



**DEPARTMENT OF BUILDING  
UNIVERSITI TEKNOLOGI MARA  
(PERAK)**

**PRACTICAL REPORT TITLE  
CONSTRUCTION OF PAD FOOTING AT GONG PAUH,  
KEMAMAN, TERENGGANU**

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**UNIVERSITI TEKNOLOGI MARA**  
**(PERAK)**  
**DECEMBER 2019**

It is recommended that the report of this practical training provided

**By**

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**2017208842**

**Entitled**

**Construction of Pad Footing at Gong Pauh, Kemaman, Terengganu**

Accepted in partial fulfilment of requirement has for obtaining Diploma in Building.

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**(PERAK)**

**DECEMBER 2019**

**STUDENT'S 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 Alam Karya Construction for duration of 20 weeks starting from 5 August 2019 and ended on 20 December 2019 It is submitted as one of the prerequisite requirements of BGN310 and accepted as a partial fulfilment of the requirements for obtaining the Diploma in Building.

.....

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Thank you so much.



## **ABSTRACT**

Malaysia is one of the developing and modern countries that have a good design and unique building that have been built by using many types of foundation. The good and quality of foundation have been rated from material, technique and machine. Therefore, this report will discuss about the pad footing at Gong Pauh, Kemaman, Terengganu. The objective of this report is to identify the various types of pad footing and to determine method of construction for pad footing. This report will also explain the method and procedure of the foundation. Furthermore to complete this report, an observation and interview with the person that involved during the pad footing process. In conclusion, this report will state some specification on pad footing and machine and technique that have been required.

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## CHAPTER 1.0

### INTRODUCTION

#### 1.1 Scope and Background of Study

Foundations which carry and spread concentrated loads to the soil from superstructures is called pad footing. They are usually placed to transfer point loads from the column or framed structures and consists of a concrete block or concrete pad. The pads are usually placed at a shallow depth, but they can also be used as deep foundation depending on the loads to be transferred and condition of the subsoil.

Pad footing may be square, rectangular or circular in shape. If the pad is subjected to a heavy loaded structure, the pad footing may be stepped. The loads from the structure are simply distributed by the pad to the bearing layer of soil. Pad footings are also used to support ground beams.

Pad footings are commonly used for shallow foundations in order to carry and spread concentrated loads, caused for example by columns or pillars. Pad footings can consist either of reinforced or non-reinforced material. For the non-reinforced footing however, the height of the footing has to be bigger in order to provide the necessary spreading of load.

A pad footing is an isolated foundation to spread a concentrated load. Pad footings are generally used to transfer the load from a column, pier or heavy machinery to the ground. The plan shape of a pad footing is usually square. Blinding concrete is a layer of non-structural concrete of about 50 mm thick lay on the earth. It provides a clean and flat platform for steel fixing and form working, and to prevent contamination of the fresh concrete by soil. (R.Chudley, 1987)

As defined, the pad foundation is supposed to spread the concentrated load safely to the bearing stratum. Hence, pad foundation must be designed stiff so that uniform spreading of the load to the soil must happen without making the foundation pressure exceed the permissible bearing stress. This requirement is achieved by either reinforcing the pad or making the pad deep. Both the methods help to spread the force in a predefined angle.



The angle of spreading is determined based on the bearing capacity of the underlying soil and the concrete strength. The size of the pad must be such that tension need to be prevented within the concrete so that no cracking is caused, which will result in failure.

The ability to resist the punching shear is the governing criteria that determine the depth of reinforced concrete pad foundations. Another important factor governing the depth of pad is the ability to resist the bending.

The pad foundation arrangement is mainly dependent on the load bearing capacity of the soil, the structure to be supported, available space and the imposed loads. Based on these factors the “pads” can be arranged as:

- Separate discrete pads
- Base pads that are balanced. This will be supposed more than one-point loads
- Continuous pads
- Series of pads supporting a continuous beam

They are generally of a uniform thickness, but sometimes the upper face may be sloped or stepped. Their plan shape will depend on the nature of the applied load and the allowable bearing capacity of the layers below. Their thickness must be sufficient to distribute the load across the plan shape. They are generally reinforced on all but the smallest structures, with the reinforcement allowing higher loads to be imposed and the construction of shallower pads which require less excavation and use less concrete.

The arrangement of pad foundations will vary depending on the nature of the structure they are supporting, the loads imposed, the allowable bearing capacity of the layers below and the space available on site. They may be:

- A series of discrete, well-separated pads.
- Balanced base pads that support more than one point load.
- Continuous pads, where there are a number of point loads close together.
- Pad and beam, where a series of pads support a continuous beam.

Pad foundations can be selected as they do not require much excavation, and are generally suitable where the bearing capacity of ground is sufficient at relatively low depths. However,

they can be large in plan shape and may not be effective against differential settlement, uplift forces or wind forces.

Pad footing is an alternative to strip foundations for framed structures. They require external walls, separating (party) walls, chimney breasts, piers, internal load bearing or masonry walls and sleeper walls. The material used are cast in-situ concrete (OPC or SRPC) and reinforcement. The thickness is designed to transmit the load at a 45° angle through the pad to minimise tensile stresses on the soffit of the foundation. It transmits the load to the bearing strata through individual foundations. Concrete shall be of a mix design which is suitable for the intended use, items to be taken into account include the strength to safely transmit loads and durability against chemical or frost action. Reinforcement can be added to carry the tensile stresses and required loads. Shear reinforcement can be added to avoid punching failure. It is not recommended for soils with low bearing capacity and should be laid at a depth where the foundation can transfer the required load to good bearing strata. Brownfield site ground may be hazardous therefore the foundation should be designed by an engineer. Designed in accordance with BS 648, BS EN 1991, BS EN 1997-1, BS EN 1992 and BS 10175. NHBC (2011), RIBA (2010), Hodgkinson, A (1986)

The advantages of pad footing are shallow foundation requires little excavation. Next, can be designed to accommodate tight sites, economic due to control of foundation size and concrete mix can use SRPC in place of OPC. The ideal foundation for point loads from framed buildings when bearing capacity of ground is suitable at a shallow depth. (Riley et al, 2009).

Pad foundations are suited to a framed construction however the ground type described in the brief and the heavy load of the 5-storey building would require this usually shallow foundation to be taken deeper to better bearing stratum, thus eliminating the economic advantage of this foundation.

The foundation size would have to be enlarged to cope with the high point loads. Additional costs occur for supporting the excavations to prevent cave-ins. As the site is a brownfield site SRPC may need to be introduced thus increasing the material cost. (Hodgkinson. A, 1986)



## 1.2 Objective

- I. To identify the various type of pad foundation commonly used in building construction
- II. To determine method of construction for pad foundation

## 1.3 Method of Study

The report about road construction has been carried out by using all of these methods:

1. Interview and explanation with site supervisor

The interview has been carried out at project site in Gong Pauh, Kemaman, Terengganu with En. Ubai as a site supervisor of this project. The progress of the project was went well. For the quantity surveyor in this project was carried on by En. Saifullizam, the main manager. This company constructed all lot type of project of construction.

2. Site Visit

The site visit was start on third week practical, 20<sup>th</sup> August 2019. Based on the observation during site visit was the process of pad footing by using a suitable machine and method of the pad footing.

3. Book

This method use for additional information and reference about pad footing.

4. Internet

Internet is use for searching to get more additional information, idea, confirmation and reference to complete this report.

