



Mr. WAI/YEE KONG (Yekong Wai)

Professional Competency Level

Pile Test Expert

Competency Level: L6 (Highest)

DFI/USA Certified Pile Test Engineer (Advanced, 2004)

Pile Test Competency**Static Pile Load Test**

Static Compression : Excellent

Bi-Directional: Excellent

Pile Instrumentation: Excellent

Dynamic Pile Load Test

High Strain: Excellent

Two Point: Excellent

Impact Load: Excellent

Rapid Test: Intermediate

Statnamic Test: Intermediate

Dynamic Pile Integrity Test

Low Strain: Excellent

Ultra Sonic: Excellent

Tube Wave: Excellent

Dynamic Pile Imaging Test

Hole Profiling: Excellent

TV Video: Excellent

Parallel Seismic: Excellent

Pile Analysis Competency

CAPWAP: Excellent

RSMWAP: Excellent

RSIWAP: Excellent

ROCKSEA: Intermediate

TNO: Intermediate

SIMBAT: Intermediate

UNIPILE: Intermediate

International Invention Patents

YLOAD: Impact Load of Pile Driving

YJACK: Bi-Directional Pile Test, Type C

ROCKETshaft: Pile Lateral Load Recovery

PUSHshaft: Bi-Directional, Top-Loaded

TremieMATE: Solid Pile Base Guaranteed

International Software Copyrights

QSWAP: analysis software for high-strain

QSDAP: analysis software for bi-directional

QSTOP: analysis software for top-loaded

Personal

Year of Birth: 1967

Address Line1: 20, Jalan PP 11/5, Alam Perdana Industrial Park

Address Line2: 47130 Puchong, Selangor, Malaysia

Email: yekong2012@gmail.com | yekong2012@live.com

Website: www.YJACKpiletest.com | www.MrGeoTECH.com | www.MrGeo2U.com

Education

1991

Bachelor in Civil Engineering (Hons)

University Teknologi Malaysia (UTM)

Careers

2022

MrGeo Professional Group (Chief Technical Officer)

2014

YJACK Professional Group (Chief Technical Officer)

1997

Traswaja Pile Testing Sdn Bhd (Technical Director)

1995

Dynamic Pile Testing Sdn Bhd (Technical Manager)

1994

Soil Dynamics (M) Sdn Bhd (Pile Test Engineer)

1991

University Technology Malaysia (Pile Test Research Officer)

Certifications

2004

Certified Pile Test Engineer (Advance Level, DFI/USA)

2000

World Patent Holder (YLOAD Dynamic Pile Test Method)

2014

World Patent Holder (YJACK Static Pile Test Method)

Publications

1997

Impact Load Analogy in Pile Driving (Hong Kong)

2003

New Breakthrough Technology in Pile Testing (Malaysia)

2003

Impact Load Theory – A New Testing Method (China)

2003

Advance Analysis in Low-Strain Pile Test (China)

2006

Compatibility Study on Impact Load Theory (Malaysia)

2013

22 Years' Experience in High-Strain Pile Test (Indonesia)

2013

State-Of-The-Art YJACK in Bi-Directional Pile Test (Indonesia)

Awards

2015

Int'l Construction Council Innovation Award for YJACK

2016

High Impact Program2 (HIP2), Agency Innovation Malaysia

2017

Productivity Champion for YJACK, Malaysia Productivity Corp



Mr WAI/YEE KONG (Yekong Wai)

Company : YJACK Professional Group
Address : 20, Jalan PP 11/5, Alam Perdana Industrial Park 47130 Puchong, Selangor, MY.
Contact : yekong2012@live.com | yekong2012@gmail.com | www.YJACKpiletest.com |
Social : yekong2012 | YouTube.com/YJACKpiletest | Facebook.com/YJACKpiletest |

EDUCATION

Bachelor in Civil Engineering (Hons), 1991
TECHNOLOGY UNIVERSITY OF MALAYSIA (UNIVERSITI TEKNOLOGI MALAYSIA, UTM)

SUMMARY

Mr WAI/YEE KONG (male), 3 decades in piling and testing industry since 1991:

- 1991: Bachelor in Civil Engineering (Hons), UTM
- 1991: Research Officer in dynamic pile testing (hardware & software), UTM
- 1994: Pile Test Engineer in private firms
- 2000: World Patent Holder for new dynamic pile test method by impact load (YLOAD)
- 2004: Certified Pile Test Engineer (Advanced Level), Deep Foundation Institute (USA)
- 2008: Key Trainer in dynamic pile testing (Asia Pacific Countries)
- 2014: MyIPO Malaysian Patent for static pile load test method (YJACK)
- 2015: PCT World Patent for static pile load test method (YJACK)
- 2015: Int'l Invention and Innovation Expo (ITEX15) Gold Medal for YJACK
- 2015: Int'l Construction Industry Council (CIC) Innovation Award 2015 for YJACK
- 2016: Int'l Global CleanTech Innovation Program (GCIP) Award 2016 for YJACK
- 2016: Appointed Advisory Panel Member for Construction Industry Competency Blueprint
- 2017: Productivity Champion for YJACK, Malaysia Productivity Corporation
- 2017: High Impact Program 2 (HIP2) for YJACK, Agency Innovation Malaysia (AIM)
- 2018: World Patent Holder for bi-directional pile load test on driven piles (YJACK)
- 2018: YJACK received highly recognition status of Malaysian Brand from SMECorp and SIRIM

Mr Wai is the Founder and Chief Technical Officer (CTO) of the company for all the technical cum operational matters. He has 3 decades of experience in static and dynamic pile testing, and became Certified Pile Test Engineer (Advance Level) in 2004, accredited by Deep Foundations Institute, United States (DFI/USA).

