UNIVERSITI TEKNOLOGI MARA

DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITY TEKNOLOGI MARA

(PERAK)

SEPTEMBER 2014

It is recommended that the report of this practical training provided

By

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2012832138

entitled

Raft Foundation

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

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ACKNOWLEDGEMENT

Alhamdulillah, all praises to Allah for the strengths and His blessing in completing this thesis. Special appreciation goes to my project coordinator, Mr. Mohd Danial Bin Ibrahim, for his supervision and constant support. His invaluable help of constructive comments and suggestions throughout the experimental and thesis works have contributed to the success of this research. Not forgotten, my appreciation to Mr. Hayazi Bin Ibrahim for his support and knowledge regarding this topic. I would to express my appreciation to the Project Manager at Masjid Ar-Rahman ,Kedawang, Mr. Norizan for their support and help towards my postgraduate affairs. Sincere thanks to my lecturer supervisor Mrs. Hasni Suryani Bt Mat Hasan for their guidance, advice and moral support during this report in successfully. Thanks for their concern in ensure to being success at training time. Not forget, great appreciation go to the rest Practical Training Coordinator Mrs. Wan Nordiana Wan Ali and Faculty's Coordinator Dr. Mohd Rofdzi Bin Abdullah. Last but not least, my deepest gratitude goes to my beloved parents, and and also to my siblings for their endless love, prayers and encouragement. To those who directly contributed in this report, your kindness means a lot to me.

Thank you very much

ABSTRACT

This report explains about a construction of raft foundation. A case study are based on the site which is located at Lot 32, Masjid Ar-Rahman, Kg Gelam, Mukim Kedawang, Daerah Langkawi, Kedah Darul Aman.The objective is to study the installation method of raft foundation and identify the plant and machineries involve in this in this project. To fulfill the objective, there are two method of study which is observation and interview. As a conclusion, the installation of raft foundation started from setting out, excavate soil, compacted hardcore, pest control, installation of formwork, DPM and BRC and also concrete works. Besides that, the plant and machineries use are mobile crane, excavators, concrete lorry, dump truck, concrete mixer, vibrator and compactor.

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LIST OF ABBREVIATIONS

UiTM	Universiti Teknologi Mara
JKR	Jabatan Kerja Raya

CHAPTER 1

PREFACE

1.1 Introduction

Foundation is the structure which supports the rest of the building. It usually below ground level, that serve to transfer the load from the building or structures to a natural or artificial bedding make it safe and can with stand the load such as dead load, wind load, live load and seismic loads (Chandra Gupta,2007). It can be classified into two type, shallow foundation and deep foundation. The factors that influence the types of foundation is geological, engineering, hydrological condition, the purpose an design of the building structure, the magnitude of the load and the production capacities of the construction organization.

The project at Lot 32, Masjid Ar-Rahman, Kg. Gelam, Mukim Kedawang, Langkawi was purpose to built 1 storey of wakaf bazaar for four units. According to the architectural drawing, raft foundation has been chosen for this project. Raft foundation is essentially the entire building is placed on the large continuous footing and carried downwards load from the structure over a large area. The soils have low bearing capacity and cannot support load from the structure straight forward to the ground. Based on the types of soil, individual footing would cover more than about half of the construction site. This type mostly economic because less cost and the numbers of reinforcement can be reduce.

1.2 Objective

i) To study the installation method of raft foundation
ii) To identify the plant and machineries that involves in this project

1.3 Scope of Study

The scope of study focuses on raft foundation. In this topic, Masjid Ar-Rahman, Kg Gelam Mukim Kedawang which is purpose to built 1 storey of Bazar Wakaf for four units have been choose as location to study about the construction, machinery and tools to construct this building. The client is Yayasan Wakaf Malaysia.