## CHAPTER 2.0

### COMPANY BACKGROUND

#### 2.1 Introduction of company

Alam Karya Construction is a registered sole proprietorship of Bumiputera companies with the Companies Commission of Malaysia under the business registration act 1956, which carry out general construction work, renovate buildings, install mosaic, concrete imprint and laminated floor. The company is also registered with the Board Construction of Malaysia - CIDB as a qualified contractor with G2 grade qualification capacity. This business was established on the 24th of August 2013 with the 1st Floor, Lot 8479, Taman Seberang Paka, 23100 Paka, Terengganu Darul Iman. As of May 2016, Alam Construction has been building and renovating more from 20 residential homes across Terengganu and Pahang with records excellent in terms of implementation time and no abandoned projects. Business field. The main purpose of the company is to carry out construction related work especially the work of building private bungalows and renovations. Current work record and the former can be referenced on the Facebook / alamkaryaconstruction site. Majority buyer financing is through BPP, MARA, LPPSA and cash. Since its founding, the Natural Construction Company has been supported by energy networks skilled and experienced in real estate and building construction. Armed with these skills and experience, the company is determined and committed to providing effective and viable services can provide satisfaction to its customers, while maintaining prices below current rates it is the motto of the company, the Professional work, the Price of the Village.

Main service:

1. House Designed  
Design your dream home on your own through government or local bank loan financing.
2. Renovation Home  
Home or building renovations are available through our expertise.
3. Internal & Outdoor Decorations  
Mosaic Installation, Wood Decoration, Laminated Floor, Concrete Imprint, Paver Block and so on.

### Design of house plan

Clients decide on the number of rooms, toilets, living space and everything else you want. We will arrange each section through a floor plan. We will build 3D homes according to the design concept specified. We move the details into the architects & engineers' plans. Process for approval of a plan from the local authority.

### Design of house

The process of preparing a specification and quotation of a house according to your budget. The process of preparing documents relating to banks, LPPSAs, statutory bodies and so on. The Home Construction process begins after client's loan is approved. (3-12 months depending on the design and size of the house). Application process for Certificate of Eligibility for Residency (CF).

### SERVICES OFFERED:

1. Build and prepare a residential home.
2. Renovate houses and buildings
3. Manage house plans and affairs with local authorities
4. Electricity supply and home plumbing and drainage services
5. Stem flooring service, concrete imprint
6. Installation of mosaic, paver and laminated Floor.
7. Work on wood interior design work.

## 2.1 Company Profile

Company Name	Alam Karya Construction
Company No .Register	TR0134257T
Date Established	02 April 2014
Register Address	Tingkat1, PT20648 Taman Harmoni Jalan Besar Tebing Tembah, 23100, Paka, Dungun, Terengganu.
Email	alamkarya.construction@gmail.com
No Tel/Fax	
Company Status	100% Bumiputra Holder
Register No SOCSO	FZ8101000108Z
Register No CIDB	0120150904- TR165579
Register No. KWSP	19513270
No. Bank Account	563082109732 – MAYBANK (PAKA) 26304200007397 – RHB (KERTEH)

*Table 1 shows the profile of the company.*

Company official logo



*Figure 1 shows the logo of the company.*

**COMPANY VISION:** To Stand Out As Professional Company With Multipurpose Job In The Business Area.

**COMPANY MISSION:** To Be A Quality And Static Company In Modern Of Construction, Workshop Of Aluminium And Glaze In Malaysia.



## 2.2 Organization Chart

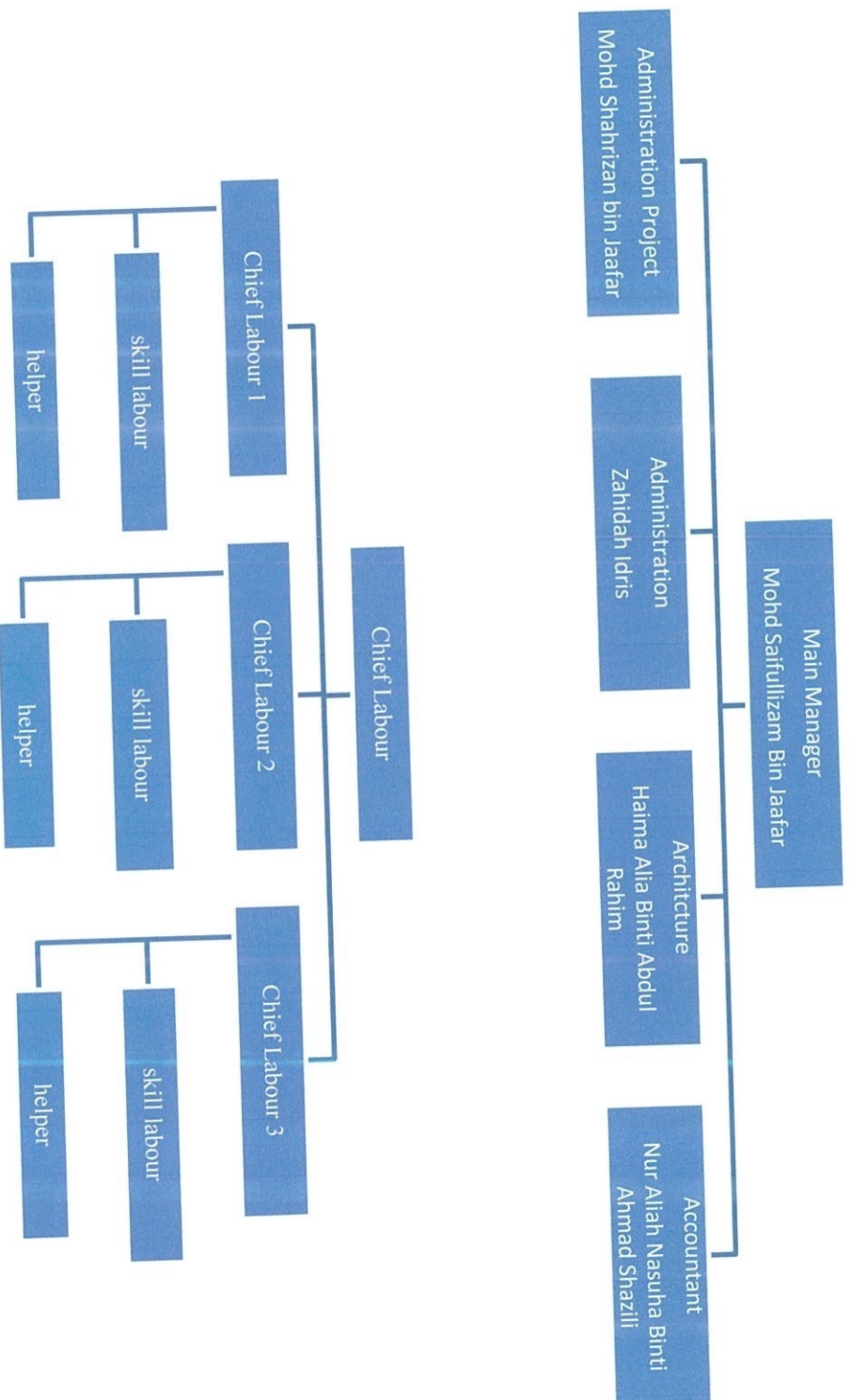


Figure 2 shows the organization chart.



