DEPARTMENT OF BUILDING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

THE CONSTRUCTION PILE FOUNDATION AT MOSQUE IN KLANG

Prepared by:

MUHAMMAD AZWAR BIN MOHD.ASHAARI

2019278072

DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

FEBRUARY 2021

It is recommended that the report of this practical training provided

By:

MUHAMMAD AZWAR BIN MOHD.ASHAARI

2018640172

Entitled

"THE CONSTRUCTION PILE FOUNDATION AT MOSQUE IN KLANG ."

be accepted in partial fulfilment of requirement has for obtaining Diploma in Building.

		_____
Report Supervisor	:	Cik Nor Azizah binti Talkis
		_____
Practical Training Coordinator	:	Dr Nor Asma Hafizah binti Hadzaman
		_____
Programme Coordinator	:	Dr.Dzukarnaen bin Ismail

DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

FEBRUARY 2022

STUNDENT DECLARATION

I hereby declare that this report is my own work, except for extract and summaries for which the original references stated herein, prepared during a practical training session that I underwent at JKR Hulu Terengganu for duration of 20 weeks starting from 23 August 2021 and ended on 7 January 2022. It is submitted as one of the prerequisite requirements of BGN310 and accepted as a partial fulfillment of the requirements for obtaining the Diploma in Building

……

Name :Muhammad Azwar bin Mohd.Ashaari

Uitm Id No : 2019278072

Date : 10.1.2022

ACKNOWLEDGEMENT

Alhamdulillah, praise to Allah, the Most Merciful, the Most Graceful. I would like to extend my heartfelt gratitude for the guidance, advice and help rendered throughout the period of training by the following group of amazing individuals. First and foremost, I would like to thank Jurutera Daerah, Ir Zaizul Hasham for the opportunity given, to conduct my training in his esteem company. His team of professionals comprising of Ir. Sharifah Zainun, En. Khairul bin Yahya, En Mat Shah, and Pn Faryati binti Kaharuddin, haves enabled me to learn and develop my understanding, knowledge and feel of real time projects, and the theory involved in analysis of structures, building and civil works. They are also responsible towards streamlining and assessing my training.

It is an honour for me to be given the opportunity to 'work' with all of you. I would also like to thank all the UiTM lecturers that have taught and nurtured me in becoming a better student and person. I would also like to extend my deepest appreciation to the lecturers who are directly involved during my training. To Cik Nor Azizah binti Talkis my lecturer supervisor, Dr Nor Asma Hafizah binti Hadzaman practical training coordinator and Dr.dzukarnaen bin Ismail programme coordinator. I value the time, effort, encouragement and ideas that they have contributed towards the successful completion of my training, this report and the valuable knowledge that have been shared over the last few semesters. Last but not least, my special thanks to my beloved parents for their sacrifices over the years. Thank you so much.

ABSTRACT

Foundation is the important element of a structure which connects it to the ground, and transfers loads from the structure to the ground. Therefore, this report will discuss about the method for the construction of foundation for the building of school based on practical training. This case study is about building a pile foundation for mosque. The objective of this report is to investigate the construction process of pile that can be broadly characterized by the installation and testing. It will focus on their methods of construction that provides an economical for the environments. To show the importance of a deep foundation as a key component in achieving building design goals, and then to assess the building's workability in terms of meeting JKR's building specifications. This report will also look at the safety of driven pile installation from the Dynamic Pile Testing to prevents pile damage that will gives a better impact for the contractor in the future.

CONTENTS **NO.PAGE.**

LIST OF TABLE

LIST OF FIGURE

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Foundation is the important element of a structure which connects it to the ground, and transfers loads from the structure to the ground. It also can be defined as all structure below the superstructure which in general terms is considered to include all structure below ground level. The foundation is important because it needs to support the building. A good foundation is the foundation which has a strength and stability.

The combination of dead, imposed and wind loads on a building must be transmitted to the ground safely, without causing deflection or deformation of the building or movement of the ground that would harm the stability of the building and neighboring structures. Foundation should also be designed and constructed to resist any movements of the subsoil. Moreover, foundation should be designed so that any settlement is both limited and uniform under the whole building. This settlement should be limited to avoid damage to service pipes and drains connected to the building.