1.4 Method of Study

There are two method of study were used in obtain information for this report:

a) Primary Study

Primary source is source achieved from witness in writing form, record and witness to something which occurred. The materials that can be refer by where the condition still original and unmodified. It can be divided into observation and interview.

i) Observation

An observation can be made based on the activity carried out at site built. Instrumentation such as camera also can help to get distinct image on activity that carried out.

ii) **Interview**

Make an interview directly and asks relevant questions to the person who in charge on the project. This method can be used to obtain more detailed information about the procedure/method and material used on the construction.

b) Secondary

Secondary source is information or publications grouped by other individual as reference. It includes public document, archive, administrative document and formal report. In construction industry, former document must be kept so that can be used as a reference material when something happens in the future on building built. For example, submission fail which is contain certificate submit owned by project, relevant information project, layout guarantee certificates building, as-build drawing and project pictures.

i) **Book/Journal**

- Journal is a daily written record of experiences and observations by person. It is a periodical dedicated to a particular subject such as ledger which transactions have been recorded as they occurred.

ii) **Article**

- Making reference from source that is reliable such as article from official website published by company.

CHAPTER 2

COMPANY BACKGROUND

2.1 Introduction

Sources: *Website JKR Langkawi*

Jabatan Kerja Raya (JKR) is one of government body that had helped to upgrade people's life in Malaysia. The mission is to provide infrastructure and public amenities especially walk, water supply, building, airport and port to fulfill needs of the nation's development with always give emphasis to complete in fast period, economic and good design.

The objective of operational this company is to provide infrastructure and public facilities according to the quality, efficiency, economic, complete in short period and good in planning and performance. Second, to ensure maintenance for all facilities and always in a good condition, comfort and fulfill customer needs. Besides that, it also provides technical advisory service to state government, local government and customer departments with the best expertise. In building department under state basically more focus on built the mosque, hotel, hospital, and facilities. Building department under education focus on built school, library, and so on.

2.2 Company Background

Company Name	: Jabatan Kerja Raya (JKR) Langkawi
Date in Corporation	: 19 October 1955
Company Address	: Pejabat Jurutera Daerah Langkawi, JKR Langkawi, Jalan Air Hangat, O7000 Kuah, Langkawi, Kedah Darul Aman.
No. Tel	:
No. Fax	:
E-mail	: langkawi@jkr.gov.my
Business Status	: Government

2.2.1 Transportation

Table 2.1 List of vechicle for company use.

NO	EQUIPMENT/PLANT	NUMBER
1	UTILITY VEHICLE :	
	➢ Toyota Land Cruiser	1
	➢ Isuzu Trooper	1
	➢ Land Rover	1
	➢ Misubishi Pajero	3
	➢ Isuzu Pick-up	1
	➢ Nissan X-Trail	2
	➢ Mercedes Benz	1
	➢ Toyota Harrier	1
	➢ Explorer Long Boat	2
2	TIPPER LORRY :	
	➢ Hino Tipper Lorry	2
3	FLAT BOTTOM LORRY :	
	➢ Hino Flat Bottom	2
	➢ Isuzu Flat Bottom Lorry	1
4	SHOVEL :	
	➢ Hitachi	1
5	BACK-HOE LOADER :	
	➢ UMV Case Back Hoe Loader	1
6	ROLLER :	
	➢ Vibromax	1
	➢ Trailer Kayu	1
7	TRACTOR :	
	➢ Flat Tractor	2

2.2.2 Company Certificate

SIRIM QAS INTERNATIONAL

SIJIL

QUALITY SYSTEM
SIRIM

SIRIM QAS International Sdn. Bhd. dengan ini mengesahkan bahawa

JABATAN KERJA RAYA NEGERI KEDAH
SITE 7
JKR DAERAH LANGKAWI
ARAS 5, KOMPLEKS LADA
PERSIARAN PUTRA
07000 KUAH, LANGKAWI
KEDAH DARUL AMAN
MALAYSIA

STANDARDS
MS ISO/IEC 17021:2006
QS 0212/996 CB 01

telah melaksanakan Sistem Pengurusan Kualiti yang menepati

ISO 9001 : 2008

QUALITY MANAGEMENT SYSTEMS - Requirements

UKAS MANAGEMENT SYSTEMS
074

Skop Pensijilan

PERKHIDMATAN PERUNDINGAN TEKNIKAL DAN PENGURUSAN PROJEK BAGI PROJEK-PROJEK PEMBANGUNAN INFRASTRUKTUR KERAJAAN.

