# BAB 6
# KESIMPULAN DAN SARAN

## 6.1 KESIMPULAN

Berdasarkan data, evaluasi dan analisis, diperoleh beberapa kesimpulan sebagai berikut :

1. Parameter redaman (*Smith shaft damping*) tanah-tiang dapat diturunkan dari uji Geser langsung tanah-mortar dengan melakukan variasi kecepatan geser;
2. Nilai redaman (*Smith shaft damping*) hasil kompilasi data dari laporan-laporan pengujian Pile Dynamic Analyzer (PDA) dan hasil analisis Capwap, menunjukan nilai yang lebih besar pada tanah berlempung (kohesif) serta pada tanah dengan konsistensi lunak;
3. Nilai redaman (*Smith shaft damping*) dipengaruhi oleh tegangan normal (tegangan kontak antara tanah dan tiang) yang diberikan, semakin tinggi tegangan kontak, maka semakin mengecil nilai redaman;
4. Pola sebaran nilai redaman (*Smith shaft damping*) dari kompilasi data redaman terhadap nilai N-SPT pada laporan-laporan PDA menunjukan antara 0,1 s/m – 0,5 s/m. Nilai redaman (*Smith shaft damping*) rata-rata dari hasil uji geser langsung tanah-mortar 0,52 s/m (tanah kohesif) dan 0,33 s/m (non-kohesif), sedangkan nilai redaman yang diusulkan oleh beberapa penelitian sebelumnya 0,65 s/m (tanah kohesif) dan 0,15 s/m (non-kohesif).

## 6.2 SARAN

Saran penelitian ke depan yang dapat dikembangkan untuk kesempurnaan hasil penelitian ini, adalah :

Perlu dilakukan uji geser langsung tanah-mortar dengan perbedaan kecepatan geser yang lebih besar lagi, untuk memastikan pola sebaran nilai redaman akibat perbedaan kecepatan geser yang lebih besar.

# DAFTAR PUSTAKA


Ashmawy, A. K., R. Salgado., S. Guha., V. P. Drnevich., (1995). *Soil Damping and Its Use in Dynamic Analyses*, Missouri University of Science and Technology, International Conferences on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics.

ASTM D-3080-02, (2003). *Standard Test Method for Direct Shear Test of Soils Under Consolidated Conditions*, ASTM International.

ASTM D-4945, *Standard Test Method for High-Strain Dynamic Testing of Deep Foundations*, American Standard for Testing Materials.

Cheung, C. K., Greenway, D. R., and Massey, J. B. *Direct Shear Testing of a Completely Decomposed Granite*. Geotechnical Control Office. Engineer-ing Develop. Department, Hongkong.

Chin, V. B. L., and Seidel, J. P. (2004). *An Experimental Study into the Viscous Damping Response of Pile-Clay Interfaces*. Proceedings of The Seventh International Conference on the Application of Stress Wave Theory to Piles. The Institution of Engineers Malaysia.

Dey, Arindam, (2015), *Effect of Strain Rate on the Shear Strenght Parameter of Sand, Indian Geotechnical Conference*, College of Engineering, Pune.

Deying Li, Kunlong Yin, Thomas Glade & Chin Leo, (2017). *Effect of over-consolidation and shear rate on the residual strength of soils of silty sand in the Three Gorges Reservoir*, Scientific Reports.

Febrijanto, R. (2017). *Karakteristik Kuat Geser Soil-Mortar Menggunakan Alat Direct Shear*, Studi Independen, Program Doktoral, Universitas Katolik Parahyangan, Bandung, Indonesia.

Febrijanto R., Rahardjo P., Arafianto A., (2017), *The use of different shearing rate in direct shear test to determine damping in soils and soil-concrete interface for input in pile driving analysis*, Proceeding of Pile,ISBN 978-978-979-15020-4-7

Head, K. H. (1982). *Manual of Laboratory Testing*, Vol. 1 2., Pentech Press. London. Head, K. H. (1992). Manual of Laboratory Testing, Vol. 1 2en ED., Pentech Press. London.

H.G. Poulos, E.H. Davis (1980), *Pile Foundation Analysis and Design*, The University of Sidney, John Wiley & Sons.

John W. Chuang, Lymon C. Reese. 1969. "*Studies of Shearing Resistance Between Cement Mortar and Soil*". The Texas Highway Departement.

Lambe, T. W. (1951). *Soil Testing for Engineers*. The Massachusetts Institute of Technology, John Wiley & Sons. Inc. New York.

Mark R. Svinkin, (2010). *The Variable Damping Concept in Pile Capacity Prediction by Wave Equation Analysis*, Missouri University of Science and Technology

Masyhur Irsyam, Andhika Sahadewa, Helmy Darjanto (2008), *Dinamika Tanah dan Fondasi Mesin*, Institut Teknologi Bandung.

Michael C. McVay, Ching L. Kuo, (1999), *Estimate Damping and Quake by Using Traditional Soil Testings, Colledge of Engineering*, Departement of Civil Engineering, University of Florida.

Moh. Sofian Asmirza, *Direct Shear Testing*, Fakultas Teknik Sipil Universitas Sumatera Utara, Medan.

Osano, S. N., *Direct Shear Box And Ring Shear Test Comparison : Why Does Internal Angle of Friction Vary*, Department of Civil Construction Engineering University of Nairobi, Kenya

Olson E. Roy, and Lai J. (2004). *Direct Shear Testing*, Department of Construction Engineering, Chaoyang University of Technology.

Patrick J. Hannigan, Frank Rausche, Garland E. Likins, Brent R. Robinson, Matthew L. Becker. 2016. "*Design and Construction of Driven Pile Foundations* –

*Volume II*". National Highway Institute, Federal Highway Administration (FHWA).

Roy E.Olson, Dr. (1989). *Direct Shear Testing*, Department of Construction Engineering Chaoyang University of Technology

Shamsher Prakash, Hari D. Sharma. 1990. "*Pile Foundations in Engineering Practice*". John Wiley & Sons, Inc.

Standar Nasional Indonesia (SNI) 1742-2008, *Cara uji kepadatan ringan untuk tanah*, Badan Standarisasi Nasional.

Standar Nasional Indonesia (SNI) 2813:2008, *Cara uji kuat geser langsung tanah terkonsolidasi dan terdrainase*, Badan Standarisasi Nasional.

Standar Nasional Indonesia (SNI) 3420:2016, *Metode uji kuat geser langsung tanah tidak terkonsolidasi dan tidak terdrainase*, Badan Standarisasi Nasional.

Standar Nasional Indonesia (SNI) 4427:2008, *Cara Uji Kekesatan Permukaan Perkerasan Menggunakan Alat British Pendulum Tester (BPT)*, Badan Standarisasi Nasional.

Standar Nasional Indonesia (SNI) 6371-2015, *Tata Cara Pengklasifikasian Tanah untuk Keperluan Teknik Dengan Sistem Unifikasi Tanah*, Badan Standarisasi Nasional.

T. William Lambe dan Robert V. Whitman. (1969), *Soil Mechanics*, Massachusetts Institute of Technology.