There are two types of foundation in construction which is Shallow Foundation and Deep Foundation. Shallow foundation are those founded near to the finished ground surface, generally where the depth is less than the width of the footing and less than 3 metres. It is used when surface soils are sufficiently strong and stable to support the imposed loads. They are generally unsuitable in weak or highly compress soils, such as poor compacted fill, peat and so on.

Shallow foundations are including pad foundations, strip foundations and raft foundations. For the deep foundation, it is found too deeply below the ground surface for their base bearing capacity to be affected by surface conditions, this is usually at depths more than 3 metres below finished ground level. They include piles, piers and caissons or compensated foundations using deep basements and also deep pad or strip foundations.

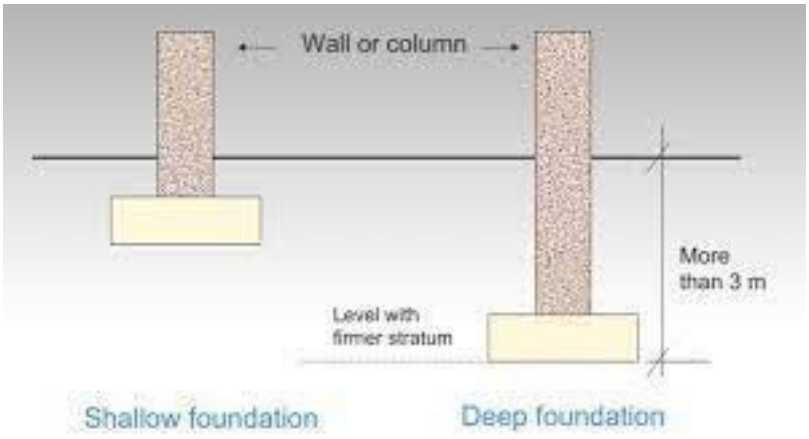

Figure 1.1: Figure of Shallow and deep Foundation

(source : Internet)

For this report, we will be focussing on a piled foundation as a deep foundation. The construction process of pile can be widely characterized by the installation and testing. However, there are many types of piles and the testing process for each type differed. The advantages of using the concrete piles types include high load capacities, corrosion resistance and resistance to hard driving (Pile Foundation in Engineering Practice, 1990).

1.2 Objective

I. To investigate the methods of jack-in drive for spun pile works, pre bore works, pile cut-off and pile cap works.

II. To identify the methods of test pile works and determined workability of piles.

III. To discuss the methods of concreting works for pile caps and column stump.

1.3 Scope of study

Figure 1.2: Location of project
(source: Internet)

This project is located in the Jalan Langat, Bandar Bukit Tinggi, Klang. This project under project is under department of building where it is parallel to my diploma studies. For my practical training, I have decided to focus mainly the construction of pile foundation and testing of pile's workability. This studies is about how to construct and handle pile foundation. In this studies also including the types of material, machineries that used in pile construction.

The outcomes of this practical training are to know how the pile works running in a proper ways according to the specification from JKR. Furthermore, gaining experienced to handle the work or services to be faced. Therefore, it will provide new knowledge on the in and out of how to handle the task. Lastly, it will build a quality professionalism and ethics to become an efficient, motivated and responsible and also providing adequate opportunities for employers in the industry to recognize the potential of students and improve graduates' employment upon graduation.

1.4 Method of Study

In this practical training, the method of study that I have use for data collection is from my observation. I have observed for the methods of constructing the piling work and the foundation at site. This observation is going on in the period of the practical training, 20 weeks. In 20 weeks, I gain more knowledge from the site. I have been recorded my observation by using written notes and snap the picture on site. In addition, I have been studies the construction drawing which are piling drawing plan and building drawing plan.

CHAPTER 2

COMPANY BACKGROUND

Figure 2.1: Company's Logo

(source : Internet)

2.1 Introduction of Company

JKR Klang is given the responsibility to maintain the entire Klang area which includes offices, residential houses, hangars, electrical substations and other infrastructure. The infrastructure such utility facilities including water supply, roads, sewage systems, electrical systems, building service equipment and mechanical equipment. JKR has provided better infrastructure and environment for daily life.

