

**ABSTRAK**

Judul: Evaluasi Daya Dukung Aksial Menggunakan Metode Manual Dan Daya Dukung Lateral Menggunakan Software Lpile, (Studi Kasus : Proyek Automated People Mover System (APMS) Bandara Soekarno Hatta, Tangerang) Nama: Dani Ramdani, NIM: 41114010046, Dosen Pembimbing: Dr. Ir. Pintor T. Simatupang, M.Eng & Ir. Desiana Vidayanti, MT, Tahun: 2018

*Penelitian ini bertujuan untuk mencari perbedaan daya dukung aksial tiang dengan beberapa metode yaitu metode Mayerhoff, Reese and Wright, dan Reese and O'Neill untuk daya dukung ujung tiang, metode Coyle and Castello, dan Alpha untuk selimut tiang serta daya dukung lateral tiang dengan software LPile. Selain itu di analisis juga nilai penurunan elastik dan penurunan konsolidasi serta beda penurunannya.*

*Dalam menghitung daya dukung diperlukan data parameter tanah dari laporan penyelidikan tanah. Terdapat perbedaan penentuan parameter tanah antara peneliti dan konsultan perencana, misalnya, berat isi tanah efektif dan nilai kohesi. Peneliti membuat korelasi antara nilai berat isi tanah efektif dan nilai kohesi dengan nilai NSPT, sehingga didapat persamaan:  $y = 0,053NSPT + 16,111$  untuk lempung dan  $y = 0,0384NSPT + 18,878$  untuk pasir serta nilai  $Cu = 3 NSPT$ . Nilai izin penurunan total dan beda penurunannya serta kapasitas lateral izin tiangnya berdasarkan SNI 8460:2017 tentang Persyaratan Perancangan Geoteknik.*

*Hasil dari penelitian ini adalah terdapat presentase perbedaan nilai daya dukung aksial ultimit terhadap beban rencana terutama perbedaan antara peneliti dengan konsultan perencana. Nilai penurunan total maksimum sebesar 93,04 mm pada P51-P53, nilai ini masih memenuhi penurunan izin  $< 15 \text{ cm} + b/600$ . Nilai daya dukung lateral ultimit dari hasil LPile dilihat dari batas deformasi tiang sebesar 12 mm untuk beban gempa. Digunakan 2 tipe Pile-head yaitu free-head dan fixed-head.*

*Kata kunci: daya dukung aksial, daya dukung lateral, penurunan, beda penurunan, free-head, fixed-head.*

**ABSTRACT**

Title: Evaluation Of Axial Bearing Capacity Using Manual Method And Lateral Bearing Capacity Using Lpile Software, (Case Study: Automated People Mover System Project (APMS) Soekarno Hatta Airport, Tangerang), Name: Dani Ramdani, NIM: 41114010046, Supervisor: Dr. Ir. Pintor T. Simatupang, M.Eng & Ir. Desiana Vidayanti, MT, Year: 2018

*This study to find difference between axial bearing capacity of piles with several methods, namely Mayerhoff, Reese and Wright, and Reese and O'Neill for end bearing capacity, Coyle and Castello, and Alpha method for friction bearing capacity, and lateral bearing capacity with Lpile software. Besides that, it is also calculated the value of elastic settlement and consolidation settlement and differential settlement.*

*In calculating bearing capacity, soil parameters is needed from soil investigation report. There are differences in the determination of soil parameters between researcher and consultan planner, for example effective unit weight of soil and cohesion. Researcher made a correlation between effective unit weight of soil and cohesion with NSPT values, so that the equation:  $y = 0,053NSPT + 16,111$  for clay and  $y = 0,0384NSPT + 18,878$  for sand and  $C_u = 3 NSPT$ . The permit value of total settlement and differential settlement and permit bearing capacity lateral of piles based on SNI 8460:2017 about Persyaratan Perancangan Geoteknik.*

*The results of this study, there is percentage difference of bearing capacity axial ultimate towards axial load especially the difference between researcher and consultan report. The maximum total settlement value of 93,04 mm in P51-P53, this value still meets of settlement permit  $< 15 \text{ cm} + 6/600$ . The value of bearing capacity lateral ultimate from LPile results is seen from deformation limit of pile 12 mm for earthquake load. Two types of Pile-head are used: free-head and fixed-head.*

*Keywords: axial bearing capacity, lateral bearing capacity, settlement, differential settlement, free-head, fixed-head.*