

DAFTAR ISI

HALAMAN PENGESAHAN	ii
SURAT PERNYATAAN KEASLIAN	iii
BERITA ACARA BIMBINGAN TUGAS AKHIR	iv
MOTTO	Error! Bookmark not defined.
PERSEMBAHAN	Error! Bookmark not defined.
KATA PENGANTAR	Error! Bookmark not defined.
Abstrak	Error! Bookmark not defined.
Abstract.....	Error! Bookmark not defined.
DAFTAR ISI	iv
DAFTAR TABEL	vii
DAFTAR GAMBAR.....	viii
DAFTAR NOTASI	x
BAB I.....	Error! Bookmark not defined.
PENDAHULUAN	Error! Bookmark not defined.
1.1. Latar Belakang.....	Error! Bookmark not defined.
1.2. Rumusan Masalah.....	Error! Bookmark not defined.
1.3. Maksud dan Tujuan Penelitian	Error! Bookmark not defined.
1.4. Batasan Masalah	Error! Bookmark not defined.
1.5. Manfaat Penelitian	Error! Bookmark not defined.
1.6. Sistematika Penulisan	Error! Bookmark not defined.
BAB II	Error! Bookmark not defined.
TINJAUAN PUSTAKA.....	Error! Bookmark not defined.
2.1. Parameter Tanah	Error! Bookmark not defined.
2.1.1. Klasifikasi Tanah dari Data Sondir	Error! Bookmark not defined.
2.1.2. Modulus Young	Error! Bookmark not defined.
2.1.3. Possion Ratio	Error! Bookmark not defined.
2.1.4. Sudut Geser Dalam.....	Error! Bookmark not defined.
2.1.5. Kohesi.....	Error! Bookmark not defined.
2.2. Pondasi.....	Error! Bookmark not defined.
2.3. Klasifikasi Pondasi	Error! Bookmark not defined.

2.3.1	Pondasi Dangkal.....	Error! Bookmark not defined.
2.3.2	Pola Keruntuhan Tanah Dibawah Pondasi	Error! Bookmark not defined.
2.3.3	Pondasi Sedang.....	Error! Bookmark not defined.
2.3.4	Pondasi Dalam.....	Error! Bookmark not defined.
2.3.5	Pondasi Tiang Pancang.....	Error! Bookmark not defined.
2.3.6	Tiang Pancang Kayu.....	Error! Bookmark not defined.
2.3.7	Tiang Pancang Beton Pra Cetak	Error! Bookmark not defined.
2.3.8	Tiang Pancang Beton Cor di tempat.....	Error! Bookmark not defined.
2.3.9	Tiang Pancang Baja	Error! Bookmark not defined.
2.4.	Kapasitas Dukung Pondasi	Error! Bookmark not defined.
2.4.1	Perhitungan Kapasitas Dukung menurut <i>Bowles (1968)</i> ...	Error! Bookmark not defined.
2.4.2	Perhitungan Kapasitas Dukung dari Hasil Sondir menurut <i>Mayerhof (1956)</i>	Error! Bookmark not defined.
2.4.3	Kapasitas Dukung Pondasi Tiang Pancang	Error! Bookmark not defined.
2.4.4	Daya Dukung Berdasarkan <i>Mayerhof (1976; 1983)</i>	Error! Bookmark not defined.
2.4.5	Daya dukung Pondasi Tiang Pancang berdasarkan Data N-SPT	Error! Bookmark not defined.
2.5.	Perhitungan Penurunan Segera Pondasi Telapak dengan data SPT	Error! Bookmark not defined.
2.6.	Penurunan Pondasi Tiang pancang	Error! Bookmark not defined.
2.7.	Perhitungan Pondasi Tiang	Error! Bookmark not defined.
2.7.1	Daya dukung ujung pada Tanah Kohesif	Error! Bookmark not defined.
2.7.2	Daya dukung selimut pada tanah kohesif	Error! Bookmark not defined.
2.8	Analisa Pembebanan Menggunakan SAP 2000.....	Error! Bookmark not defined.
2.9	Analisis Menggunakan Program Plaxis	Error! Bookmark not defined.
2.10	Analisis Menggunakan Program <i>Allpile</i>	Error! Bookmark not defined.
BAB III.....		Error! Bookmark not defined.
METODOLOGI PENELITIAN		Error! Bookmark not defined.
3.1.	Pendahuluan.....	Error! Bookmark not defined.
3.2.	Data Umum Proyek	Error! Bookmark not defined.
3.3.	Data Teknis Proyek.....	Error! Bookmark not defined.
3.4.	Studi Literatur	Error! Bookmark not defined.

