

# Railway Trackbed Deterioration

## Aim and Objectives

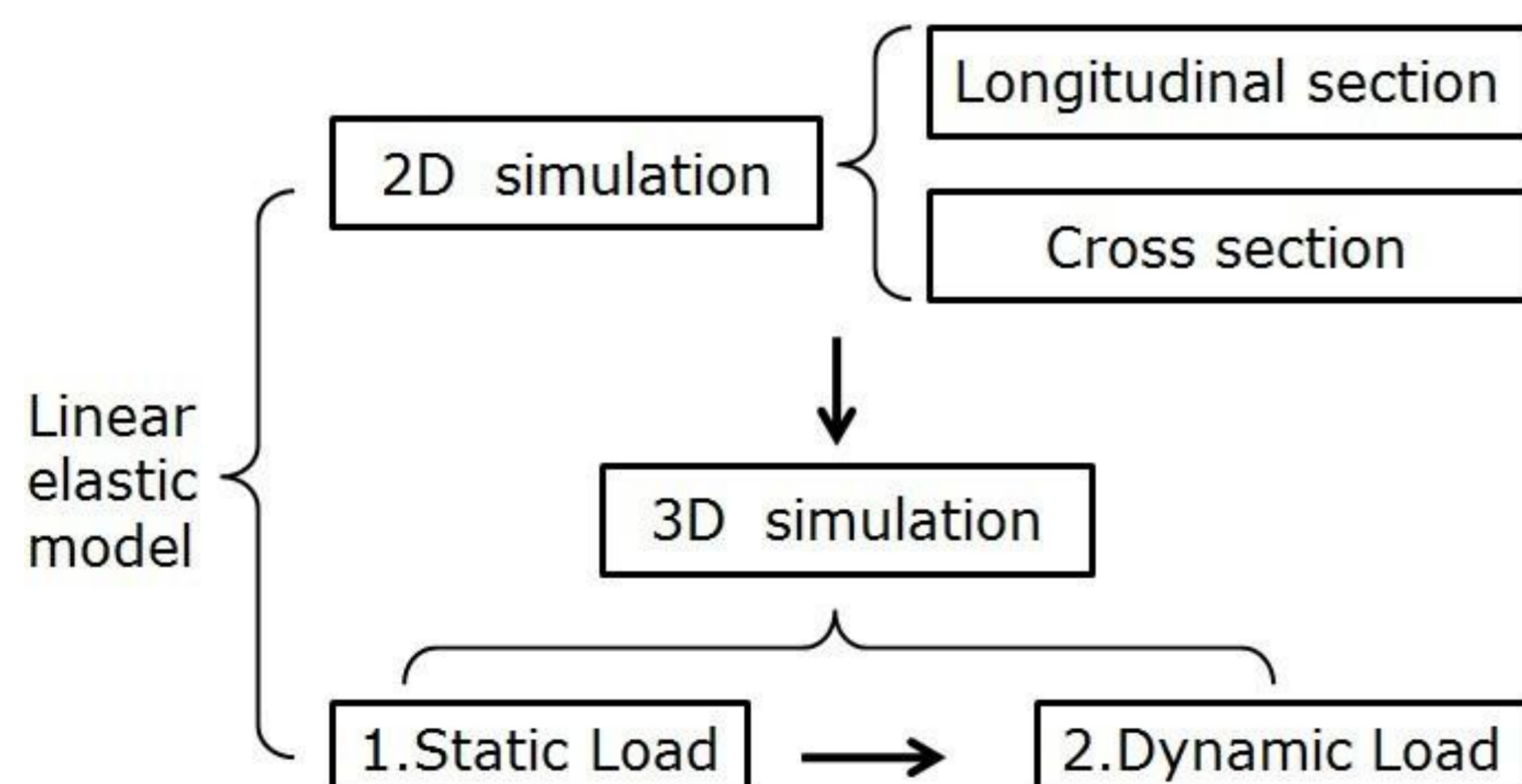
The aim of this research is to develop understanding of performance of railway trackbed under dynamic traffic loading in reality through simulation model with finite element method (FEM). The specific objectives of this project are listed below:

To investigate how to use finite element package better to simulate the entire railway track system on computer. This includes how to optimise the mesh type and density in order to reduce the calculating time effectively as well as to make the results more accurate and how to simulate the model and make it approach the engineering in reality.