JKR is also responsible in building roads as one of the means of communication which is a major catalyst in the socio-economic development of the country. Apart from that, JKR is also responsible for providing clean and safe water to create clean and healthy citizens. In the effort to develop the country, the architectural aspects that symbolize the heritage and culture of Malaysians are never forgotten. Therefore, some of the buildings that have been built have been accepted as landmarks of our country. JKR is proud to be a contributor in the development of Malaysia.

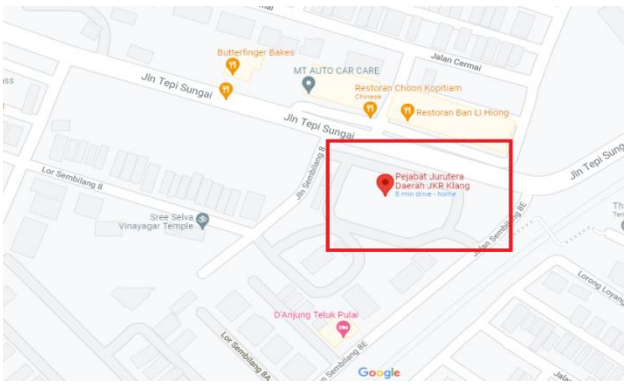

Figure 2.2: Location of the company

Vision

We will be a world-class service provider and center of excellence in asset management, project management and engineering services for the development of the country's infrastructure through creative and innovative human capital and the latest technology.

Mission

JKR contributes to the development of the country through:

a) Assist customers in delivering policy and service results through strategic partner collaboration
b) Standardization of processes and systems for consistent delivery of results
c) Provide effective and innovative asset and project management
d) Strengthen existing engineering competencies
e) Develop new human capital and competencies
f) Adhere to integrity in delivering services
g) Build harmonious relationships with the community h) Preserve the environment in service delivery

2.2 Company Profile

Name:	Jabatan Kerja Raya Daerah Klang
Established:	1980
Address:	No 1, LORONG SEMBILANG 8E, OFF JALAN TEPI SUNGAI 41400 KLANG, SELANGOR
Email:	Klang@jkr.gov.my
Contact/Fax:	03-3371 4040/03-3372 7490

JKR Klang is divided into three parts which is follow:

a) Administration division
b) Building division
c) Road division

2.3 Company Organisation Chart

JKR Klang has many times succeeded in satisfying its clients, it is all thanks to the strong cooperation from its line of experienced employees in various fields. Figure 2.3.a shows the organizational chart of this company.