IQNet

Tarikh dikeluarkan : **20 Februari 2013**
Tempoh sah : **20 Februari 2013 - 11 Januari 2016**
No. Pensijilan : **AR 4224**

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MALAYSIA

Khalidah Mustafa
Pengarah Urusan
SIRIM QAS International Sdn. Bhd.

http://www.sirim-qas.com.my
http://www.malaysiancertified.com.my

Penganugerahan sijil ini tertakluk kepada peraturan-peraturan dan syarat-syarat seperti tersebut dalam Perjanjian Pensijilan.

Photo 2.1 Certificate Issue by SIRM

Source: *Jabatan Kerja Raya Langkawi*

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and SIRIM QAS International hereby certify that

JABATAN KERJA RAYA NEGERI KEDAH

SITE 7
JKR DAERAH LANGKAWI
ARAS 5, KOMPLEKS LADA
PERSIARAN PUTRA
07000 KUAH, LANGKAWI
KEDAH DARUL AMAN
MALAYSIA

has implemented and maintains a

QUALITY MANAGEMENT SYSTEM

which fulfils the requirements of the following standard

ISO 9001 : 2008

for the following activities

TECHNICAL ADVISORY SERVICES AND MANAGEMENT FOR GOVERNMENT INFRASTRUCTURE PROJECTS.

Issued on : **20 February 2013**
Validity date : **11 January 2016**
Certification Number : **MY-AR 4224**

Michael Drechsel
President of IQNet

Khalidah Mustafa
Managing Director
SIRIM QAS International Sdn Bhd

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Photo 2.2 Certificate Issue by SIRIM