### 2.3 List of Completed Project and On Progress Project.BB

NO	PROJECTS NAME	OWNER	FINANCING TYPE	START DATE	SUBMISSION DATE	PROJECT VALUE
1	UBAHSUAI RUMAH BANGLO SETINGKAT DI LOT 9317, JLN SERI PUTRI, TMN MAS, BUKIT PAYONG, 21400 MARANG, TERENGGANU	ABDUL HADI BIN LONG	CASH	07-02-15	01-05-15	RM19,694.00
2	UBAHSUAI RUMAH BANGLO DUA TINGKAT DI LOT 4300, GM3730, MUKIM SURA, 23000 DUNGUN, TERENGGANU	NAZRI BIN OMAR	CASH	07-09-15	01-02-16	RM115,400.00
3	UPAHBINA RUMAH BANGLO SETINGKAT DI KG. PETAI BUBUS, JERAM, MANIR, KUALA TERENGGANU	MFK DESIGN & CONSTRUCTION	CASH	05-09-15	16-10-15	RM32,000.00
4	UPAHBINA RUMAH BANGLO MAMPU MILIK DI NO. LOT 6683, MUKIM KUALA PAKA (LOT 1)	MFK DESIGN & CONSTRUCTION	CASH	05-09-15	01-01-16	RM34,754.00
5	PEMBINAAN RUMAH BANGLO MAMPU MILIK DI NO. LOT 6683, MUKIM KUALA PAKA (LOT 2)	MOHAMAD BIN ADAM	CASH	27-10-15	01-02-16	RM118,676.00
6	UBAHSUAI RUMAH BANGLO SETINGKAT DI NO PT 8906, JLN ANGGERIK, KG BARU KERTEH, 24300 KERTEH, TERENGGANU	ZAMZURI BIN ZAKARIA	CASH	16-11-15	15-03-16	RM120,000.00
7	PEMBINAAN RUMAH BANGLO MAMPU MILIK DI NO. LOT PT3271, KG BARU TANAH LOT KERTEH, MUKIM KERTEH	MOHD FARRED BIN HADI	CASH	25-01-16	04-07-16	RM118,000.00
8	PEMBINAAN RUMAH BANGLO SETINGKAT DI LOT PT 10991, MUKIM BINJAI, DAERAH KEMAMAN, TERENGGANU	MOHD ZAIDI BIN ISMAIL	CASH	27-02-16	01-06-16	RM220,000.00
9	KERJA-KERJA MEMBINA DAN MENYIAPKAN SEBUAH KEDIAMAN DUA TINGKAT DI LOT 18527, GM12373, KG LAPANG BESAR, MUKIM BATU RAKIT, KUALA TERENGGANU NO. KELULUSAN PLAN : (K) 452/2014	NORIZA BINTI ABDUL RAOF	LPPSA	11-02-16	21-10-16	RM358,400.00

10	PEMBINAAN RUMAH BANGLO SETINGKAT DI LOT B-1339 KAMPUNG TEBAUK 21200 KUALA TERENGGANU	MUHAMMAD AKIB BIN ABDULLAH	CASH	27-03-16	27-09-16	RM 239,000.00
11	KERJA-KERJA MEMBINA DAN MENYIAPKAN SEBUAH RUMAH KEDIAMAN SATU TINGKAT DI ATAS LOT 60315,KG BKT KUKORAN,KEMASEK,KEMAMAN	NORAMANINA BINTI MAT DIN	LPPSA (SUB-CON)	10-08-16	10-05-17	RM220,840.00
12	KERJA-KERJA MEMBINA DAN MENYIAPKAN SEBUAH KEDIAMAN DUA TINGKAT DI PT 4983 JLN MUTIARA MUKIM BINJAI , KEMAMAN	NUR HIDAYAH BINTI MUHAMAD	LPPSA	01-10-16	25-08-17	RM320,000.00
13	KERJA-KERJA MEMBINA DAN MENYIAPKAN SEBUAH RUMAH KEDIAMAN KEKAL SATU TINGKAT, DI ATAS LOT 72693 PM5934, KG RTB GONG TELAGA MAS/BERIL, MUKIM KUALA PAKA DAERAH DUNGUN	NORLIA NARDIAH BINTI OMAR	TUNAI - JV KORAYA BERHAD	01-10-16	25-05-17	RM290,000.00
14	KERJA-KERJA MEMBINA SEBUAH RUMAH KEDIAMAN 1 ½ TINGKAT DI ATAS LOT3145 (GM1714) KG BKT KUANG, MUKIM TELUK KALONG, DAERAH KEMAMAN, TERENGGANU	NORAIZAM BINTI ABDUL MANAF NIK AMIRUL AZRIN NIK RAZALI	PUBLIC BANK	20-11-16	20-06-17	RM230,000.00

*Table 2 shows the List of Completed Project and On Progress Project.*

## CHAPTER 3.0

### CONSTRUCTION OF PAD FOOTING AT GONG PAUH, KEMAMAN, TERENGGANU

#### 3.1 Introduction to Case Study

This project has been located at Lot8161 (GM2651), Mukim Cukai, Daerah Kemaman, Terengganu. This project was owned by Nor Syahida Binti Sulaiman. The area of this site is 45.18ft<sup>2</sup>. This construction one of the big project that this company ever had. The average of total cost around RM900k. The house that contained six bedrooms, four bathroom, kitchen and etc. This construction project use the suitable machine especially foundation process machine for easily to handle and better result. These constructions have being decided to use pad footing as the foundation because of a few factors.

For this case study, the focus will be on the pad footing construction as suitable topic due to process of construction is not very complex and heavy. Furthermore, this pad footing construction is based on schedule of learning. As the figure 3.1.1 shows the red circle is location of construction project addressed Lot8161 (GM2651), Mukim Cukai, Daerah Kemaman, Terengganu.



*Figure 3 shows the location of the site.*

#### 3.1.1 List of Party Involve For Pad Footing at Gong Pauh, Kemaman, Terengganu.

Owner	Nor Syahida Binti Sulaiman
Quantity Surveyor	En. Saifullizam Bin Jaafar
Contractor	En. Saifullizam Bin Jaafar, Alam Karya Construction.
Architect	Che Wan Architect PT3890, Tingkat3 Jalan Sultan Sulaiman 20000 Kuala Terengganu Terengganu Darul Iman.
Director	Jabatan Perancangan dan Pembangunan Majlis Perbandaran Kemaman. Jabatan Kejuruteraan Majlis Perbandaraan Kemaman.

*Table 3 shows the List of Party Involve.*



### 3.2. Types of Pad Footing

Pad foundations are generally rectangular or square foundation to transfer load from structure to the ground. These are provided at shallow depth and are shallow foundations.

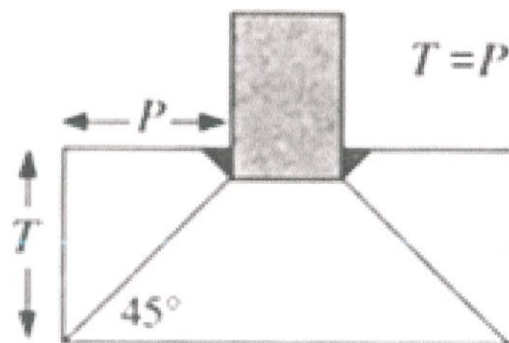
The major types of foundations are:

1. Plain Concrete
2. Reinforced Concrete
3. Continuous Pad foundation
4. Combined Pad Foundation
5. Pad and Ground Beam Foundation

#### 1. Plain Concrete Pad Foundation

Plain concrete pad foundations that do not use reinforcement are an economical solution but only where the applied load will be relatively light. These can also be referred to as footings.

