

ROLE OF CULVERT STRUCTURES ON DYNAMIC BEHAVIOURS OF RAILWAY EMBANKMENT

Jingjing Meng^A, Jan Laue^A

^A Department of Civil, Environmental and Natural resources Engineering, Luleå University of Technology, Luleå tekniska universitet, 97187 Luleå, Sweden

Föredragshållare: Jingjing Meng

Abstract

A railway line needs to pass over necessary civil structures such as culverts. Track stiffness increases when approaching to the stiff structures, resulting in differential settlements and amplified dynamic stresses. To mitigate the unwanted effects, the role of culverts in the dynamic performance of the rail track at the transition zones is researched. Numerical studies are conducted with a the commercially available Finite Element Code Plaxis. Variable culvert depth, culvert size, culvert shape and culvert foundation are used in the railway structure models. The results can help engineers to optimise the design for the transition zone to mitigate the abrupt changes in track settlement and stresses under the effect of culvert structures.

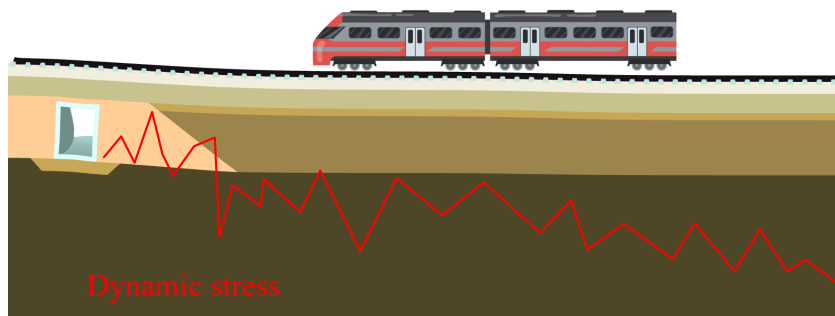


Figure: Settlements and ballast dynamic stress induced by train loads