He is the inventor and has the technical know-how of the YJACK. He leads a team of engineers and technicians in Asia Pacific in the installations and testing of the YJACK. He is the expert in static (YJACK) and dynamic pile test methods with few international patents granted.

As an entrepreneur, Mr Wai had established good reputations and contacts with governments, clients, contractors and counterparts in the industry. His technical expertise is beyond doubt in the pile testing industry. He is always the point of reference for the consultants and engineers if any issue pertaining to the pile testing arises. With the recognitions as the pile test specialist, Mr Wai has been appointed as an Advisory Panel Member for Construction Industry Competency Blueprint (CICB) of Construction Industry Development Board (CIDB), Malaysia.

He had also presented many technical papers in the international conferences:

- Dynamic Test Tech Paper 1997 - Impact Load Analogy in Pile Driving (Hong Kong)
- Dynamic Test Tech Paper 2003 - New Breakthrough in Testing (Malaysia)
- Dynamic Test Tech Paper 2003 - Impact Load Theory - A New Testing Method (China)
- Dynamic Test Tech Paper 2003 - Advance Analysis in Low-Strain Pile Test (China)
- Dynamic Test Tech Paper 2006 - Compatibility Study on Impact Load Theory (Malaysia)
- Dynamic Test Tech Paper 2013 - 22 Years Experiences in High-Strain Test (Indonesia)
- Static Test Tech Paper 2013 - State-Of-The-Art of YJACK in BD Pile Test (Indonesia)

CERTIFICATION

Certified Pile Test Engineer (Advance Level Certified, DFI/USA, 2004)
World Patent Holder (YLOAD Dynamic Pile Test Method, 2000)
World Patent Holder (YJACK Static Pile Test Method, 2018)

ADVISOR

Traswaja Pile Testing Sdn Bhd, West Malaysia (pile design and testing, since 1997)
Geospec PileTech Sdn Bhd, East Malaysia (pile design and testing, since 2002)
Geotech Engineering Sdn Bhd, South Malaysia (pile design and testing, since 2006)
CGK Pile Testing PT, Jakarta (pile design and testing, since 2005)
Infratech ASTM Co Ltd, Bangkok (pile design and testing, since 2012)
Intell-Equipment Designer, Beijing (bi-directional pile test method, since 2014)
Bakat Geotechnique Pte Ltd, Singapore (pile design and testing, since 2015)
Bakat Geo Teknik PT, Jakarta (pile design and testing, since 2016)
Natatest Lab Sdn Bhd, South Malaysia (pile design and testing, since 2016)
Borneo Dynaload Sdn Bhd, East Malaysia (pile design and testing, since 2018)

CAREER

YJACK PROFESSIONAL GROUP

2014/02 - Present

Founder, Chief Technical Officer

- technical support for YJACK bi-directional pile test on bored and driven piles
- product development for YJACK Type A, B, C, D, E, F, G, O, P, Q, R, S, W
- international marketing to South East Asia and Asia Pacific countries
- international trainings, examinations and proficiency tests for pile testing

TECHNOSTAR PROFESSIONAL GROUP

2008/08 -2014/02

International Marketing Chief

- technical support for all dynamic pile testing analysis and reporting
- product development and release of ASIAWAP (equivalent to CAPWAP)
- international marketing to South East Asia and Asia Pacific countries
- international trainings, examinations and proficiency tests for pile testing

TRASWAJA PILE TESTING SDN BHD, MALAYSIA

1997/07 - 2008/08

Technical Director

- responsible for the overall technical operations
- ensures the quality of testing & test reports are maintained
- field testing of dynamic pile measurement
- performs CAPWAP analysis
- handles technical complaints

DYNAMIC PILE TESTING SDN BHD, MALAYSIA

1996/08 - 1997/07

Technical Manager

- responsible for the overall technical operations
- ensures the quality of testing & test reports are maintained
- identifies the training needs for all the technical personnel
- responsible for the usage & maintenance of the testing equipment
- field testing of dynamic pile measurement
- performs CAPWAP analysis
- handles technical complaints
- maintains the ISO/IEC G25 system (in the process of accreditation)

DYNAMIC PILE TESTING SDN BHD, MALAYSIA

1995/05 – 1996/08

Quality Assurance Manager

- development of the ISO/IEC G25 system
- training & motivation of the technical personnel
- calibration & instrumentation of the testing equipment
- field testing of dynamic pile measurement
- performs CAPWAP analysis

SOIL DYNAMICS (M) SDN BHD, MALAYSIA

1994/01 – 1995/05

Testing Engineer

- field testing of dynamic pile measurement
- pile instrumentation testing
- performs CAPWAP analysis
- calibration & instrumentation of the testing equipment

UNIVERSITI TEKNOLOGI MALAYSIA, MALAYSIA

1991/05 – 1993/12

Research Officer

- R&D on determination of pile bearing capacity by high-strain dynamic method

TRAINING

Since 2008 **Bi-Directional Pile Test using various types of hydraulic jack systems**
TECHNOLOGY: piston jack, capsule jack, flat jack, for bored & driven piles

Since 2007 **Key Trainer in Int'l Pile Dynamics Workshop and Proficiency Tests, Wuhan**
INSTITUTE OF ROCK AND SOIL MECHANICS (IRSM), WUHAN, CHINA

Since 2007 **Key Trainer in Int'l Pile Dynamics Workshop and Proficiency Tests, Bandung**
GEOTECHNICAL ENGINEERING CENTER, UNPAR UNIVERSITY, BANDUNG, INDONESIA

