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Case Study: Hybrid Mechanically Stabilized Earth Wall System Built on Basal Reinforced Raft

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Abstract : The truck park of a warehouse for a chain of supermarket was going to be constructed on a poor ground. Rather than using a piled foundation, the client was convinced that a ground improvement using a reinforced foundation raft also known as “basal reinforcement” shall work. The retaining structures supporting the truck park area were designed using a hybrid structure made up of the Terramesh® Wall System and MacGrid™ high strength geogrids. The total wall surface area is nearly 2740 sq.m , reaching a maximum height of 13.00 meters. The area is located in the first degree seismic zone of Turkey and the design seismic acceleration is high. The design of walls has been carried out using pseudo-static method (limit equilibrium) taking into consideration different loading conditions using Eurocode 7. For each standard approach stability analysis in seismic condition were performed. The paper presents the detailed design of the reinforced soil structure, basal reinforcement and the construction methods; advantages of using such system for the project are discussed.

Keywords : basal reinforcement, geogrid, reinforced soil raft, reinforced soil wall, soil reinforcement
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