Source: *Jabatan Kerja Raya Langkawi*

2.3 Organization Chart

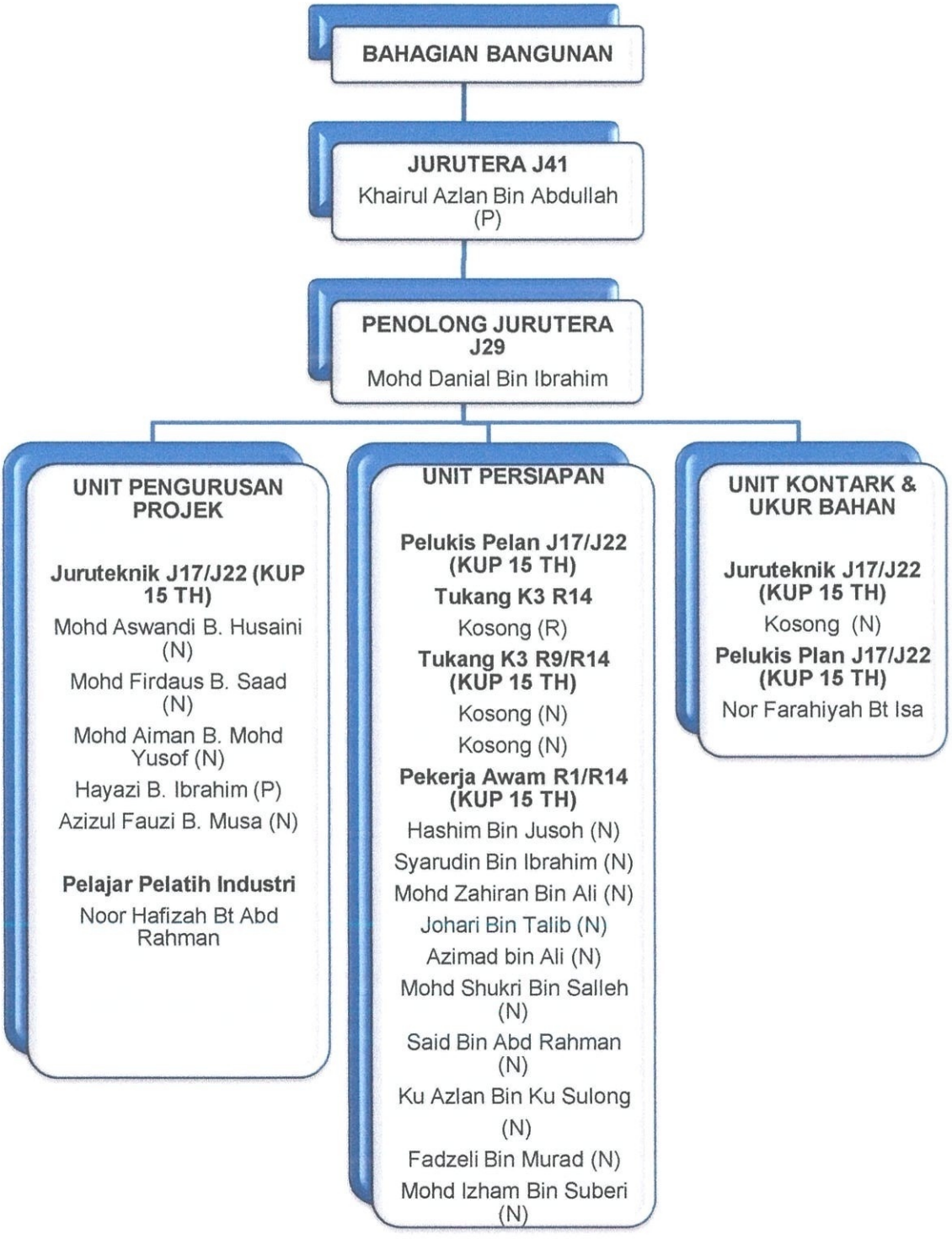


Diagram 2.1 Organization chart at JKR Langkawi

2.4 List of Project

2.4.1 Completed Projects

i) Kementerian Dalam Negeri, Jalan Padang Matsirat, Mukim Kuah, 07000 Langkawi , Kedah Draul Aman.
ii) Bengkel Elektronik SMV Langkawi, 07000 Langkawi, Kedah Darul Aman.
iii) Balai Polis Ayer Hangat, 07000 Langkawi, Kedah Darul Aman.
iv) Bangunan Makmal Sains Tulen Tiga Sekolah Menengah Kebangsaan Tunku Putra, 07000 Langkawi, Kedah Darul Aman.
v) Tapak Kompleks Pejabat Daerah dan Tanah Langkawi, Lot 348, Bandar Kuah Seksyen 4, Daerah Langkawi.
vi) Jabatan Kerja Raya, Pejabat Jurutera Daerah JKR Langkawi, Jlan Ayer Hangat, 07000 Kuah Langkawi, Kedah Darul Aman.

2.4.2 Project in Progress

i) Bazar Wakaf Masjid Ar-Rahman, Mukim Kedawang, 07000 Langkawi, Kedah Darul Aman.
ii) Naik Taraf Jeti Gua Kelawar, 07000 Kuah Langkawi, Kedah Draul Aman.
iii) Cadangan Kerja-kerja Tambahan Di Istana Bukit Malut, Mukim Ulu Melaka, Daerah Langkawi, Kedah Darul aman.

2.4.1 Completed Projects

i) Proposed extension and renovation work for Kompleks KDN Langkawi at Jalan Padang Matsirat, Mukim Kuah, 07000 Langkawi, Kedah. Project was started on 15/07/2010 and finish on 15/10/2011. The total amount of construction is RM 42,987,619.00.

Photo 2.3 Rear elevation of Kompleks KDN Langkawi

i) Proposed to build one unit of Bengkel Elektronik SMW Langkawi at Jalan Padang Gaung, 07000 Langkawi, Kedah.These projects was started on 12/11/2012 and completed on 11/07/2013. The total amount of construction is RM 807,967.50.

Photo 2.4 Bengkel Elektronik SMV Langkawi

ii) Purposed to build Balai Polis Ayer Hangat at Jalan Ayer Hangat, 07000 Langkawi, Kedah. This project was started on 24/12/2009 and completed on 11/07/2013. The total amount of construction is RM 8,198,045.52.