Since 2002 **Dynamic Pile Testing using various types of testing instruments**
TRADEMARKS: PDI, TNO, SIMBAT, RSM, MCT, GEOSTAR, ROCKSEA, CSCEC, Y-LINK

2015/05 **Project Partner, Performance Test Program (PTP) for YJACK Pile Test Method**
GEOTECHNICAL DEPARTMENT, PUBLIC WORKS DEPARTMENT MALAYSIA (aka JKR)

2014/10 **Project Leader, Technical Opinion Program (TOP) for YJACK Pile Test Method**
CONSTRUCTION RESEARCH INSTITUTE MALAYSIA (CREAM)

2013/06 **Int'l Conference on State-Of-The-Art of Pile Foundation (PILE2013), Bandung**
INT'L SOCIETY OF SOIL MECHANICS AND FOUNDATION ENGINEERING (ISSMGE)

2012/10 **Training on Bi-Directional (BD) Pile Bearing Testing using New Technology**
TRADEMARK: YJACK FOR BD TEST METHOD, BEIJING, CHINA

2011/02 **Seminar & Exhibition HATTI 2005, Yogyakarta, Indonesia**
INDONESIAN SOCIETY OF GEOTECHNICAL ENGINEERS (aka HATTI)

2008/11 **Certified HS/PDA Engineer (Expert Level); Institute of Rock & Soil Mechanics**
INT'L PILE DYNAMICS WORKSHOP, EXAMINATIONS AND PROFICIENCY TESTS, WUHAN

2006/09 **Impact Load Theory – Compatibility Study Compared to Hiley and Case Methods**
6TH ASIA PACIFIC STRUCTURAL ENG. & CONST. CONFERENCE (APSEC 2006), MALAYSIA

2006/06 **Implementation of State-of-the-Art Pile Driving Tools in Modern Pile Designs**
INSTITUTE ENGINEERS MALAYSIA (IEM), MELAKA BRANCH, MELAKA, MALAYSIA

2005/08 **Seminar & Exhibition HAKI 2005, Jakarta, Indonesia**
INDONESIAN SOCIETY OF CIVIL AND STRUCTURAL ENGINEERS (aka HAKI)

- 2005/08 **Pile Design & Problems, Wave Equation Analysis and Dynamic Pile Testing**
PUBLIC WORK DEPARTMENT (JKR), CORPORATE SECTION, MALAYSIA
- 2004/08 **Certified HS/PDA Engineer (Advanced Level); Deep Foundation Institute, USA**
STRESS WAVE CONFERENCE 2004, KUALA LUMPUR, MALAYSIA
- 2004/08 **2 Days PDA and CAPWAP Workshop**
STRESS WAVE CONFERENCE 2004, KUALA LUMPUR, MALAYSIA
- 2004/02 **4D (dimensional) Project Management & Engineering Software Training**
VeirtualSTEP, TAIPEI, TAIWAN
- 2003/11 **Educational and Technical Exchange in Kuala Lumpur**
INSTITUTE OF ROCK & SOIL MECHANICS (IRSM)
- 2002/11 **Educational and Technical Exchange in Wuhan**
INSTITUTE OF ROCK & SOIL MECHANICS (IRSM)
- 2001/11 **Departmental Visits and Technology Demonstrations in Wuhan**
CHINA UNIVERSITY OF GEOTECHNICAL/GEOSCIENCES (CUG), WUHAN, CHINA
- 2001/11 **On-Site Training at Various Piling & Foundation Sites in Wuhan**
INSTITUTE OF ROCK AND SOIL MECHANICS (IRSM), WUHAN, CHINA
- 2001/11 **Presentation: New Development of High/Low Strain Dynamic Pile Testing**
INSTITUTE OF ROCK AND SOIL MECHANICS (IRSM), WUHAN, CHINA
- 2001/11 **Presentation: Hiley Formula, PDA Case Method and Beyond**
CHINA UNIVERSITY OF GEOTECHNICAL/GEOSCIENCES (CUG), WUHAN, CHINA
- 1999/07 **Short Course on Design and Construction of Steel Pile**
MALAYSIAN STRUCTURAL STEEL ASSOCIATION (MSSA), KUALA LUMPUR, MALAYSIA
- 1999/05 **National Seminar on Pile Testing & Performance**
TECHNOLOGY UNIVERSITY OF MALAYSIA (UNIVERSITI TEKNOLOGI MALAYSIA, UTM)
- 1997/07 **PDA User's Day 1997**
PILE DYNAMICS INC (PDI), KOWLOON, HONG KONG
- 1996/05 **PDA User's Day 1996**
PILE DYNAMICS INC (PDI), KUALA LUMPIUR, MALAYSIA
- 1995/08 **Internal Quality Auditing Course**
STANDARDS AND INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA (SIRIM), MALAYSIA
- 1995/06 **ISO/IEC Guide 25 & ISO 9000 Appreciation Course**
STANDARDS AND INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA (SIRIM), MALAYSIA
- 1995/06 **ISO/IEC Guide 25 & ISO 9000 Quality Manual Writing Course**
STANDARDS AND INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA (SIRIM), MALAYSIA
- 1992/12 **Seminar on Non-Destructive Testing on Concrete**
TECHNOLOGY UNIVERSITY OF MALAYSIA (UNIVERSITI TEKNOLOGI MALAYSIA, UTM)
- 1992/04 **Seminar on Patent, Innovations and R&D**
TECHNOLOGY UNIVERSITY OF MALAYSIA (UNIVERSITI TEKNOLOGI MALAYSIA, UTM)