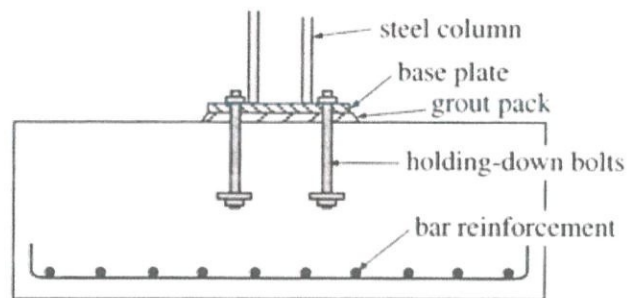
The general rule is that the depth of the pad should be equal to the distance from the face of the vertical element to the edge of the pad on both sides.



*Figure 4 shows the plain concrete pad foundation.*

## 2. Reinforced Concrete Pad Foundations

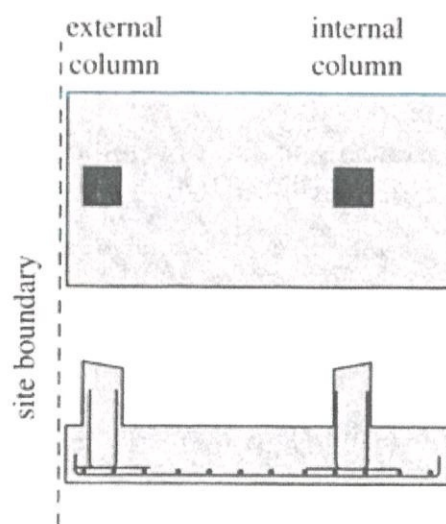
Reinforced concrete enables relatively wide but shallow foundations, often designed to be square plan area to make the reinforcing cage easier to construct and place. Rectangular pads are used for eccentric/inclined loading (longer dimension parallel to direction of inclination/eccentricity). The thickness demanded by these types of foundation will be less.



*Figure 5 shows the reinforced concrete pad foundation.*

## 3. Combined Pad Foundations

Combined pad foundations are adopted close to a site boundary to enable the balancing effect of an internal column to be incorporated. The existence of a service or a utility may restrict the extension of the pad foundation. As shown in the figure above, the pad of the external column will be connected to the internal column pad. This will help to counterbalance the loads coming.

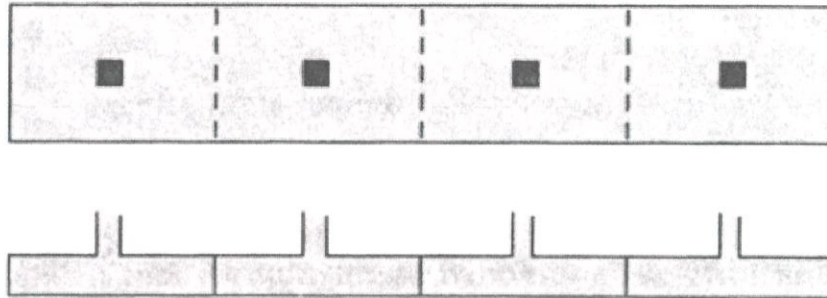


*Figure 6 shows the combined pad foundation.*



#### 4. Continuous Pad Foundations

Continuous pad exists when pads and the columns they support are fairly closely spaced. Extending the reinforcing between pads ensures longitudinal stiffness. This technique helps in resisting the differential settlement.

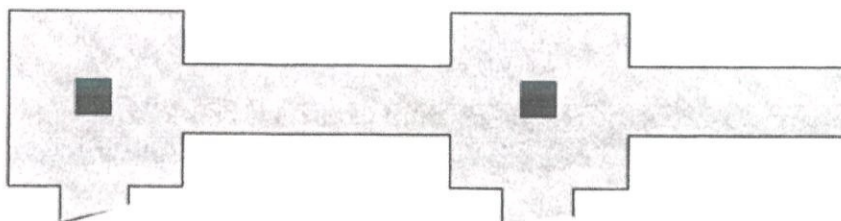


*Figure 7 shows the continuous pad foundation.*

#### 5. Pad and Ground Beam

Pad and ground beam comprise smaller isolated pads are connected by ground beams to provide structural rigidity. This type of foundation and its purpose of use is similar to combined pad foundation. In this case, instead of continuous foundation, isolated pads are connected by ground beams. This ground beams provides integrity and counterbalance the eccentric loads.

Pad foundations are one of the most common and economic foundation systems when loads from superstructure are relatively low. The size of the pad depends on the safe bearing capacity of the soil and the load from the structure. The shape of the foundation depends on the arrangements of columns and other site conditions such as available space for construction.



*Figure 8 shows the pad and ground beam.*

### 3.3 Advantages and Disadvantages of Pad Footing Construction

<b>Pad Footing</b>		
<b>Advantages</b>	<b>Disadvantages</b>	<b>When required</b>
<ul style="list-style-type: none"> <li>• Shallow foundation requires little excavation.</li> <li>• Can be designed to accommodate tight sites.</li> <li>• Economic due to control of foundation size.</li> <li>• Reinforcement for tension and shear can be added.</li> <li>• Concrete mix can use SRPC in place of OPC</li> </ul>	<ul style="list-style-type: none"> <li>• Foundation size can be a very large to cope with high point loads.</li> <li>• Limited foundation suitability to point loads of framed buildings.</li> <li>• Separate foundations make this design weak against differential settlement that may affect the building.</li> <li>• Deep excavations for foundations would require support to prevent caving in.</li> <li>• Weak against uplift forces, wind forces and earthquake forces.</li> </ul>	<ul style="list-style-type: none"> <li>• Ideal foundation for point loads from framed buildings when bearing capacity of ground is suitable a shallow depth.</li> </ul>

*Table 4 shows the Advantages and Disadvantages of Pad Footing Construction*

### 3.4 Method Statement of Pad Footing

DATE: 03 SEPTEMBER 2019 - 19 SEPTEMBER 2019

Pad foundation is the most important structural for any building. Its need be construct professional and detail. Firstly, the construction of pad foundation is excavation process. It will excavates commences from the reduce level, down to the desired level according to specification drawing by architecture (appendix 2) soffit of footing with allowance for thickness of lean concrete. Its required 2 excavators and 2 backhoe for extra lager work and fastest. Every single of excavation need to be check supervisor and engineer for prevent any mistake that will lead to low quality of foundation. This process takes 2 days' operation with required 4 labours in every single of excavation process.



*Figure 9 shows the excavation process.*

After The first stage of excavation is approval. The construction process will be follow up with installation formwork of foundation. The process of formwork need the side of pad footing and supported by other wood to prevent the formwork collapse when the concrete is being pour into it. This process of formwork required a professional carpenter with full equipment such as hammer, nails, and jigsaw. Supervisor need to check-up of every single foundation for any of leakage before concrete pour to the formwork. This process of installation required 2 days with 4 carpenter.