Photo 2.5 Balai Polis Ayer Hangat

iii) Proposed to build 3 storey of Makmal Sains Tulen Tiga, Sekolah Menengah Kebangsaan Tunku Putra at Padang Matsirat, 07100 Langkawi, Kedah. The project was started on 10/10/2007 and completed on 07/12/2008. The total amount of construction is RM 3,232,555.00.

Photo 2.6 Makmal Sains Tulen Tiga, SMKTP Langkawi

iv) Proposed extension and renovation work for Bangunan Pejabat Tanah which is located at Lot 348, Bandar Kuah Seksyen 4, Daerah Langkawi. These project was started on 26/08/2013 and finish on 25/04/2014. The total amount of construction is RM 3,979,000.00.

Photo 2.7 Bangunan Pejabat Tanah Langkawi

v) Proposed to built Bangunan Pejabat JKR Langkawi which is located at Jalan Ayer Hangat, Kuah, 07000 Langkawi, Kedah Darul Aman. The construction are started on 13/02/2008 and completed on 10/02/2009. The total amount of construction is RM 4,148,425.00.

Photo 2.8 Bangunan Pejabat JKR Langkawi

2.4.2 Project in Progress

i) Proposed to built Bangunan Bazar Wakaf Rakyat for 4 unit at Lot 32, Masjid Ar-Rahman, Kg Gelam, Mukim Kedawang, Daerah Langkawi, Kedah Darul Aman. Started on 08/05/2014 and completed on 28/08/2014.The total amount of construction is RM 354,600.00. This building have been reach about 95% of completion.

Photo 2.9 Bazar Wakaf Rakyat,Kedawang

ii) Proposed to upgrade Jeti Gua Kelawar at Kilim, Langkawi, Kedah Darul Aman. The project was started on 03/08/2013 and will complete on 14/04/2014. The total amount of construction is RM 1,348,010.00. It just leave about 24% to complete this project.

Photo 2.10 Concrete work for approach bridge

iii) Proposed additional work at Istana Bukit Malut, Mukim Ulu Melaka, Daerah Langkawi, Kedah Darul Aman. The total amount for this project is not available because it involving certain person.

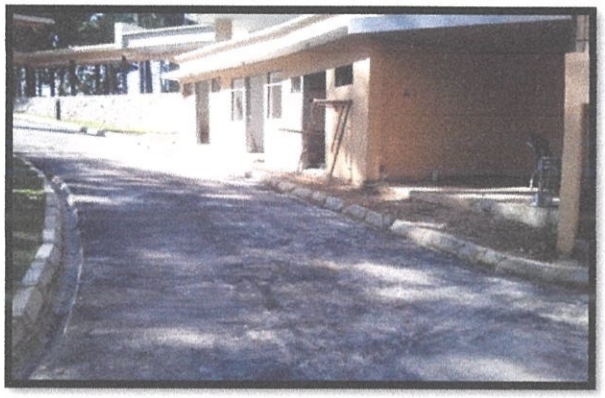


Photo 2.11 Additional store behind the building, Istana Bukit Malut

CHAPTER 3

RAFT FOUNDATION

3.1 Introduction

These studies describe about the method to construct raft foundation and machineries involve in construction of raft foundation. The location is at Lot 32, Masjid Ar-Rahman, Kg Gelam Mukim Kedawang, Daerah Langkawi which is purpose to built Bangunan Bazar Wakaf Rakyat for 4 units. Foundation is the structures which supports the rest of the building and transfer the loads from the building or structures to the soil. There are two types of raft foundation, that is flat raft and the wide toe raft which is commonly used in the construction of commercial building in the UK. In Malaysia, typically use pad foundation and piling because the of the soil condition. Moreover, The factors should be consider in choose foundation such as geological, engineering, hydrological condition at the construction site, the purpose and design at the building or structure, the magnitude of the load impose on the foundation and the production capacities of the construction organization.