PUBLICATIONS

- 2015/06 **YJACK, An Industry Building System (IBS) To Be Applied On Static Pile Test**
IBS Digest Bulletin, Malaysia, Issue 2015/Jun (Wai YK)

- 2015/02 **Method and Apparatus for Bi-Directional Pile Test on Driven & Injection Piles**
PCT International Patent Application (Wai YK)
- 2014/02 **Method and Apparatus for Bi-Directional Pile Test on Driven & Injection Piles**
MyIPO Malaysian Patent Application (Wai YK)
- 2013/06 **22 Years Experiences in High-Strain Wave Analysis and Guidelines**
Published to Int'l Conference on State-Of-The-Art of Pile Foundation
(PILE2013), Bandung (Wai YK)
- 2013/06 **State-Of-The-Art Technology of YJACK in Bi-Directional Pile Test**
Published to Int'l Conference on State-Of-The-Art of Pile Foundation
(PILE2013), Bandung (Yu SL, Wai YK)
- 2012/01 **Release of High-Strain Asia Wave Analysis Program, ASIAWAP**
Technostar Professional Group
- 2010/11 **Development of Pile-Soil Modeling in High Strain Wave Analysis Program, HSWAP**
In-House Publication
- 2006/09 **Impact Load Theory - A New Theory and Its Compatibility Study Compared to Hiley and Case Methods**
Published to 6th Asia Pacific Structural Engineering&Construction Conference 2006
(APSEC), Malaysia (Wai YK)
- 2006/04 **Piling Handbook for Design and Construction of Driven Pile Foundations**
Edition 2006, Malaysia
- 2005/08 **Conventional and Innovative Methods in Pile Driving and Testing**
Submitted to Seminar & Exhibition HAKI 2005, Indonesian Society Of Civil And
Structural Engineers (aka HAKI), Jakarta, Indonesia (Wai YK, Md Nuri Salimin)
- 2004/08 **Impact Load Theory - A New Theory and Its Compatibility Study Compared to Impulse-Momentum Theory and Wave Mechanics Theory in Pile Driving (unpublished)**
Submitted to 7th International Conference On The Application Of Stress Wave
Theory To Piles, Malaysia (Wai YK)
- 2004/08 **One Dimensional Wave Approximation in Integrity Testing of Piles (unpublished)**
Submitted to 7th International Conference On The Application Of Stress Wave
Theory To Piles, Malaysia (Prof. Chai HY, Prof. Liu MG, Wai YK)
- 2003/04 **Driveability Prediction Report**
Published to International Prediction Event 2003, for the Performances of Impact
Driven Piles in Flanders Clay, North France
- 2003/03 **Dispersion Phenomenon and Numerical Analysis on Validity of One-Dimensional Analysis in Low Strain Pile Integrity Testing**
Published to Shock & Impact Loads in Structures, 5th Asia Pacific Conference,
Changsha, China, November 2003 (Prof. Chai HY, Prof. Liu MG, Wai YK)
- 2003/03 **Impact Load Theory - New Testing Method in New Millennium on Driven Piles**
Published to Shock & Impact Loads in Structures, 5th Asia Pacific Conference,
Changsha, China, November 2003 (Wai YK, Md Nuri Salimin)
- 2003/03 **New Breakthrough in the History of Pile Driving and Testing Industry on Driven Piles**
Published to National Seminar, Exposition and Corporate Talk on Civil Engineering
(NASEC), Technology University of Malaysia (UTM), Kuala Lumpur, May 2003 (Wai YK,
Md Nuri Salimin)
- 2002/08 **Case Study: WEAP, Hiley and Y-bearing Driveability Study**
In-House Publication

- 2000/09 **Optimum Hammer Selection in Pile Driving**
In-House Publication
- 2000/05 **Correlation Report: Comparison of PBC Predicted Pile Capacities Against ENR Formula, GRLWEAP, Case Method, CAPWAP and Static Test.**
In-House Publication
- 2000/05 **Method and Apparatus for Estimating Pile Load Bearing Capacities**
USA/USPTO Patent Application (Granted 2002)
- 1999/05 **Composite Pile And Method For Making Same**
Malaysian Patent Application (Pending)
- 1998/11 **Correlation Report: Accuracy of Y-bearing Predicted by Pile Bearing Calculator**
In-house Publication
- 1998/11 **Literature Study: Reliability of Dynamic Formula (Hiley) and the Solutions**
In-house Publication
- 1998/07 **Method and Apparatus for Pile Driving (codename: YBearing)**
USA/USPTO Patent Application (Granted 2000)
- 1997/07 **Impact Load Analogy in Pile Driving (codename: YBearing)**
Published to PDA User's Day 1997, Kowloon, Hongkong

End of CV

This is to certify that

Mr Yekong Wai

of

Traswaja Pile Testing Sdn Bhd

has achieved

Advanced (lower)

in the Dynamic Pile Testing Examinations comprising

Part A : "Data Acquisition for high-strain dynamic pile tests" and

Part B : "Data Interpretation for high-strain dynamic pile tests"

held in Kuala Lumpur on 8/13/2004

Julian P. Seidel
Dr. Julian P. Seidel

Managing Director - Foundation QA Pty. Ltd.

October 28, 2005

This certificate is based on the results of the holder in examinations developed to assess general knowledge in data acquisition and interpretation of high strain dynamic pile testing. The ability of the holder to provide appropriate advice on any specific project is not implied or warranted. Testers with Provisional or Basic status are encouraged to seek review from testers with Advanced or Expert status. Detailed examination results can be confirmed by Foundation QA on receipt of a written request quoting the tester's identification code.