3.5.	Pengumpulan Data.....	Error! Bookmark not defined.
3.6.	Tahap Perencanaan	Error! Bookmark not defined.
	Tahapan awal perencanaan yang dilakukan pada penulisan Tugas Akhir ini adalah	Error! Bookmark not defined.
3.6.1	Analisis Pembebanan Dengan Program SAP 2000	Error! Bookmark not defined.
3.6.1.	Analisis Penurunan Pondasi Tiang Pancang Dengan Program PLAXIS	Error! Bookmark not defined.
3.7.	Analisis Penurunan Pondasi Tiang Pancang Dengan Program Allpile 6.5	Error! Bookmark not defined.
3.8.	Kesimpulan Dan Saran	Error! Bookmark not defined.
3.9.	Penyusunan Laporan.....	Error! Bookmark not defined.
BAB IV	Error! Bookmark not defined.
ANALISA DAN PERHITUNGAN	Error! Bookmark not defined.
4.1.	Tinjauan Umum	Error! Bookmark not defined.
4.1.1.	Pemodelan Gedung dengan program SAP2000 .	Error! Bookmark not defined.
4.2.	Analisa Perhitungan Daya Dukung Tiang Pancang...	Error! Bookmark not defined.
4.2.1.	Perhitungan daya dukung Tiang Pancang Metode Reese & Wright	Error! Bookmark not defined.
4.2.2.	Perhitungan daya dukung tiang pancang Metode O'niel & Reese.....	Error! Bookmark not defined.
4.2.3.	Perhitungan Daya Dukung Tiang Pancang Metode Meyerhoff	Error! Bookmark not defined.
4.2.4.	Perhitungan Daya Dukung Berdasarkan Kekuatan Bahan	Error! Bookmark not defined.
4.3.	Hasil Beban Struktur Atas	Error! Bookmark not defined.
4.4.	Daya Dukung Pondasi Kelompok Tiang(<i>Group Pile</i>).....	Error! Bookmark not defined.
4.4.1.	Metode Converse-Labarre	Error! Bookmark not defined.
4.5.	Perhitungan Settlement Pondasi	Error! Bookmark not defined.
4.5.1.	Penurunan Pada Pondasi Tiang Tunggal Pada Titik B.1 dan B.2	Error! Bookmark not defined.
4.5.2.	Penurunan Elastis Pada Pondasi Kelompok Tiang (<i>Group Pile</i>)	Error! Bookmark not defined.
4.5.	Input Parameter pada Program Plaxis 8.2.....	Error! Bookmark not defined.

4.6. Daya dukung tiang pancang dengan program Plaxis 8.2.....	Error! Bookmark not defined.
4.8. Penurunan Tiang Pancang program Plaxis 8.2	Error! Bookmark not defined.
4.9. Input Parameter Pada Program Allpile 6.5	Error! Bookmark not defined.
KESIMPULAN DAN SARAN	Error! Bookmark not defined.
5.1. Kesimpulan	Error! Bookmark not defined.
5.2. Saran	Error! Bookmark not defined.