Besides that, it can be determining using probe McIntosh and soil investigation at the point which is has been plotted at the site. Probe McIntosh method commonly made by contractor while soil investigation will done by professional. This method can ensure type and size of footing. For each footing, it consist concrete slab which extends over the entire loaded area. Therefore, spread footing would cover more than 50% of the building foot print area.

3.1.1 Project Background

Photo 2.12 Construction signboard

For this case study, a project proposed to build Bazar Wakaf Rakyat for 4 unit at Lot 32, Masjid Ar-Rahman, Kg. Gelam Mukim Kedawang, Daerah Langkawi, Kedah Darul Aman has been choose as a location. Based on construction at the site, it will explain about the construction of raft foundation and machineries involve in this project. A client for this project is Yayasan Wakaf Malaysia.

To choose a qualified contractor, JKR will analyze quotations from the contractor. Usahacoms Bina Enterprise was elected for this project because the price is low and 5% less than department estimate, period equivalent to fixed-term department and experienced carrying out work under JKR supervision. The total cost for Bazar Wakaf Rakyat for 4 unit is RM 354,600.00. Contract period for this project is 16 weeks started from 5 Mei 2014 and completed on 28 August 2014.

3.2 Case Study

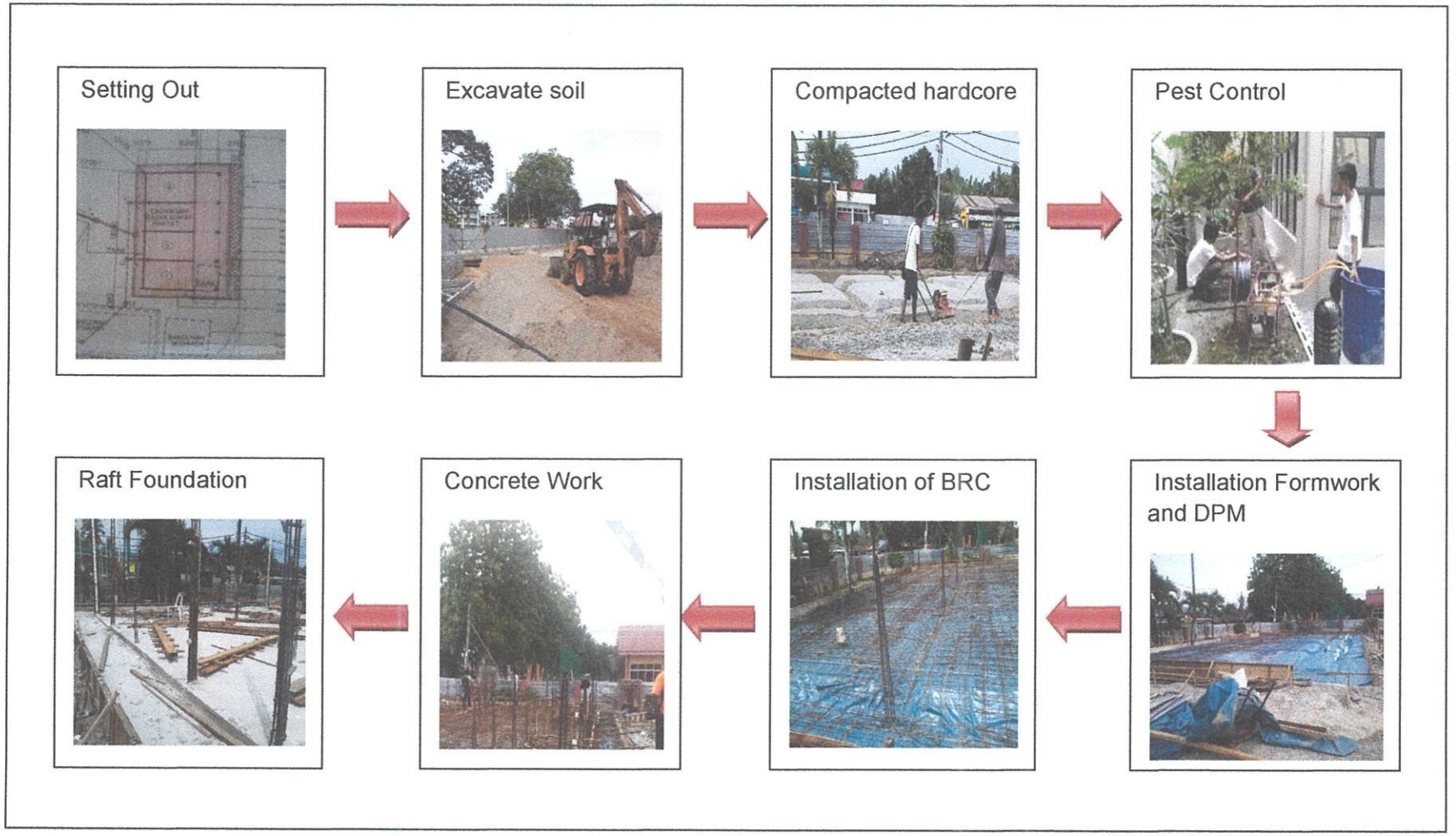


Diagram 1: Installation of raft foundation for Bazar Wakaf Rakyat

3.3.1.1 Setting out

Setting out is the process indicate building border position using surveying instrument. Nowadays, surveyor might use theodolite to measure horizontal and vertical angles, measure location on line, prolonging survey lines, determine differences in elevation, setting out and others. Contractor should be responsible to ensure that all