*Figure 10 shows the formwork for pad footing.*



Next of process of construction pad foundation is lean a concrete. This process is to prevent from the bar rebar loose or slip. Then, Lay lean concrete or spacer block (50mm) before Install reinforcement and column stump into pad footing formwork. It's required from engineer using a grade 15 concrete. When the process of lean concrete start supervisor need to be monitor and follow the specification. The labour ensures the concrete is clean from other foreign good. Its required equipment such as vibrator, scapula and other concrete equipment. This process take 2 days where it required the concrete is ready to use for next process. Figure 11 lean concrete is complete and ready for curing.



*Figure 111 shows the process of lean concrete.*

Next if construction back bone of pad foundation is installation of rebar. Rebar is function to provide concrete collapse and give more strength to foundation. Rebar were bent and tied before the whole thing been lowered and placed inside the formwork. Make sure the steel is place properly on spacer blocks, avoid touching the lean concrete below. The sizes of reinforcement are according to architecture drawing (appendix 6). All the specification of rebar will provide by the engineer. This process will used equipment such as hammer, wire and bar bender. This process is heavy duty work, and provided 5 workers with 1 professional bar bender installer. This process will lead about 3 day for completing all the every single pad foundation required. Engineer and supervisor will be check-up the wire tie up and installation of rebar is good before the concrete process in figure 12 show the rebar is placed with a small stone is to prevent rebar directly to soil.



*Figure 122 shows the installation of reinforcement.*

After complete the rebar process, concrete process will be continuing for pad foundation process. Concrete process is to ensure the foundation is good and quality because pad foundation need be strong which is it's be a point of building power. Before the concrete process start the rebar and formwork must be check-up for the last time. Formwork need to lay up with an oil for easy dismantle work later. The process of concrete pad foundation is Pour Concrete for pad footing and vibrating. The vibrating causes the mixture to liquefy, reducing the internal friction of the mix component of cement, aggregate, and water. This allows the mix to move around more easily. Type of the concrete used is grade 30. This concrete work used a vibrator machine for ensure to gap between concrete and bucket crave for easily transfer concreter from concrete lorry to exaction of pad foundation. Concrete processes need a 4 worker and 1 conductor. This process done in 1 day because if take a long time the quality of concrete will reduced and lead to another problem.



*Figure 13 shows the process of pour the concrete using a bucket crane.*



Next the concrete process is done by every single of pad foundation. The concrete must be follow up with the next step is curing process. The curing process is to ensure the concrete is exceeding the maximum hard from liquid to solid. After concrete is placed, the concrete increases in strength very quickly for a period of 7 days. Concrete which is moist cured for 7 days is about 50% stronger than uncured concrete. This process will not required a lot of number labour, 2 labours is enough for this step. Supervisor need to check-up every single of pad foundation with a specification. If there any crack or broke the supervisor needs to be discussing with engineer it might to be rework. If there no reworks do, the foundation might be problem in long time. The equipment will be used in this process such as water jet because the pressure of water is high and good for concrete.



*Figure 14 shows the process of curing.*

Final stage is dismantling work of formwork when the curing process is totally complete. This process is used for the pad need to be enhancing with soil. Dismantle process need to construct properly because is to prevent from any crack or broke that lead to another problem. The pad foundation needs to be clean up before fill back the soil for the good quality. When fill back up soil is done the pad foundation is ready for column process. This process of dismantle required a 4 carpenter with a complete equipment such as hammer, scrapper and other. Dismantle process take a 2 day of process.



*Figure 15 shows the process of dismantle the formwork.*



## CHAPTER 4.0

### 4.1 Conclusion

Foundations which carry and spread concentrated loads to the soil from superstructures is called pad footing. They are usually placed to transfer point loads from the column or framed structures and consists of a concrete block or concrete pad. The pads are usually placed at a shallow depth, but they can also be used as deep foundation depending on the loads to be transferred and condition of the subsoil.

Overall after involvement in the pad footing construction at Gong Pauh, Kemaman, Terengganu, the material, machine and process is one of the major things that used in modern construction. A proper technique for the construction process is a must so that it would not cause problem in the future. A few precaution has been established when the pad footing process start from beginning until end that have need to be more focus.

In completing this report, the method of process pad footing is explained in detail. The pad footing construction starting with clearance of the site, excavate, formwork, install reinforcement, pour concrete, curing. Advantages and disadvantages also are explained in detail. Factors that need to consider before install the foundation are accessibility, condition of ground, nature of the load requiring support, proximity to other structures, water table.

Many machinery are used for pad footing such as, backhoe, excavator, lorry, vibrator, concrete mixer truck, water truck was used while the construction. This equipment and machineries will give new experience and knowledge for student practical according to how to handle and function for each machine. The pad footing constructions also use small equipment like hammer, hoe, nails, wheelbarrow and etc. This situation will attract interest of practical student to learn something new and develop this skill using this equipment for future.

For safety and health, it can be conclude this pad footing site area is need wearing personal protective equipment (PPE).worker are wearing a safety boot, long sleeve shirt, protective cap and glove. Although, there are certain worker not wears personal protective equipment (PPE) and protective clothing. In the term of pad footing there are no injuries or fatal cases.

Therefore, it is recommended to all parties to taken safety precaution regarding the process of pad footing for minimize the factor of defect building and human injury for long term used.