DAFTAR TABEL

Tabel 2.1 Klasifikasi Tanah dari Data Sondir	Error! Bookmark not defined.
Tabel 2.2 Hubungan Antara Konsistensi Dengan Tekanan Conus	Error! Bookmark not defined.
Tabel 2.3 Hubungan Antara Kepadatan Dengan Relative Density	Error! Bookmark not defined.
Tabel 2.4 Nilai Perkiraan Modulus Young (Bowles, 1977)	Error! Bookmark not defined.
Tabel 2.5 Hubungan Antara Jenis Tanah dan Possion Ratio..	Error! Bookmark not defined.
Tabel 2.6 Hubungan Antara Sudut Geser Dalam dan Jenis Tanah	Error! Bookmark not defined.
Tabel 2.7 Nilai – nilai tipikal beban izin tiang beton pracetak.	Error! Bookmark not defined.
Tabel 4. 1 Perhitungan Daya Dukung Tiang Pancang B. 1 Metode Reese & Wright.....	Error! Bookmark not defined.
Tabel 4. 2 Perhitungan Daya Dukung Tiang pancang B. 2 Metode Reese & Wright.....	Error! Bookmark not defined.
Tabel 4. 3 Borehole, Sampler, and Rood Correction Factors...	Error! Bookmark not defined.
Tabel 4. 4 SPT Hammer Efficiencies	Error! Bookmark not defined.
Tabel 4. 5 Rekapitulasi daya dukung tiang pancang metode O’niel & Reese B. 1	Error! Bookmark not defined.
Tabel 4. 6 Rekapitulasi daya dukung tiang pancang metode O’niel & Reese B. 2.....	Error! Bookmark not defined.
Tabel 4. 7 Perhitungan Daya Dukung Tiang pancang B. 1 Metode Meyerhoff.....	Error! Bookmark not defined.
Tabel 4. 8 Perhitungan Daya Dukung Tiang Pancang B. 2 Metode Meyerhoff.....	Error! Bookmark not defined.
Tabel 4. 9 Perhitungan tahanan aksial berdasarkan kekuatan bahan.....	Error! Bookmark not defined.
Tabel 4. 10 Resume daya dukung berdasarkan metode yang berbeda titik B. 1	Error! Bookmark not defined.
Tabel 4. 11 Resume daya dukung berdasarkan metode yang berbeda titik B. 2	Error! Bookmark not defined.
Tabel 4. 12 Joint Borehole B.1	Tabel 4. 13 Joint Borehole B.2 ... Error! Bookmark not defined.
Tabel 4. 14 Perhitungan daya dukung kelompok tiang pondasi.....	Error! Bookmark not defined.
Tabel 4. 15 Nilai Perkiraan Modulus Elastisitas Tanah	Error! Bookmark not defined.
Tabel 4. 16 Jenis Tanah dan Nilai Poisson’s Ratio	Error! Bookmark not defined.
Tabel 4. 17 Parameter Tanah Titik B.M 1	Error! Bookmark not defined.
Tabel 4. 18 Parameter Tanah Titik B.M 2.....	Error! Bookmark not defined.
Tabel 4. 19 Data Tiang Pancang.....	Error! Bookmark not defined.
Tabel 4. 20 Daya Dukung Tanah Terhadap Pondasi	Error! Bookmark not defined.

Tabel 5.1 Daya dukung (Tiang Pancang) diameter 50cm **Error! Bookmark not defined.**
Tabel 5.2 Penurunan (Tiang Pancang) diameter 50cm..... **Error! Bookmark not defined.**
Tabel 5.3 Gaya Lateral. **Error! Bookmark not defined.**