To understand the benefits and disadvantages of simulation results when using two-dimensional and three-dimensional model.

To identify the resilient deformation behaviour of rail trackbed especially in ballast in three-dimensional simulation model under dynamic loading and calculate the stress distribution.

To evaluate and verify the simulation railway settlement model by comparing with the engineering data in reality.



## FEM Models

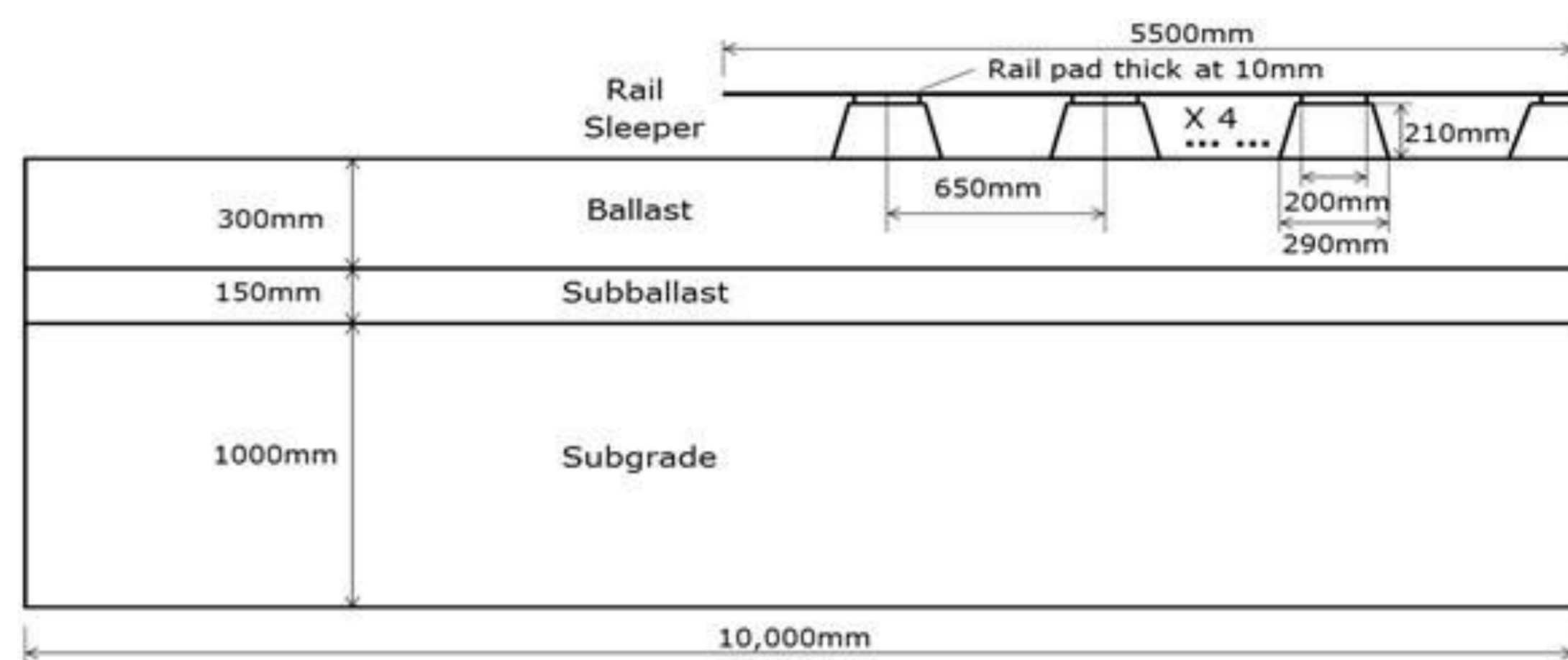


Figure 1: Longitudinal 2D Railway Model

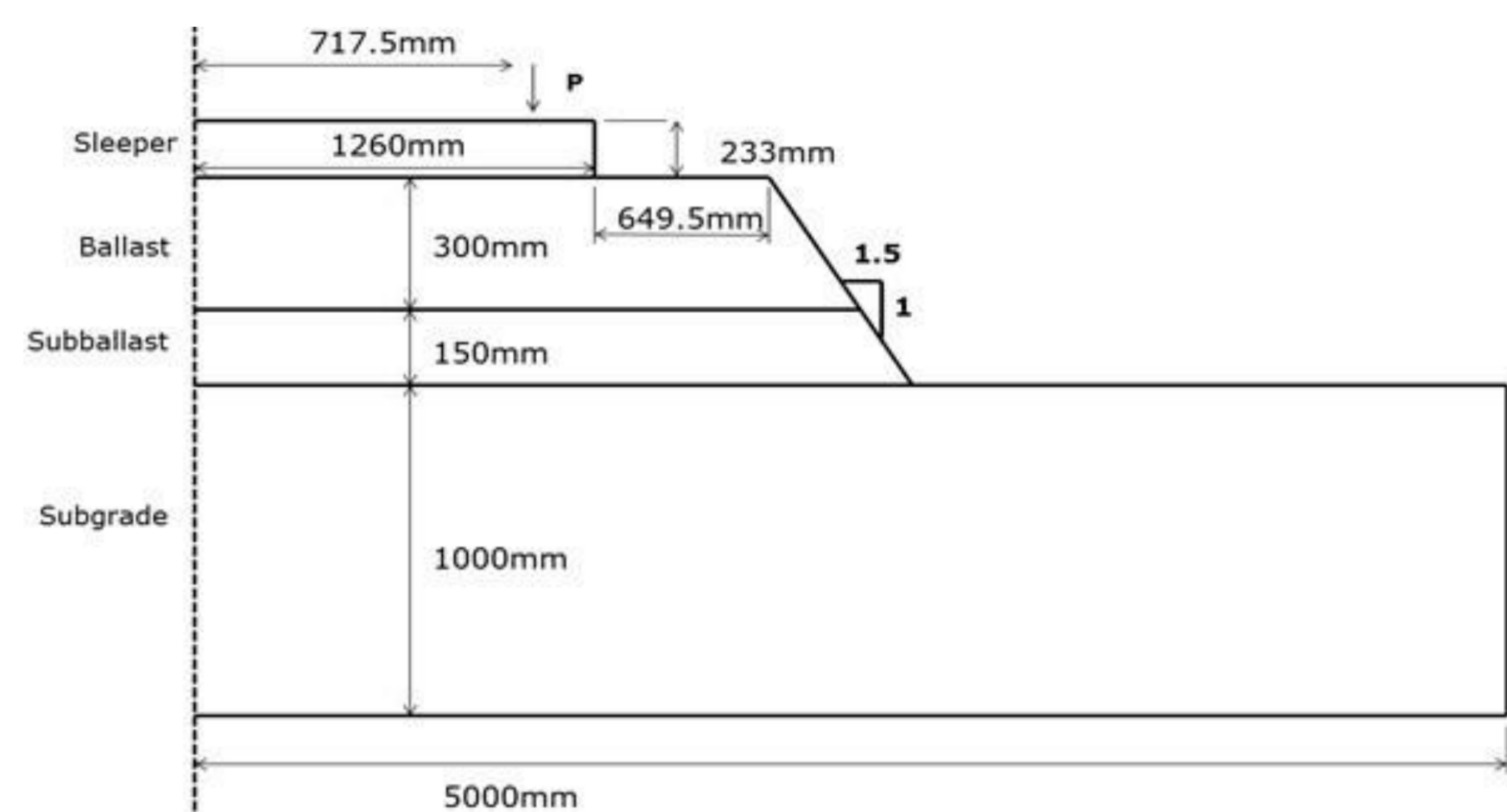


Figure 2: Cross Section of 2D Railway Model

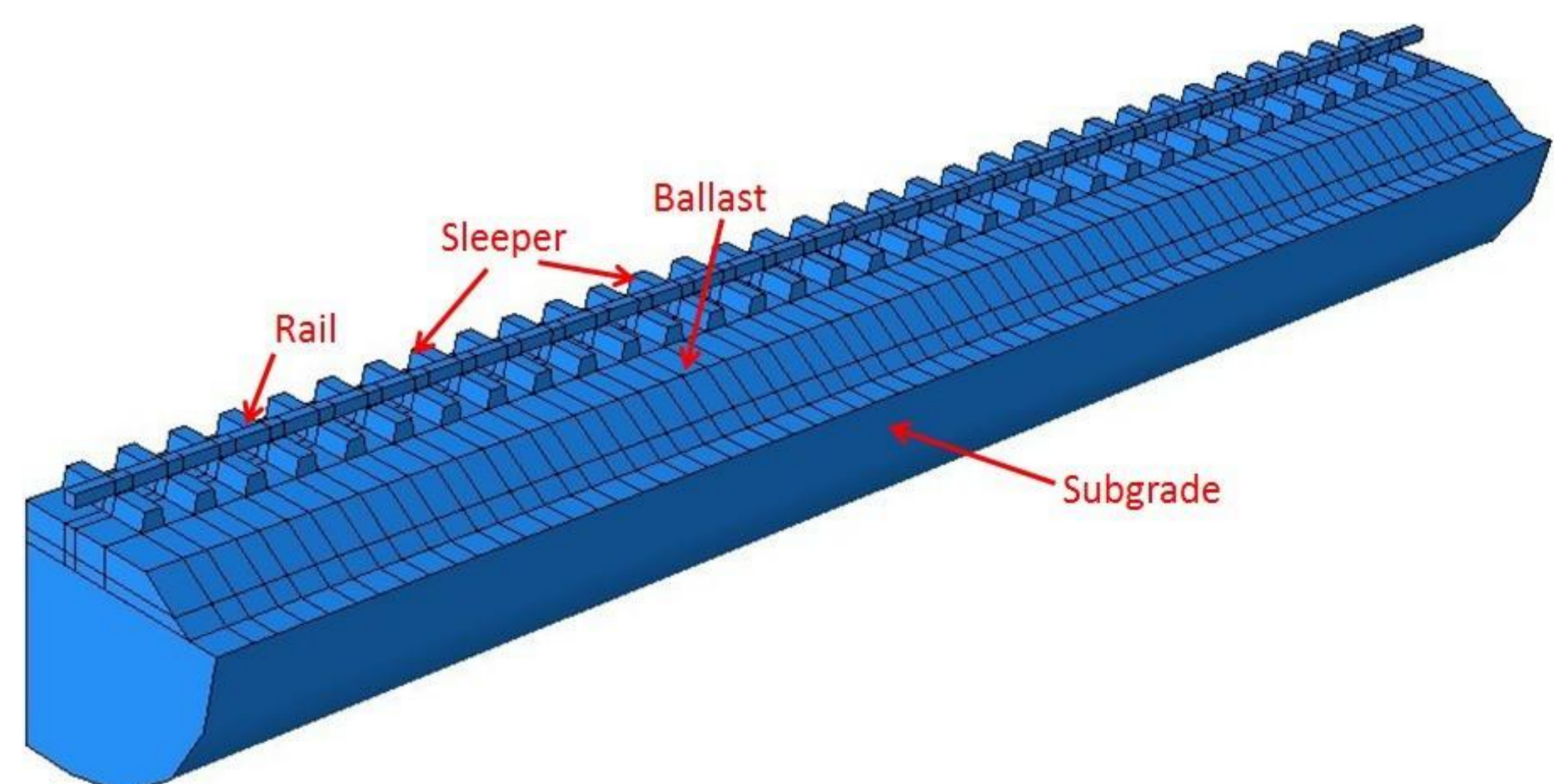


Figure 3: 3D Railway Model