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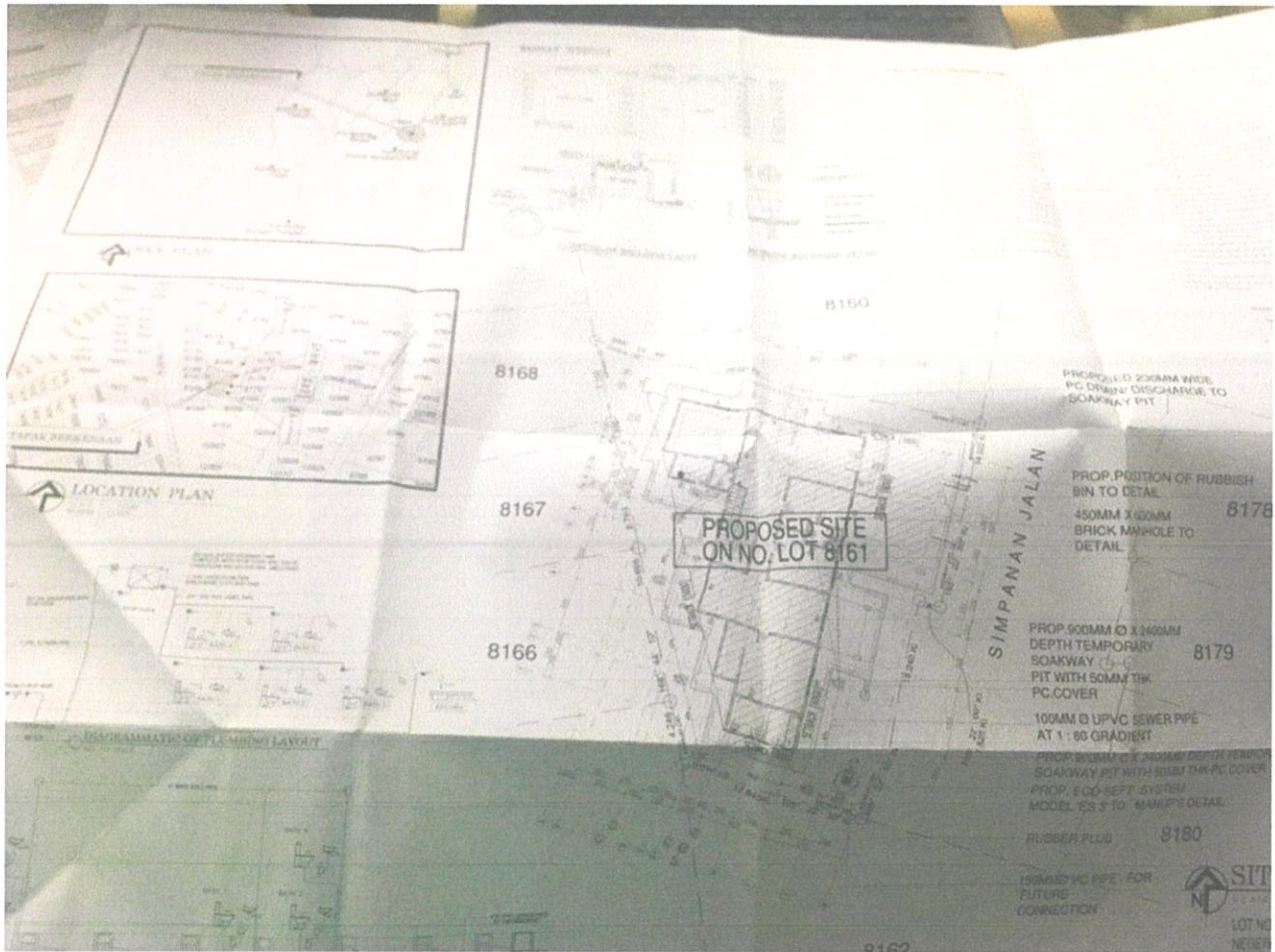
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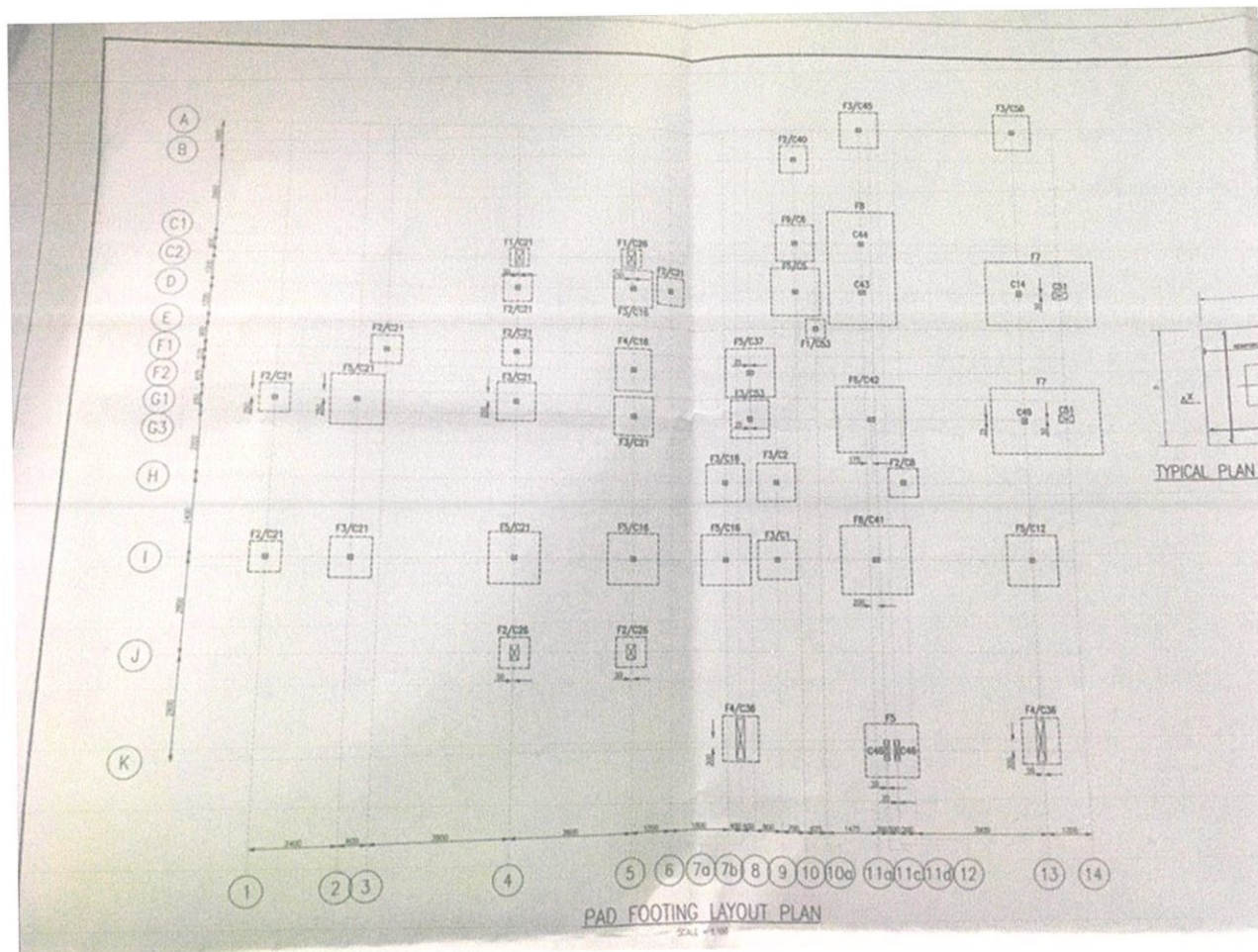
APPENDIX

