

Study on Soil Structure Interaction for Earth Retaining Structure

Sabyath Shetty and Shashwathi S Shetty

Department of Civil Engineering

N.M.A.M. Institute of Technology, Nitte, Karnataka, India

shettysabyath@nitte.edu.in and shashwathishetty99@gmail.com

Abstract: *Earth retaining structures have suffered damages under past earthquakes. Usually, the analyses do not consider the retained soil interaction with the structure, which takes place during dynamic conditions. The objective of this study is to perform an engineering assessment of soil-structure interaction (SSI) features of selected earth retaining walls. This report mainly deals with the seismic analysis of earth retaining structure using ETABS software under the effect of soil structure interaction. A proper understanding of the soil-structure interaction plays a key role in the efficient design of geotechnical structures. This general report of Soil-Structure Interaction and Retaining Walls summarizes with both dynamic and static loading analysis condition.*

Keywords Earth Retaining Structure, Soil Structure Interaction, ETABS

VIII. REFERENCES

- [1]. S. P. G. Madubhushi et al.,2006, “Seismic response of flexible cantilever retaining walls with dry backfill”, *Geomechanics and Geoengineering: An International Journal* Vol. 1; pp 275—289
- [2]. Tufan Cakir.,2013, “Evaluation of the effect of earthquake frequency content on seismic behavior of cantilever retaining wall including soil–structure interaction”, *Soil Dynamics and Earthquake Engineering* 45, pp 96–111
- [3]. Ashok K. Chugh et al.,2017, “Soil Structure Interactions of Retaining Walls”, *ResearchGate*, DOI: 10.1061/9780784479742.036
- [4]. George Papazafeiropoulos et al.,2009, “Retaining wall-soil-structure interaction effects due to seismic excitation Earthquake Geotechnical Engineering Satellite Conference XVIIth International Conference on Soil Mechanics & Geotechnical Engineering.
- [5]. Tufan Cakir et al.,2020, “An Overview to the Dynamic Behaviour of the Inverted T Type Cantilever Retaining Wall Taking into Account Soil Structure Interaction Phenomenon”, *Sigma Journal of Engineering and Natural Sciences* 2019 3rd International Conference on Advanced Engineering Technologies, pp 37-50.
- [6]. Lou Menglina, et.al.,2011, “Structure–soil–structure interaction: Literature review”, *Soil Dynamics and Earthquake Engineering* 31; pp 1724–1731
- [7]. George Gazetas,1991, “Foundation Vibrations”,H.Y Fang(ed), *Foundation Engineering hand book*; Springer Science; pp 1 – 41.
- [8]. George Gazetas,1991, “Formulas and Charts for Impedances of Surface and Embedded Foundations” *J. Geotech. Engrg.* 1991.117, pp 1363-1381.
- [9]. S. Ramamrutham.,1974, “Design of Reinforced Concrete Structures”, *Dhanpat Rai & Sons, Delhi-Jullundur.*