DAFTAR GAMBAR

Gambar 2.1 Pondasi Telapak (Hardiyatmo, 1985)	Error! Bookmark not defined.
Gambar 2.2 Pondasi Memanjang atau menerus (Hardiyatmo, 1985).....	Error! Bookmark not defined.
Gambar 2.3 Pondasi Rakit (Hardiyatmo, 1985)	Error! Bookmark not defined.
Gambar 2.4 Pola Keruntuhan Tanah dibawah Pondasi	Error! Bookmark not defined.
Gambar 2.5 Pondasi Tiang pancang (Hardiyatmo, 1985)	Error! Bookmark not defined.
Gambar 2.6 Pondasi Tiang	Error! Bookmark not defined.
Gambar 2.7 Tiang Pancang Beton Pra Cetak Bujur Sangkar ...	Error! Bookmark not defined.
Gambar 2.8 Tiang Pancang Beton Pra Cetak Segi Delapan.....	Error! Bookmark not defined.
Gambar 2.9 Tiang Standar Raimond (Hardiyatmo, 2008)	Error! Bookmark not defined.
Gambar 2.10 Tiang Franki (Hardiyatmo, 2008).....	Error! Bookmark not defined.
Gambar 2.11 Penampang Melintang Tiang Pancang Baja	Error! Bookmark not defined.
Gambar 2.12 Pondasi tiang pancang baja (Sardjono, 1991)....	Error! Bookmark not defined.
Gambar 2.13 Berbagai jenis distribusi tahanan selimut di sepanjang tiang ..	Error! Bookmark not defined.
Gambar 2.14 Banyak baris (n) dan banyak tiang per-baris(m)	Error! Bookmark not defined.
Gambar 2.15 Grafik Tahanan Lateral Ultimit Tiang Pada Tanah Kohesif ...	Error! Bookmark not defined.
Gambar 2.16 Grafik Tahanan Lateral Ultimit Tiang pada Tanah Granuler ..	Error! Bookmark not defined.
Gambar 2.17 Faktor penurunan I_o (Poulos dan Davis)	Error! Bookmark not defined.
Gambar 2.18 Koreksi kompresi, R_k (Poulos dan Davis)	Error! Bookmark not defined.
Gambar 2.19 Koreksi kedalaman, R_h (Poulos dan Davis)	Error! Bookmark not defined.
Gambar 2.20 Koreksi angka Poisson, R_μ (Poulos dan Davis) .	Error! Bookmark not defined.
Gambar 2.21 Koreksi kekakuan lapisan pendukung, R_b (Poulos dan Davis)	Error! Bookmark not defined.
Gambar 2.22 Contoh permasalahan regangan bidang dan axi-simetri....	Error! Bookmark not defined.
Gambar 2.23 Definisi E_0 dan E_{50} (sumber : manual palxis)...	Error! Bookmark not defined.
Gambar 3.1 Flowchart Perencanaan Pondasi Gedung Stikes Telogorejo 8 Lantai	Error! Bookmark not defined.
Gambar 3.2 New Model	Error! Bookmark not defined.
Gambar 3.3 Edit Grid	Error! Bookmark not defined.
Gambar 3.4 Pengaturan Grid	Error! Bookmark not defined.
Gambar 3.5 Pemodelan Portal 3D Frame	Error! Bookmark not defined.
Gambar 3.6 Define Material	Error! Bookmark not defined.
Gambar 3.7 Material Property Data	Error! Bookmark not defined.
Gambar 3.8 Frame Properties	Error! Bookmark not defined.
Gambar 3.9 Rectangular Section	Error! Bookmark not defined.
Gambar 3.10 Reinforcement Data untuk Beam.....	Error! Bookmark not defined.

Gambar 3.11 Reinforcement Data Untuk Column	Error! Bookmark not defined.
Gambar 3.12 Area Sections	Error! Bookmark not defined.
Gambar 3.13 Shell Section Data	Error! Bookmark not defined.
Gambar 3.14 Plot penampang	Error! Bookmark not defined.
Gambar 3.15 Frame Distributed Load	Error! Bookmark not defined.
Gambar 3.16 Area Uniform Loads to Frames	Error! Bookmark not defined.
Gambar 3. 17 Respon Spektrum.....	Error! Bookmark not defined.
Gambar 3. 18 Define Load Case	Error! Bookmark not defined.
Gambar 3. 19 Define Load Case – Respon Spektrum.....	Error! Bookmark not defined.
Gambar 3.20 Load Combinations.....	Error! Bookmark not defined.
Gambar 3.21 Analysis Options.....	Error! Bookmark not defined.
Gambar 3.22 Pengaturan global – dimensi.....	Error! Bookmark not defined.
Gambar 3.23 Pengaturan global – dimensi.....	Error! Bookmark not defined.
Gambar 3.24 Pemodelan profil tanah	Error! Bookmark not defined.
Gambar 3.25 Datamaterial pasir kelanauan.....	Error! Bookmark not defined.
Gambar 3.26 Data material pasir kelanauan.....	Error! Bookmark not defined.
Gambar 3.27 Data antar muka material lempung kelanauan...	Error! Bookmark not defined.
Gambar 3.28 Data material pondasi pancang	Error! Bookmark not defined.
Gambar 3. 29 Data material pile cap	Error! Bookmark not defined.
Gambar 3.30 Pemodelan Pondasi Pancang	Error! Bookmark not defined.
Gambar 3.31 Input pembebanan.....	Error! Bookmark not defined.
Gambar 3.32 Beban pada tiang pancang	Error! Bookmark not defined.
Gambar 3.33 Susun jaring elemen.....	Error! Bookmark not defined.
Gambar 3.34 Muka air tanah	Error! Bookmark not defined.
Gambar 3.35 Tekanan air pori aktif.....	Error! Bookmark not defined.
Gambar 3.36 Tekanan air pori aktif.....	Error! Bookmark not defined.
Gambar 3.37 Mengaktifkan tekanan air pori awal	Error! Bookmark not defined.
Gambar 3. 38 Prosedur – KO	Error! Bookmark not defined.
Gambar 3.39 Tekanan efektif tanah	Error! Bookmark not defined.
Gambar 3.40 Tahap-tahap perhitungan konstruksi.....	Error! Bookmark not defined.
Gambar 3.41 Deformasi yang terjadi	Error! Bookmark not defined.
Gambar 3.42 Pile Type	Error! Bookmark not defined.
Gambar 3.43 Pile Profile	Error! Bookmark not defined.
Gambar 3.44 Pile Properties	Error! Bookmark not defined.
Gambar 3.45 Pile Section Screen	Error! Bookmark not defined.
Gambar 3.46 Load and Group	Error! Bookmark not defined.
Gambar 3.47 Soil Properties.....	Error! Bookmark not defined.
Gambar 3.48 Soil Parameter Screen.....	Error! Bookmark not defined.
Gambar 3.49 Advance Page	Error! Bookmark not defined.
Gambar 3.50 Hasil Output.....	Error! Bookmark not defined.
Gambar 4. 1 Permodelan struktur atas menggunakan SAP2000.....	Error! Bookmark not defined.