Appendix 1 of 2

1997~2007

New Dynamic Pile Test

YLOAD Research Findings



US006082173A

United States Patent [19]

Wai

[11] **Patent Number:** 6,082,173
[45] **Date of Patent:** Jul. 4, 2000

[54] **METHOD AND APPARATUS FOR PILE DRIVING**

[76] Inventor: **Yee Kong Wai**, 18-3A, Jalan Pandan
3/7, Pandan Jaya, Kuala Lumpur,
Malaysia, 55100

[21] Appl. No.: **09/153,549**

[22] Filed: **Sep. 15, 1998**

[30] **Foreign Application Priority Data**

Sep. 15, 1997 [MY] Malaysia PI9704268

[51] **Int. Cl.⁷** **G01N 3/30**

[52] **U.S. Cl.** **73/12.13; 73/12.01**

[58] **Field of Search** 73/12.01, 12.06,
73/12.09, 12.13

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,496,420	2/1950	Stern	73/12.13
2,531,388	11/1950	Black	73/12.13
3,879,982	4/1975	Schmidt	73/12.01
3,946,598	3/1976	Towne et al.	73/12.13

4,313,337	2/1982	Myint	73/12.13
4,359,890	11/1982	Coelus	73/12.13
4,531,400	7/1985	Nevel	73/12.13

OTHER PUBLICATIONS

British Standard Code of practice for Foundations (BS 8004: 1986). British Standards Institution: pp. 84-109, 1986.

Bowles, Joseph E. "Foundation Analysis and Design"; 4th edition, McGraw-Hill Book Company, 1988, Chapter 17, pp. 785-820.

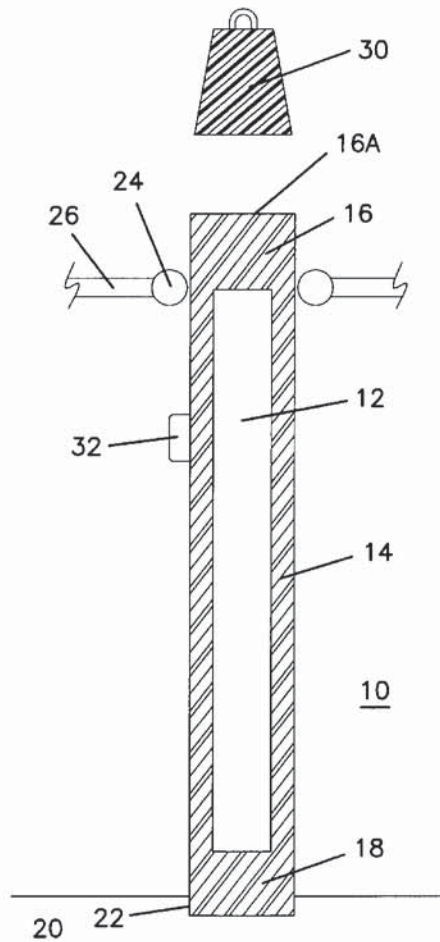
Primary Examiner—Max Noori

Attorney, Agent, or Firm—Merchant & Gould P.C.

[57] **ABSTRACT**

A method and apparatus for estimating the load-bearing of a pile comprising (a) constructing a scaled-down model pile apparatus which has been reduced to a size that may be accommodated within an indoors facility according to a calculated scaled-down ratio; (b) subjecting said model pile apparatus to impact load tests to obtain dynamic measurements; and (c) correlating the dynamic measurements from said tests to said pile.

20 Claims, 5 Drawing Sheets





US006349590B1

**(12) United States Patent
Wai****(10) Patent No.: US 6,349,590 B1
(45) Date of Patent: Feb. 26, 2002****(54) METHOD AND APPARATUS FOR
ESTIMATING LOAD BEARING CAPACITY
OF PILES****(76) Inventor: Yee Kong Wai**, 18-3 A, Jalan Pandan
3/7, Pandan Jaya, Kuala Lumpur (MY)**(*) Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.This patent is subject to a terminal dis-
claimer.**(21) Appl. No.: 09/580,390****(22) Filed: May 26, 2000****Related U.S. Application Data****(63)** Continuation-in-part of application No. 09/153,549, filed on
Sep. 15, 1998, now Pat. No. 6,082,173.**(30) Foreign Application Priority Data**

Sep. 15, 1997 (MY) PI9704268

(51) Int. Cl.⁷ G01N 33/00**(52) U.S. Cl. 73/84****(58) Field of Search 73/12.01, 12.06,
73/12.09, 12.13, 78, 81, 82, 84****(56) References Cited****U.S. PATENT DOCUMENTS**

2,496,420 A	2/1950	Stern	
2,531,388 A	11/1950	Black	
3,817,091 A *	6/1974	Frederick	73/84
3,879,982 A	4/1975	Schmidt	
3,946,598 A	3/1976	Towne et al.	
3,960,008 A *	6/1976	Goble et al.	73/84
4,054,339 A *	10/1977	Ladin	384/569
4,313,337 A	2/1982	Myint	
4,359,890 A	11/1982	Coelus	
4,531,400 A	7/1985	Nevel	
4,845,996 A *	7/1989	Birmingham	73/807
6,082,173 A *	7/2000	Wai	73/12.13

OTHER PUBLICATIONSHussein et al. *Testing Methods of Driven Piles*. Pile Buck,
Inc, 1988."Home Page," "Introduction," and "Articles and Technical
Monographs" from Website entitled "The Wage Equation
Page for Piling" at <http://www.geocities.com/CapeCanaveral/Hanger/2955/>, last revised Aug. 5, 2000.Yu, Richard and Leong, Ching "Evaluation of Static Pile
Capacity for Different Piles by Dynamic Testing", Bulletin
IEM, Dec. 1989.S. L. Lee et al., "Dynamic testing of Bored Piles for Suntec
City Development", Conference on Deep Foundation Prac-
tice in Singapore, Oct. 1990.British Standard Code of Practice for Foundations (BS 8004:
1986); British Standards Institution; pp. 84-109.Bowles, Joseph E. "Foundation Analysis and Design"; 4th
Edition, McGraw-Hill Book Company, 1988, Chapter 17,
pp. 785-820.

