BAB 5
KESIMPULAN DAN SARAN

5-1 Kesimpulan

Berdasarkan analisis yang telah dilakukan, didapatkan diambil kesimpulan, sebagai berikut:

1. Hasil analisis menggunakan metode Van Weele (1957) menunjukkan bahwa semakin panjang tiang, maka akan semakin besar nilai daya dukung selimut (Q_s). Sedangkan semakin besar diameter tiang, maka akan semakin besar nilai daya dukung selimut (Q_s) dan daya dukung ujung (Q_p) tiang tersebut.
2. Pemodelan fondasi tiang dengan L/d = 3,3 memerlukan jarak *horizontal boundary*, x/d = 15 dan *vertical boundary*, y/L = 3. Pemodelan fondasi tiang dengan L/d = 4,2 dan 5 memerlukan *horizontal boundary*, x/d = 25 dan *vertical boundary*, y/L = 3.
3. Pemodelan fondasi tiang dengan L/d = 6,3; 6,7; 7,5; 8,3; 9,4; 10; 10,4; 11,7; 12,5; 14,6; 15; 15,6; 17,5; 18,8; 20; 21,9; 25; 30; dan 35 diperlukan *horizontal boundary*, x/d = 25 dan *vertical boundary*, y/L = 2.

5-2 Saran

Berdasarkan analisis yang telah dilakukan, maka dapat disampaikan beberapa saran untuk penelitian selanjutnya, diantaranya:

1. Hasil pada perhitungan PLAXIS 2D sebaiknya dibandingkan dengan hasil pada uji lapangan agar dapat mengetahui perbedaan dari hasil perhitungan program dengan kondisi sebenarnya di lapangan.
2. Meninjau lebih dalam mengenai pengaruh *boundary condition* pada jenis atau konsistensi tanah yang berbeda.
3. Meninjau lebih dalam mengenai pengaruh *boundary condition* pada nilai *interfaces* yang berbeda.

DAFTAR PUSTAKA

ASTM D 1143/D 1143M 07. 2007. Standard Test Methods for Deep Foundations Under Static Axial Compressive Load. United States of America: ASTM International.

Basu, D., Salgado, R., & Prezzi, M. 2008. Analysis of Laterally Loaded Piles in Multilayered Soil Deposits - Publication FHWA/IN/JTRP-2007/23. Indiana: Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette.

Bowles, J.E. 1997. Foundation Analysis and Design Second Edition. New York: McGraw-Hill Book Company.

Brinkgreve, R. B. J. 2020. PLAXIS 2D Reference Manual CONNECT Edition V20. The Netherlands: PLAXIS.

Coduto, D.P. 2001. Foundation Design: Principle and Practices Second Edition. Upper Saddle River: Prentice Hall.

Das, M. B. 2011. Principles of Foundation Engineering Seventh Edition. USA: Global Engineering.

Dong, J., Chen, F., Zhou, M., & Zhou, X. 2017. "Numerical analysis of the boundary effect in model tests for single pile under lateral load". Bulletin of Engineering Geology and the Environment, 77 (3), 1057–1068.

Darajat, Azmi Fitra. 2021. Analisis Daya Dukung Selimut pada Pemodelan Pondasi Dalam untuk Pembebanan Axial dari Kepala Tiang dan Dasar Tiang. Skripsi. Universitas Katolik Parahyangan. Bandung.

Finkl, C.W., Makowski, C. 2019. Encyclopedia of Coastal Science, 2nd Edition - Encyclopedia of Earth Sciences Series. Springer International Publishing.

Hardiyatmo, & Chistady, H. 2010. Teknik Fondasi 2 Edisi ke-4. Yogyakarta.

Kimmerling, R. E. 2002. Geotechnical Engineering Circular No.6 - Shallow Foundations. Technical Report FHWA-SA-02-054. Seattle, Washington D.C.

Kuklik, P., & Broucek, M. 2011. "Phenomenon of Influence Zone in Civil Engineering Practise". Procedia Engineering. (14): 1705–1712.

Labuz, J. F., & Zang, A. 2012. Mohr–Coulomb Failure Criterion - Rock Mechanics and Rock Engineering. 45 (6), 975–979.

Miliziano, S., & Sotto, A. D. 2014. “Criteria for numerical modelling of very stiff cantilever retaining structures”. Rivista Italiana Di Geotecnica.

Murthy, V.N.S. 2002. Geotechnical Engineering Principles and Practices of Soil Mechanics and Foundation Engineering. New York: Marcel Dekker Inc.

Rahardjo, P. P., & Diaz, Stefanus. 2019. Metode Elemen Hingga Untuk Analisis Geoteknik. Bandung: Pusat Studi Geoteknik Universitas Katolik Parahyangan.

Rahardjo, P. P. 2021. Manual Pondasi Tiang, Edisi 5. Bandung: Deep Foundation Reasearch Institute (DRFI) Universitas Katolik Parahyangan.

Salgado, R., Woo, S., & Kim, D. 2011. Development of Load and Resistance Factor Design for Ultimate and Serviceability Limit States of Transportation Structure Foundations - Publication FHWA/IN/JTRP-2011/03. Indiana: Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette.

Teng, C. W. 1962. Foundation Design. Prentice Hall Memational, Inc.

Tjie-Liong, Gouw. 2014. “Common Mistakes on the Application of Plaxis 2D in Analyzing Excavation Problems”. International Journal of Applied Engineering Research (Researh India Publications) 9 (21): 8291-8311.

U.S Department of Transportation Federal Highway Administration. 2016. *Design and Construction of Driven Pile Foundation - Volume I*. FHWA-NHI-16-009. United States of America.

Vermeer, P., A., & Wehnert, M. 2005. “Beispiele von FE-Anwendungen – Man lernt nie aus. In: FEM in der Geotechnik (ed. Grabe et.al.)”. Technische Universität Hamburg-Harburg.

Vesić, A.S. 1977. *Design of Pile Foundations, National Cooperative Highway Research Program Synthesis of Highway Practice No. 42*. Washington DC: Transportation Research Board.