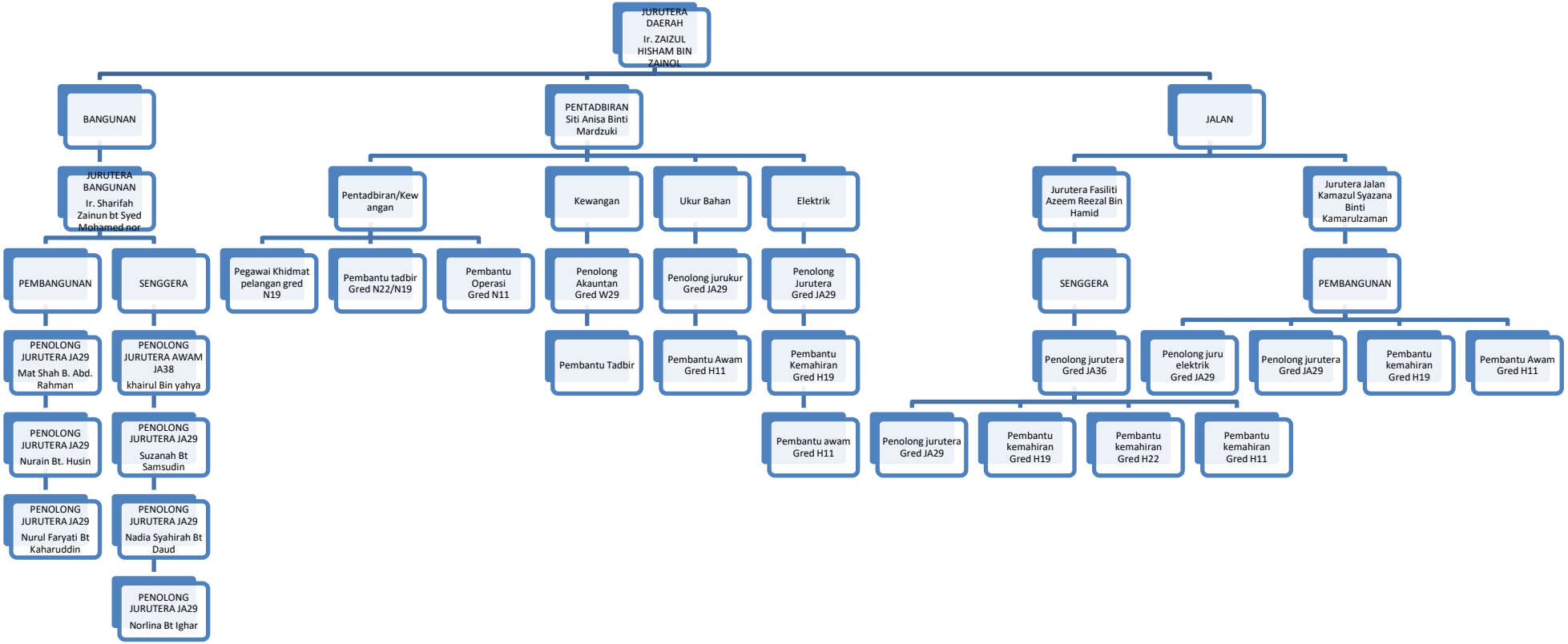

Figure 2.3: Organizational Chart or JKR Klang

2.4 List of Project

As mentioned before, JKR Klang has satisfied many of their clients. Table 2.1 shows some of the completed projects and Table 2.2 show the current projects that still in progress.

Table 2.1: List of Completed project

NO.	Project title	Client	Project value	Date of commence	Date of completion
1.	Kerja-kerja pembaikan tangga Luaran blok A , B,C dan D serta kerja-kerja berkaitan di Ibu Pejabat Jabatan Laut Malaysia,Pelabuhan Klang, Selangor	Jabatan Laut	341,080.10	1.6.2021	23.8.2021
2.	Kerja-kerja Pembaikan kerosakan Pejabat JKR Klang Termasuk Lain-lain kerja berkaitan	JKR	16,651.48	27.10.2021	10.11.2021
3.	Kerja-kerja Pembaikan Kuaters JKR seta lain-lain kerja berkaitan	JKR	63, 094.00	22.07.2021	15.9.2021
4.	Kerja-Kerja pembaikan kuaters kampung Seri Alam Istana Alam Shah serta kerja-kerja berkaitan	JKR	84,222.00	17.8.2020	9.11.2020
5.	Kerja- kerja gantian tandas dan membaik pulih bumbung Blok G dan E di SK (2) Simpang Lima Pelabuhan Klang,Selangor Darul Ehsan	Kementerian Pelajaran Malaysia	582,542.60	10.8.2020	09.11.2020
6.	Kerja-Pembaikan di Pejabat Jabatan Perikanan Pelabuhan Klang, Selangor Darul Ehsan	Jabatan Perikanan	42,475.70	14.9.2020	26.10.2020