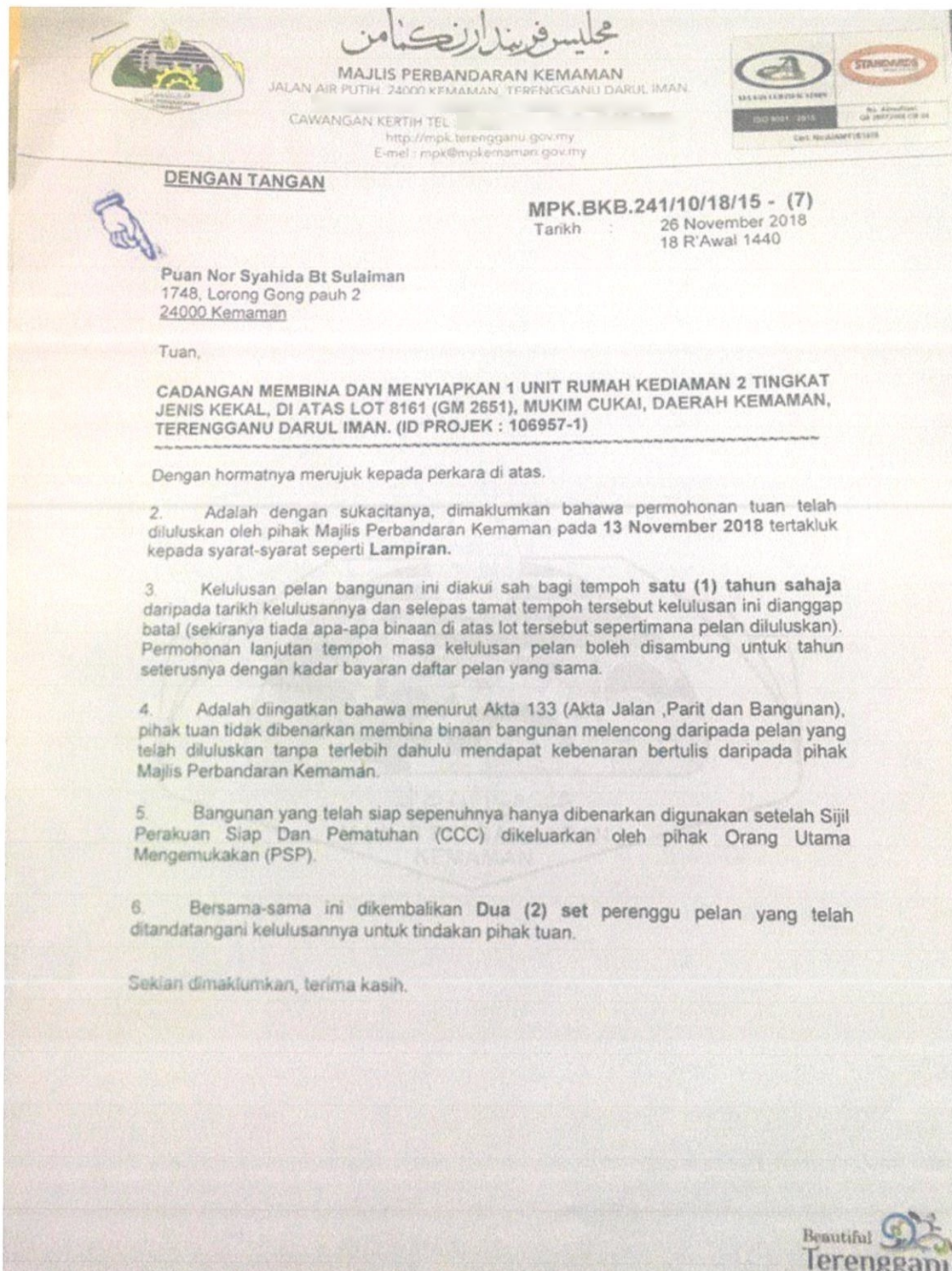


Appendix 1 shows the Key Plan of the site.



Appendix 2 shows the Pad Footing Layout Plan.

