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# Deflection Behaviour of Retaining Wall with Pile for Pipeline on Slope of Soft Soil

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**Abstract :** Pipes laying on an unstable slope of soft soil are prone to movement. Pipelines that are buried in unstable slope areas will move due to lateral loads from soil movement, which can cause damage to the pipeline. A small-scale laboratory model of the reinforcement system of piles supported by retaining walls was conducted to investigate the effect of lateral load on the reinforcement. In this experiment, the lateral forces of 0.3 kN, 0.35 kN, and 0.4 kN and vertical force of 0.05 kN, 0.1 kN, and 0.15 kN were used. Lateral load from the electric jack is equipped with load cell and vertical load using the cement-steel box. To validate the experimental result, a finite element program named 2-D Plaxis was used. The experimental results showed that with an increase in lateral loading, the displacement of the reinforcement system increased. For a Vertical Load, 0.1 kN and versus a lateral load of 0.3 kN causes a horizontal displacement of 0.35 mm and an increase of 2.94% for loading of 0.35 kN and an increase of 8.82% for loading 0.4 kN. The pattern is the same in the finite element method analysis, where there was a 6.52% increase for 0.35 kN loading and an increase to 23.91 % for 0.4 kN loading. In the same Load, the Reinforcement System is reliable, as shown in Safety Factor on dry conditions were 3.3, 2.824 and 2.474, and on wet conditions were 2.98, 2.522 and 2.235.

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