Table 2.2: List of Project in progress

NO.	Project title	Kontraktor dan harga kontrak	Tarikh mula dan siap
1.	Kerja-Kerja Menaiktaraf dan ubahsuai tiga 3 Unit kuarterslaluan longkang utama dan kerjakerja berkaitan di imigresen pelabuhan Klang,Selangor.	Checker Enterprise 191,441.00	12.10.2020
2.	Menaiktaraf Gelanggang Futsal dari terbuka kepada tertutup termasuk Lain-lain kerja berkaitan	JKR RM500,000.00	21.8.2020
3.	Menaiktaraf Dewan Serbaguna JKR Klang (Soundproof dan PA system)	JKR RM200,000.00	21.7.2020
4.	Menaiktaraf Lift dan penyenggaraan rumah Pam di kuarters JKR	JKR RM180,000.00	21.7.00
5.	Kerja-kerja pemasangan pagar sementara (hoarding) di Kuarters Kerajaan Pekan Kapar	JKR RM20,000.00	21.7.00

CHAPTER 3.0

CASE STUDY

3.1 Introduction to Case Study

During the courses of internship with Jabatan Kerja Raya Kang, I have been placed to project **'Cadangan membina sebuah bangunan masjid cina jamek cina muslim, Klang, Dearah Klang, Selangor darul ehsan.'** The site of this project is in the middle of Klang

The project was awarded to Hydrotech Consultant Sdn. Bhd thus making it the main-contractor of the project. At site, I along with the site supervisor and safety officer oversee the working on site. I have been instructed to oversee the piling work to make sure that the workers do the job properly according to JKR specification, checking the welding for the connection of piles and recorded the depth of pile injected. Furthermore, I also oversee the concreting work such as make sure slump test is not failed. If slump test was failed, the mixture of concrete will be rejected.

To sum up, there are many activities in site but my focus is only on the piling work. I also give an extra hand to the contractor if they need anything to accelerate the progress of the site

3.2 Piling work

Piles, along with piers and caissons, are the most common types used in construction of deep foundations. Piles are the most important part in construction works, as it will carry and support load on its own. If the piles are not strong or sufficient enough to support the load, the structure will be collapse for sure. The most common piles used in construction are spun piles, square piles and bore piles. In this construction, type piles use is spun pile with diameter 350mm and using Oslo shoe type. There are 3 length piles used in this project 6m, 9m and 12m.

Figure 3.1: Oslo pile shoe.

Figure 3.2: Extension Pile

3.2.l Jack-in Drive Pile Work

Figure 3.3: Jack-in Drive Machine
(source: Internet)

The jack-in-drive method was used for piling, and this is the jack-in-drive method's construction sequence. First, the work area as well as the designated pile locations were thoroughly surveyed. Ensure that both hydraulic and static pile-driving equipment was deployed on the construction site. Then, at the designated points, 350mm diameter spun piles are unloaded. The spun pile then lifted at the one end the

upper lifting eyes and slowly lift up to vertical position before inserting it into the machine. After the pile was gripped firmly, vertically check will be done using spirit level and hydraulic stabilizers is used to adjust the verticality. The jack-in force is then applied up to the required pressure, which is determined by the pressure gauge's corresponding hydraulic pressure. Each spun pile must be continuously jacked-in until the required resistance or penetration is achieved. After the initial pile was installed and if an extension pile is required, it will be extended by means of butt welding the steel plates on the pile heads. After welding is done, it will be let cool before applying a coat of anti-rust paint or equivalent. Piling there commences until the set is achieved. The set criteria is achieved when there is no settlement after the jack-in drive pressure applied for 5 seconds. This set of criteria was confirmed once more by applying the required force three times in a row, each for five seconds, as described above. The piles are then considered set. Finally, once the set has been achieved, the pile's head will be cut off at the marked level.

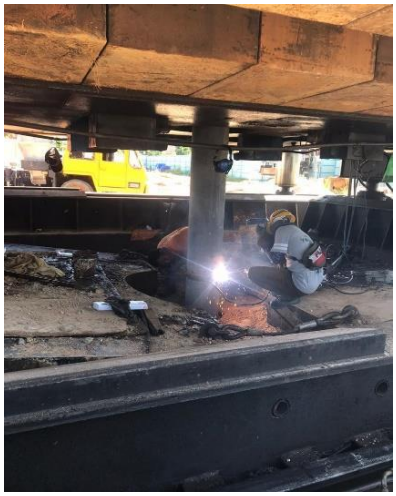

Figure 3.4: Welding process

Figure 3.5: Connection between two piles

3.2.2 Pre-bore

The pre-boring method is a method of digging up to a predetermined depth with an excavator such as an auger or a rod, and then installing and inserting a pile into the hole.

