ISOLATING TRACKS FOR TUNNELS

This report presents a review of vibration isolating tracks for tunnels, installed in England, Japan, North America and Germany. Fundamental principles of generation and transmission of vibrations from tracks in soils surrounding tunnels and the effect of these vibrations on people and building structures are discussed.

Vibration isolation efficiencies of existing floating tracks are discussed in the light of published practical data. It is pointed out that there are deficiencies in many of the existing designs. Appropriate dynamic analyses of floating tracks and vibration attenuation in soils surrounding tunnels are apparently lacking in the literature. Such studies are intended to be presented in subsequent work to provide a rational basis for design of floating tracks.

It is concluded that troublesome frequencies of ground borne vibrations are generally in the medium frequency range of about 30 to 250 Hz in direct fastening systems. The troublesome variations can be greatly reduced by 'floating' tracks on resilient supports.