* cited by examiner

Primary Examiner—Max Noori*(74) Attorney, Agent, or Firm*—Merchant & Gould P.C.**(57) ABSTRACT**A method for estimating the load bearing capacity of a pile
using an Impact Load formula including obtaining the
values of the weight of an impact mass, the stroke height of
the impact mass, the length of the pile, the cross sectional
area of the pile, and the Young's modulus of the pile. A
preferred derived formula is

$$P = \sqrt{\frac{2hAEW}{L_e}} \quad \text{Formula II}$$

wherein

R=soil-resistance load or end-load bearing;

W=the weight of hammer;

h=the height of hammer stroke;

L_e=the length of pile;

A=the cross sectional area of pile;

E=the Young's modulus of pile.

A computational tool for applying this method in the form of
a portable or virtual calculator is disclosed. An apparatus
set-up for on-line in situ testing of piles employing the
method comprising a portable computer, data acquisition
module and transducers is also disclosed.**15 Claims, 4 Drawing Sheets**

Appendix 2 of 2

2007~2017

New Static Pile Test

YJACK Research Findings



US010151076B2

(12) **United States Patent**
Wai

(10) **Patent No.:** **US 10,151,076 B2**

(45) **Date of Patent:** **Dec. 11, 2018**

(54) **APPARATUS FOR BI-DIRECTIONAL LOAD TESTING OF DRIVEN PILES AND INJECTION PILES, AND METHOD THEREOF**

(71) Applicant: **WILL N WELL PROPERTY SDN BHD**, Negeri Sembilan (MY)

(72) Inventor: **Yee Kong Wai**, Kuala Lumpur (MY)

(73) Assignee: **WILL N WELL PROPERTY SDN BHD** (MY)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 252 days.

(21) Appl. No.: **15/121,830**

(22) PCT Filed: **Jan. 30, 2015**

(86) PCT No.: **PCT/MY2015/000007**

§ 371 (c)(1),

(2) Date: **Aug. 26, 2016**

(87) PCT Pub. No.: **WO2015/130158**

PCT Pub. Date: **Sep. 3, 2015**

(65) **Prior Publication Data**

US 2017/0073922 A1 Mar. 16, 2017

(30) **Foreign Application Priority Data**

Feb. 26, 2014 (MY) PI 2014000539

(51) **Int. Cl.**

G01N 3/00 (2006.01)

E02D 33/00 (2006.01)

(Continued)

(52) **U.S. Cl.**

CPC **E02D 33/00** (2013.01); **E02D 7/02** (2013.01); **G01N 3/10** (2013.01);

(Continued)

(58) **Field of Classification Search**

CPC E02D 33/00; E02D 1/022; E02D 7/02; E02D 2600/10; G01N 2203/0042; G01N 3/10

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,608,169 A 3/1997 Fujioka et al.
7,905,150 B2 * 3/2011 Kranzmann G01N 3/02 73/40

(Continued)

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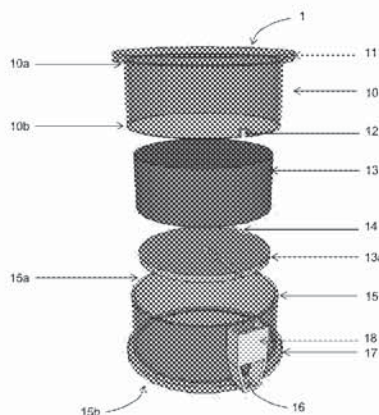
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(57) **ABSTRACT**

An apparatus for carrying out bi-directional load testing of close ended driven piles and injection piles utilizing a hydraulic jack, comprising an enclosure for housing the hydraulic jack (13). The enclosure (1) includes a first hollow body (10) a second hollow body (15). The first hollow body (10) had a covered upper end (10a) and an open lower end (10b), with the upper end being capped by an attached top plate (11) having an external surface (11a) which the lower end (81b) of a first pile (81) may be axially attached to, and an internal surface (11b). The open lower end (10b) has a cut-out (12) originating on the edge of the open end (10b) of the first hollow body for receiving a hydraulic connection (14) for the jack (13). The second hollow body (15) is capable of housing the hydraulic jack (13), has an open upper end (15a) and a lower end (15b). The lower end (15b) is capped by an attached base plate (17) having an external

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(12) **United States Patent**
Wai

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(45) **Date of Patent:** **Jan. 1, 2019**

(54) **APPARATUS FOR BI-DIRECTIONAL LOAD TESTING OF DRIVEN PILES AND INJECTION PILES, AND METHOD THEREOF**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/124,661**

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Foreign Application Priority Data

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(51) **Int. Cl.**
G01N 3/10 (2006.01)
E02D 33/00 (2006.01)
E02D 7/02 (2006.01)

(52) **U.S. Cl.**
CPC **E02D 33/00** (2013.01); **E02D 7/02** (2013.01); **G01N 3/10** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC E02D 33/00; E02D 1/022; E02D 7/02; E02D 2600/10; G01N 2203/0042; G01N 3/10
See application file for complete search history.