Figure 3.6: Pre-Bore works

(Source: Internet)

The point of the pre-bore is surveyed properly by licensed survey following the construction drawing and contract specification. The platform prepared and levelled properly for boring plant and piling frame to move in for boring and driven works. The boring machine are to the pile points. The auger is then placed just above the pile points and vertically should be checked by means of 2 plum bob at the right angle. The verticality is checked again to make sure that the auger are as vertical as possible and constructed within the specified tolerance. Then, the auger is lowered and operation commences. Pre boring pile is required to punch through the hard layer. Pre bore hole shall be slightly bigger than spun pile size, i.e. 50mm bigger than spun pile size. After installing and the pile is set using piling machine, the gap between the pre boring hole and spun pile are filled with excavated material or sand.

3.3 Test Pile Works

Test is performed on the construction of projects using piles in piles in the formation of building foundation. When the building's load is too great, or the top layer of soil at a low-bearing-capacity building site, a pile foundation is used. The building's weight had to be transferred to a solid layer of soil buried deep underground. Load testing is not required for construction projects that do not use piles. The purpose of a test pile is to determine the ultimate bearing capacity as well as the structural integrity of the pile. In addition, investigate the load-pile foundation relationship.

3.3.1 Maintained Load Test (MLT)

After all the piling works are finished and the pile head are cut off. The piles as selected by S.O will be prepared for MLT. A mild steel plate will be mounted on the top of the pile head to accommodate the loading and settlement measuring equipment to prevent any damage to the piles due to the concentrated load from the loading equipment. The plain surface of the mild steel plate must be normal to the vertical axis of the pile, so that the test load will be distributed evenly to the test pile.

Figure 3.7 Mild Steel Welding

The load test shall be considered as passed if the settlements are less than the following (or as per engineer requirement).

a) Settlement working load shall be less than 1.5mm
b) Settlement at twice working load shall be less than as 38 mm
c) The residual settlement after unloading shall be less than as 6.50mm

The load applied in increment of 25% of the working load up to 2.0 times working load. The load increment and time interval for load is as follows:

a. Load to 25% and maintain for two hours
b. Load to 50% and maintain for two hours
c. Load to 75% and maintain for two hours
d. Load to 100% and maintain for two hours
e. Load to 125% and maintain for two hours
f. Load to 150% and maintain for two hours
g. Load to 175% and maintain for two hours
h. Load to 200% and maintain for twenty-four hours
i. Unload to 150% and maintain for two hours
j. Unload to 100% and maintain for two hours
k. Unload to 50% and maintain for two hours
l. Unload to 0% and maintain for two hours

The load testing equipment is fully set up on solid ground. The hydraulic jack must be placed directly on top of the mild steel plate's centroid. The loading cycle, loading increment, and holding time are all taken from the attached load cycle calculation. Pressure conversion table, pressure gauge calibration certificate, and dial gauge calibration certificate must be submitted to S.O for approval. Four dial gauges will be used to track the movement of the pile head. The dial gauges must have a 50 mm travel and be graduated at 0.01 mm per division. The dial gauges must be placed at right angles to each other and at an equal distance from the test piles' centre.

3.4 Pile Caps

A pile cap is a structural element that is used to transmit load to the piles. The size of the column to be built determines the size of the pile cap, ensuring that it is capable and strong enough to withstand the loads. After the piles have been installed, a pile cap is built on a group of piles. Individual pile forces are significantly affected by pile cap flexibility, as are bending moments and shear forces in individual piles, despite the fact that pile displacement is not significant.

Size of pile cap and the reinforcement bar, is designed by engineer, after computing all the loads involved and after considering factor of safety for the buildings. The determination of pile cap size and type of reinforcement bar to be use can be considered as crucial, as it carries load from above structures before transmit it to the piles. If miscalculation occurs, pile cap can crack, and can cause the building to collapse.