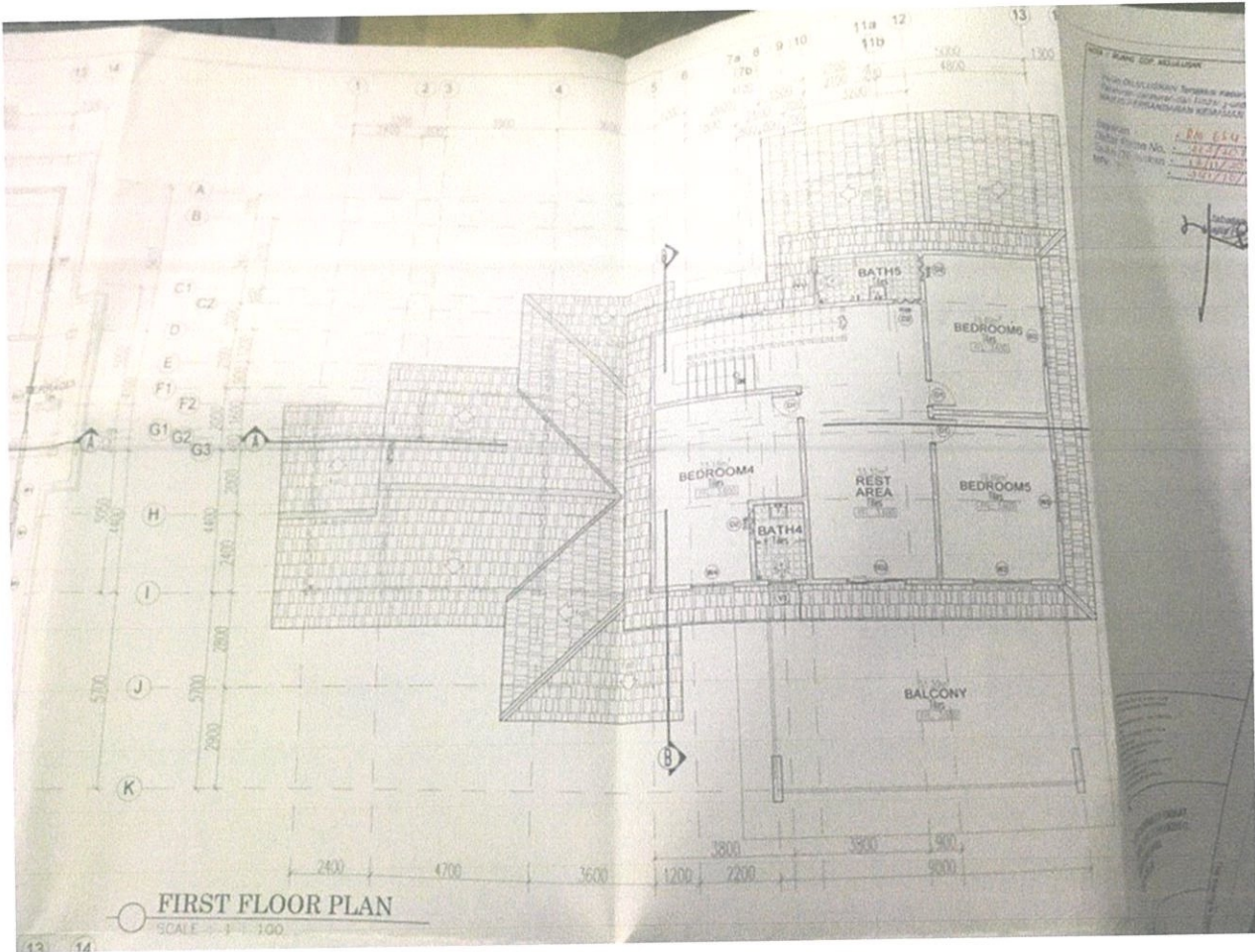


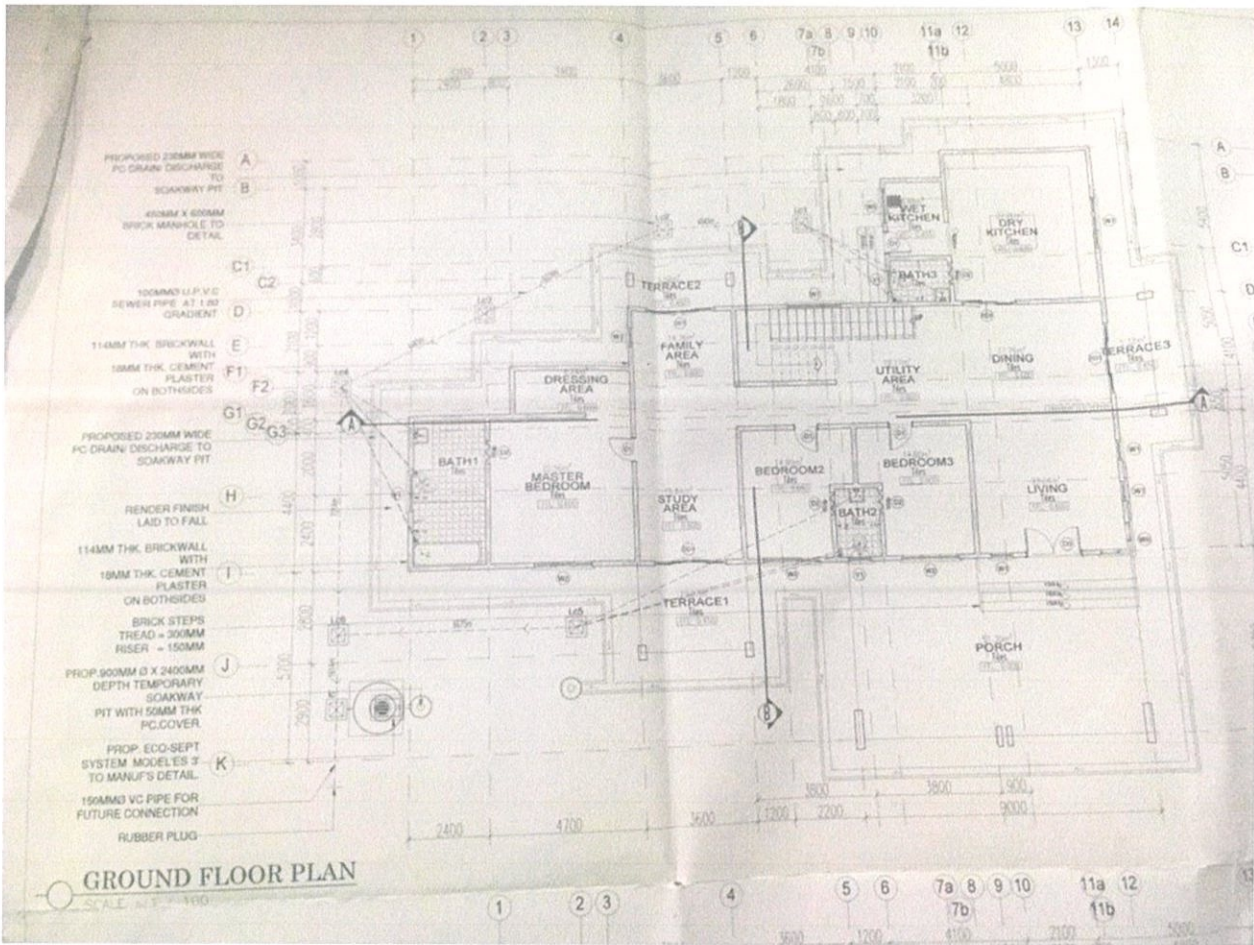


Appendix 2 shows letter of Majlis Daerah Kemaman.



Appendix 3 shows the first floor plan of the site.





*Appendix 4 shows the ground floor plan.*

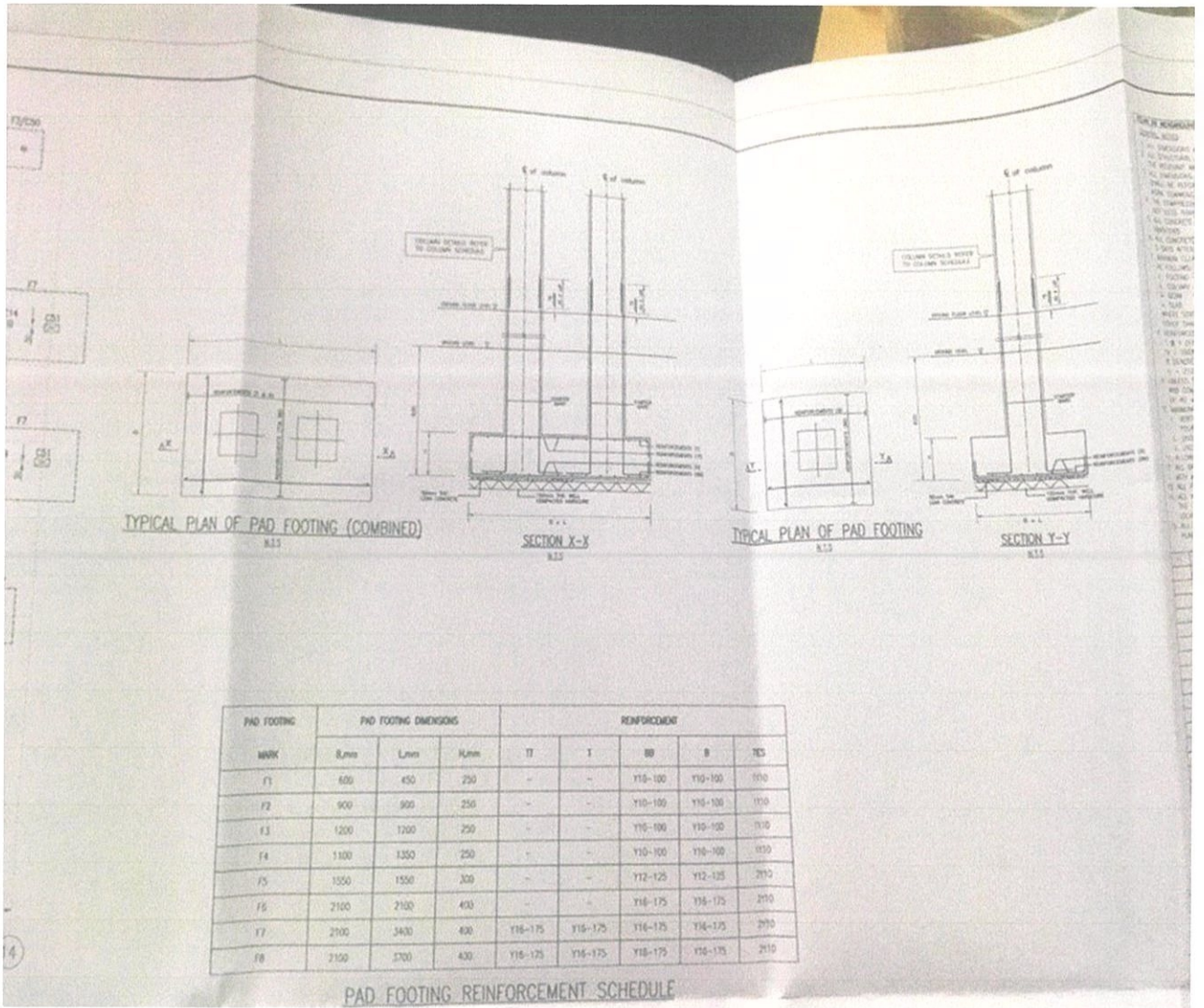


PAD FOOTING MARK	PAD FOOTING DIMENSIONS			REINFORCEMENT				
	B,mm	L,mm	H,mm	TT	T	BB	B	DES
F1	600	450	250	-	-	Y10-100	Y10-100	Y10
F2	900	900	250	-	-	Y10-100	Y10-100	Y10
F3	1200	1200	250	-	-	Y10-100	Y10-100	Y10
F4	1100	1350	250	-	-	Y10-100	Y10-100	Y10
F5	1550	1550	300	-	-	Y12-125	Y12-125	Y10
F6	2100	2100	400	-	-	Y16-175	Y16-175	Y10
F7	2100	3400	400	Y16-175	Y16-175	Y16-175	Y16-175	Y10
F8	2100	3700	400	Y16-175	Y16-175	Y16-175	Y16-175	Y10

**PAD FOOTING REINFORCEMENT SCHEDULE**

KLS

*Appendix 5 shows the Pad Footing Reinforcement Schedule.*



Appendix 6 shows the Typical Plan of Pad Footing.