Gambar 4. 2 Penempatan Pondasi Grup Tiang	Error! Bookmark not defined.
Gambar 4. 3 Potongan Pondasi P1& P3	Error! Bookmark not defined.
Gambar 4. 4 Potongan Pondasi P2& P4.....	Error! Bookmark not defined.
Gambar 4. 5 Titik nodal yang di tinjau pada proses penurunan P-Bm 1 Titik P1.....	Error! Bookmark not defined.
Gambar 4. 6 Deformed Mesh pada Titik P-Bm 1	Error! Bookmark not defined.
Gambar 4. 7 Titik nodal yang di tinjau pada proses penurunan P-Bm 1 Titik P2.....	Error! Bookmark not defined.
Gambar 4. 8 Deformed Mesh pada Titik P-Bm 1 Titik P2	Error! Bookmark not defined.

DAFTAR NOTASI

f_s	= Hambatan pelekot
c	= kohesi tanah
E	= Modulus Elastisitas
μ	= Poisson Ratio
ϕ	= Sudut Geser Dalam
D	= Kedalaman Pondasi
B	= Lebar Pondasi
$N-SPT$	= Nilai N-SPT pada kedalaman yang ditentukan
q_a	= Daya dukung diijinkan untuk penurunan 1''
Q_{ult}	= Kapasitas daya dukung maksimal
q_c	= Tahanan konus pada ujung tiang
A_p	= Luas penampang ujung tiang
JHL	= Tahanan geser total sepanjang tiang
K	= Keliling tiang
A_p	= Luas penampang tiang
L	= Kedalaman perlapisan
q_p	= Kapasitas ujung tiang
q_s	= Tahanan gesek tiang
S_i	= Penurunan
q	= Tekanan pondasi netto
$Se(1)$	= Penurunan elastis tiang
$Se(2)$	= Penurunan tiang yang disebabkan oleh beban di ujung tiang
$Se(3)$	= Penurunan tiang yang disebabkan oleh beban di sepanjang selimut tiang
Q_{wp}	= Beban yang ditanggung oleh ujung tiang di bawah kondisi beban kerja
Q_{ws}	= Beban yang ditanggung oleh tahanan gesekan (selimut) di bawah kondisi beban kerja

A_p	= Luas penampang tiang
L	= Panjang tiang
E_p	= Modulus elastisitas bahan tiang
C_p	= Koefisien empiris
V_c	= Kuat geser nominal
V_u	= Gaya geser terfaktor pada penampang
B_o	= keliling bidang geser kritis
F_c	= mutu beton
x	= panjang bidang geser kritis
F_y	= tegangan lelah baja
P_n	= Kuat beban aksial nominal
ϕ	= Faktor reduksi kekuatan pengikat spiral
A_g	= Luas kotor penampang kolom
A_{st}	= Luas total penampang tulangan memanjang
P_{nb}	= Kuat beban aksial nominal dalam keadaan seimbang
M_{nb}	= Momen aksial nominal dalam keadaan seimbang
P_t	= Beban tarik yang diterima tulangan
V_u	= Gaya geser terfaktor pada penampang
V_n	= Kuat geser nominal
N_u	= Beban aksial terfaktor
A_v	= Luas tulangan geser
S	= Rentang jarak tulangan sengkang
D_x	= Tinggi efektif pile
M_x	= Nilai Momen yang bekerja