3.4.1 Cut-off Level

Before construction of pile caps start, the contractor must check and verify the cut-off levels of all piling works are exactly as shown in provided drawings. The contractor must straighten the reinforcement bar above the piles for anchoring pile caps, carry out excavation, erects formwork and temporary timbering for the construction of pile caps and ground beams.

Figure 3.8: Excavation for pile cap

Figure 3.9: Pile Cut-off

3.4.2 Lean Concrete

Lean concrete is used in order to produce a smooth surface for structures, before ready mix concrete is poured. Lean concrete is normally used for structures that lie on the ground, such as pile cap, ground beam and ground slab. Lean concrete shall consist if cement, fine aggregate and coarse aggregate in ratio of 1:3:6 and 1:4:8 respectively. Lean concrete is not laid in much thickness, and ranging from about 50mm - 100mm, and basically the grade used is much lower since it does not used to sustain load. Normally, the grade used for lean concrete is G15 or G20.

Figure 4.1: Example of lean Concrete
(source: Internet)

3.4.3 Formwork

Formwork is defined as temporary or permanent moulds into which concrete or similar products are poured. Formwork comes in a variety of shapes and sizes, but the most common and widely used type is timber formwork. Timber formwork is made up of a combination of wood and plywood. Formwork cannot be removed until all concrete work has been completed and the concrete has hardened sufficiently. Formwork must be removed without too much shock or vibration as it can cause damage to concrete. Certain time period shall elapse between placing of the concrete and the removal of formwork, in order to allow curing process occurred for the structures. Soon after the removal of formwork, the contractor must take measurements in order to check the reinforced concrete works from specified dimensions as shown in drawings.

Figure 4.2: General Working installing Formwork

3.4.4 Reinforcement

Reinforcement bar (rebar), or sometimes known as deformed bar, is a common steel bar used widely in reinforced concrete and masonry works. Rebar consists of hot rolled mild steel and high yield bars that have fulfilled the requirements. Rebar is used to give concrete tension strength, as concrete is strong in compression but weak in tension. The presence of rebar will result in concrete with high compression and tension strengths, which will improve workability and load bearing capacity. All reinforcing bars, links, spacer bars, and other steel reinforcement parts vary in number, size, length, shape, type, and position depending on the size and function of the structures, and must be installed according to the drawings provided. Before the concrete is poured, a JKR officer will inspect the reinforcement bar.

Figure 4.3: Rear in the pile cap formwork

3.4.5 Concrete Work

Generally, concrete mixture can be classified as two ready mix concrete or cast-in situ. Ready mix concrete is used because it is much easier to handle, and can save time and labour work. Ready mix concrete is produced by a supplier for delivery in a plastic state. The materials of the concrete are batched, either dry or wet at a control plant, and delivered in purpose-made agitators operating continuously. Ready mix concrete must fulfill the requirements of designed mix.

To maintain the quality of the concrete, no additional water or admixtures are allowed to be added after it has left the plant. To avoid segregation or loss of constituents, and to maintain the required workability of the concrete, it must be transported to the site as quickly as possible. Right after the concrete arrived at the site, the concreting works must be commenced and delay shall be avoided to prevent concrete from hardeningand to preserve the quality of the concrete. If the concrete starting to harden, some amount of water must be added in order to liquefy the concrete mixtures, and hence, will affect the strength and workability of the concrete. Before pouring concrete into the formwork, Slump Test is required. Vibrator is a tool used in concreting works, to spread the concrete over to ensure that concrete does not centered at certain points only. Good vibration can avoid defect such as honeycomb and pores from occurred, due to unbalanced vibration works

Figure 4.4: Slump test

Figure 4.5: Vibrator (source:Internet)

3.4.6 Cube test

Cube test is one test of a kind which conducted to determine the compression strength of concrete, and it can be applied to various structures; columns, beams, slabs, stump and whatsoever. Concrete cubes are prepared on site by laying three layers of concrete mixtures in several 150mm x 150mm moulds. Later, all the cubes will be sunk in a water tank in to undergo a curing process. The purpose of curing is to make sure that all the concrete has reached its permeability in absorbing moisture, so that any moisture can't penetrate into the concrete. Usually, the cubes are tested at 7 and 28 days from the date of produce.