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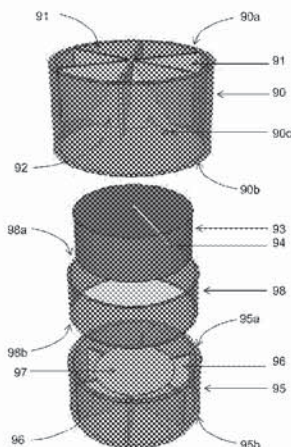
Primary Examiner — Blake A Tankersley

(74) *Attorney, Agent, or Firm* — Renner Kenner; Greive Bobak; Taylor & Weber

(57) **ABSTRACT**

An apparatus for carrying out bi-directional load testing of close ended driven piles and injection piles utilizing a hydraulic jack, comprising an enclosure for housing the hydraulic jack. The apparatus includes a first hollow body, a second hollow body and a third hollow body. The first hollow body has an open upper end, an open lower end, and a base for attaching the top of the hydraulic jack. The second hollow body has an open upper end, an open lower end, and a base for attaching the base of the hydraulic jack. The third hollow body has an open upper end and an open lower end, and has an inner diameter corresponding to the outer diameter of the first hollow body and the second hollow body, the third hollow body being capable of being axially received by both the first hollow body and the second hollow body.

6 Claims, 10 Drawing Sheets

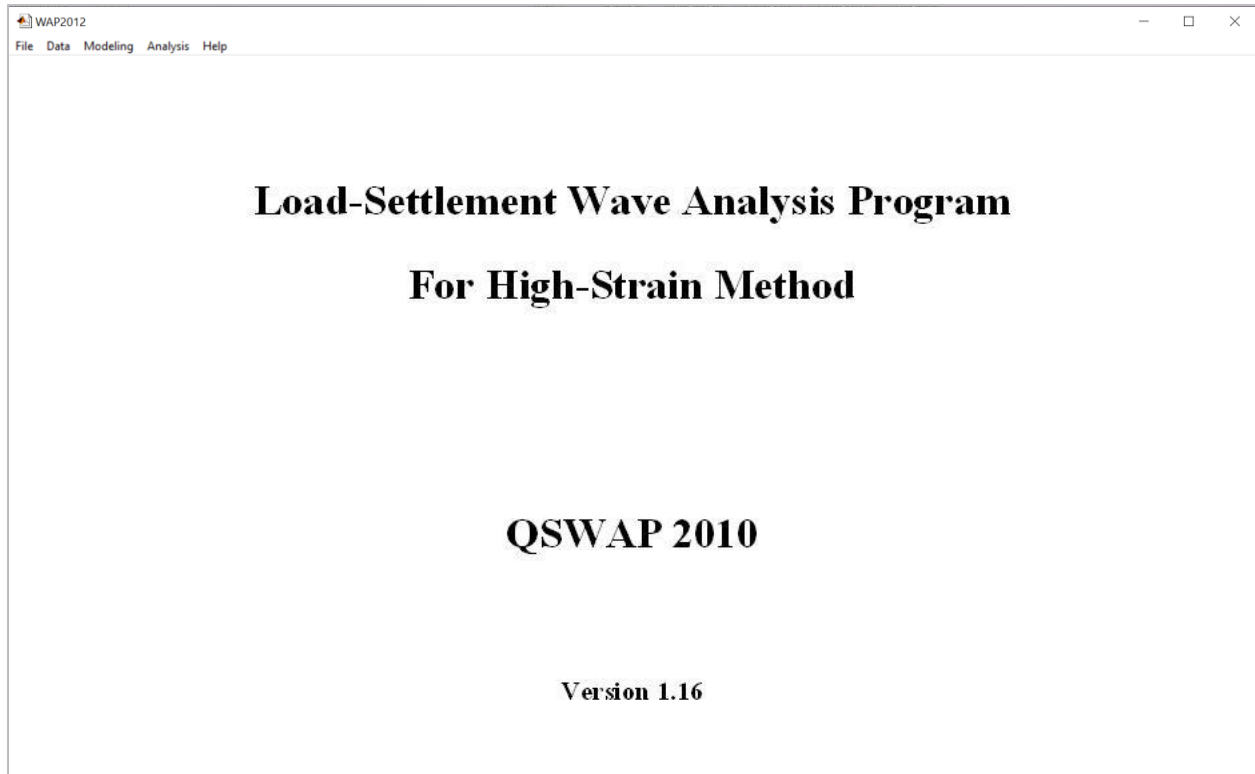


Pile Analysis Software Copyrights

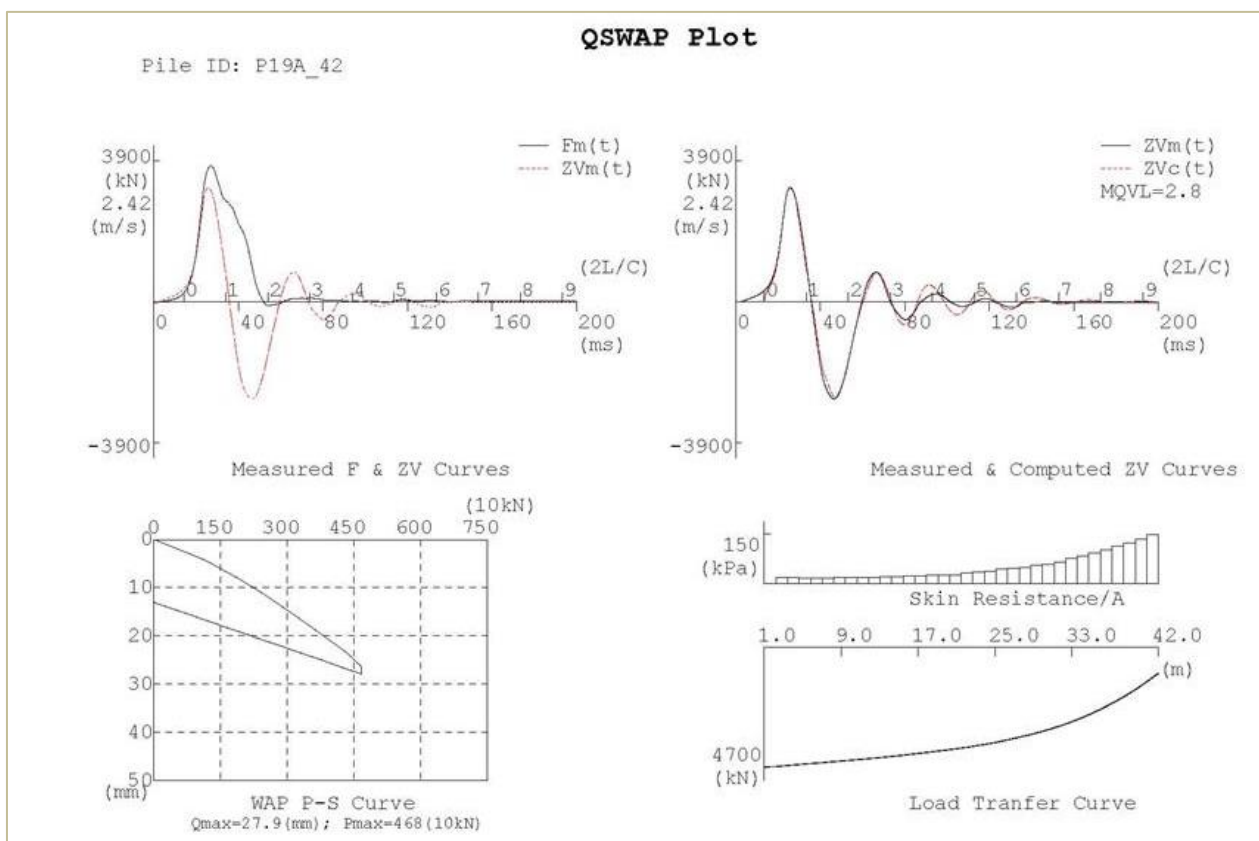
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QSWAP

Pile Analysis Software to perform simulation analysis based on dynamic high-strain test data.



This software is equivalent to CAPWAP with smaller pile segments and incorporated soil model in performing analysis.

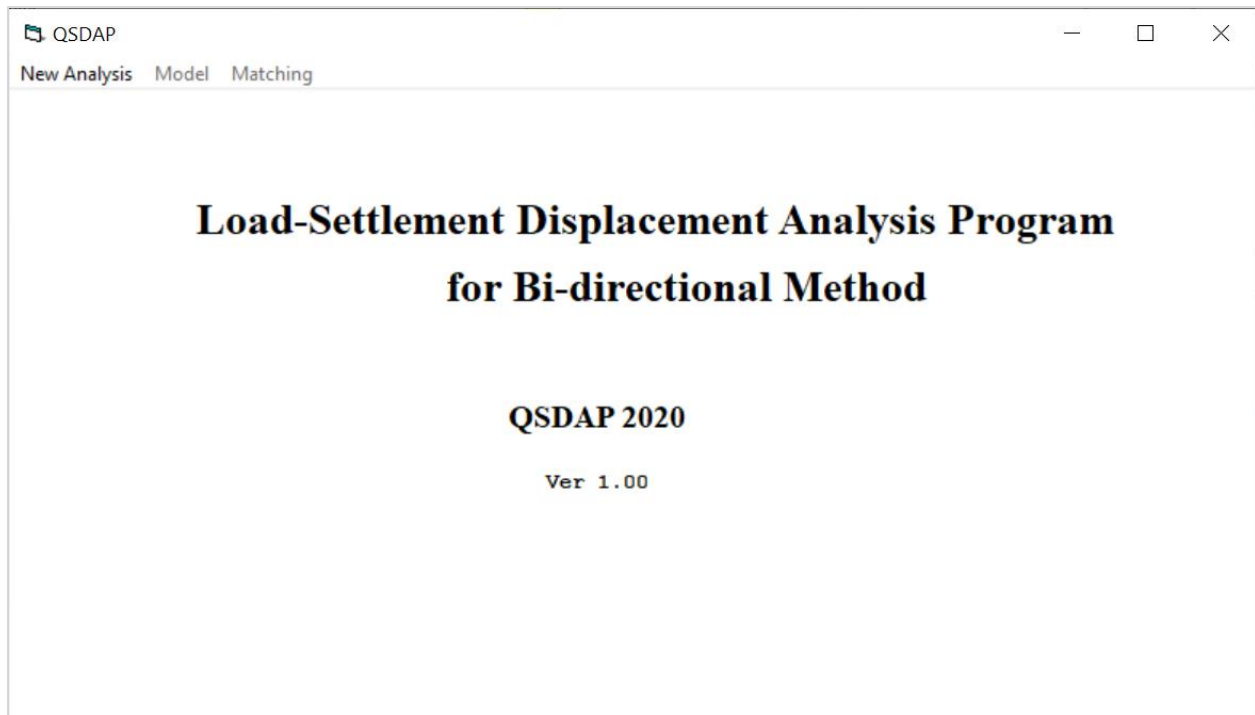


Pile Analysis Software Copyrights

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QSDAP

Pile Analysis Software to perform simulation analysis based on static bi-directional test data.



This software is the first software in the world to obtain load-settlement ($Q\sim S$) plot based on bi-directional test data.