Figure 4.6: Example of cube test

3.4.7 Anti-termite

Termiticide chemicals are used for structures that have contact with ground surface. It shall be applied to the pouring concrete, in accordance with manufacturer's recommendation and label instructions. Treatment shall not be performed just before or after heavy rain, unless the treated area is protected, in order to avoid leaching and runoff before the termiticide chemical bound to soil. Soon after the chemical is sprayed, all surfaces that exposed to direct sunlight or rain shall be covered with an impervious black PVC sheet of minimum thickness of 0.08mm, to avoid or reduce the loss of chemical due to UV light, alkaline wet concrete, leaching and runoff which caused by rain on exposed treated soil.

CHAPTER 4.0

CONCLUSION

For almost 20 weeks of my industrial training here, this practical was exposed to real construction world, besides obtaining precious knowledge, experience and good memories with those who involved. During my training, I have learnt much about construction stages, including the tests involved, though I didn't have the opportunity to take part in the early stages. This training, apart from learning process at the university, has broadened my view about construction field, though I wasn't interested at all in the beginning. As a conclusion, industrial training should be a good platform for students in exposing and preparing themselves before jump into construction world. Industrial training courses have had a very positive impact to improve the quality of work. The experience was gain in learning various techniques such as problem solving, contributing ideas, working in groups, self-discipline and so on. Last but not least, industry training is also able to produce excellent graduates who are always open minded, innovative, communicative and competitive.

For my recommendation, the company must be alert with the trainee educational background, so that they won't be burden with works that stray from their field. Also company must prepare proper modules of training, to ensure that the trainee is capable and have knowledge in doing works. Lastly, the company must give a situation, or problems related to construction, and guide the trainee in solving them, in order to develop problem solving skills, as it might be different from what the trainee has learnt in class and in the real construction world.

REFERENCE

1. Zuraidah Bakar (2015). *Projek Pembinaan Bangunan* [Online]. Available: http://zuraidahabakar07.blogspot.com/2014/08/ujian-beban_1.html

2. Jabatan Kerja Raya Standard Specification for Building Works 2005 https://www.jkr.gov.my/spb/

3.William F.Van & Peter Van Impe (2008) Deep Foundations on Bored and Auger Piles - BAP V: Proceedings of the 5th International Symposium on, *CPC Press*

APPENDICE


29 Sep 2020 10:58:35
136477 Jalan Kebun Nenas
Bukit Naga
Klang
Selangor


JABATAN KERJA RAYA SELANGOR
JKR
SELANGOR
PROJEK:
CADANGAN MEMBINA SEBUAH BANGUNAN MASJID JAMEK CINA MUSLIM KLANG (BANDAR RENDAH KARBON) DI ATAS LOT 157828 DAN 185948 (LOT LAMA 113820), JALAN REMIA 2, AMBANG BOTANIK, 7 KS07, MUKIM KLANG, DAERAH KLANG, KLANG BANDAR DIRAJA, SELANGOR DARUL EHSAN.
PELANGGAN:
JABATAN AGAMA ISLAM SELANGOR (JAIS)
PEGAWAI PENGUASA:
PENGARAH JKR SELANGOR
WAKIL PEGAWAI PENGUASA:
1. JURUTERA DAERAH KLANG
2. ARKITEK PENGUASA JKR SELANGOR
3. KETUA JURUTERA MEKANIKAL NEGERI
4. KETUA JURUTERA ELEKTRIK NEGERI
PERUNDING:
1. PACE DESIGN ARCHITECTS
2. HYDROTECH CONSULT SDN BHD
3. SAMUDRA ENGINEERS SDN BHD
4. PZK SDN BHD
5. AG & T PERUNDING KDS SDN BHD
6. RDI PLANNING CONSULTANT
KONTRAKTOR:
TTK ENTERPRISE SDN BHD
TARIKH MILIK TAPAK:
7-7-2020
TARIKH JANGKA SIAP:
2-5-2022
JASA KEPADA RAKYAT