instruments and equipment in good condition. After survey works done, contractor will transfers from the architecture drawing to site plan according to spec. This stake will be built around the building line with distance at least 1.2m from the line to make sure it not disturbing construction works. Then, thread will be pulled and strapped to nail. The function is to mark area which is involved in excavation work. Make sure the position of building and other structural like basis, fence, road and water drainage are planning properly. For the project one storey of Bazar Wakaf Rakyat for 4 unit, the size is 18.28 x m 9.2 m. Then, setting out should be done before excavate works take over.

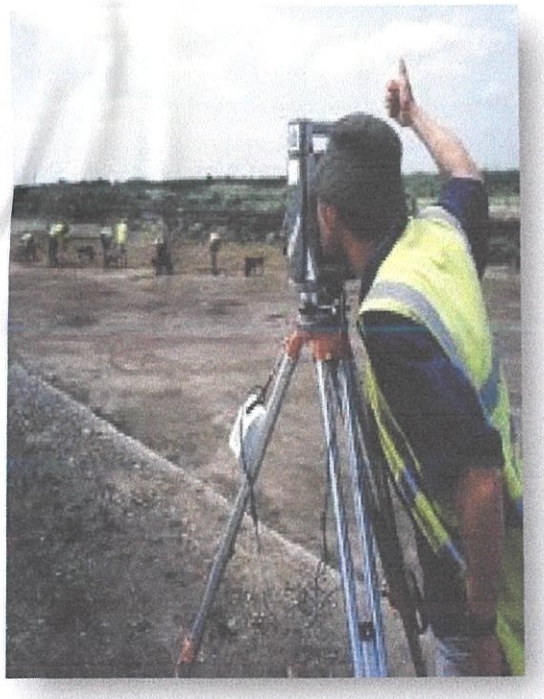


Photo 3.1 Setting out

3.3.1.2 Excavation

Excavation works shall consist of all required excavation within the limits of the works. It must include the removal, proper utilization or disposal of all excavated materials, constructs, shaping and finishing of all earthworks. Levels should be taken before and after excavation. It is because to calculate the volume for each method and also the type of plant and machineries used. In this project, excavation only involve in basic construction and sewage pipe drainage only. According to the drawing, 230mm of depth are to bear load from trusses and column then distribute the load to the horizon and course below. The depth of foundation must be decided on site refer to drawing plan which is had been prepared by civil and structure consultant.

Photo 3.2 Excavation work

Before commencing on any excavation, contractor shall make site inspection to identify the presence of underground cables, water or other service pipes at the excavation area. If during excavation, the workers uncover any cables, water or other service pipes, work shall be stopped immediately. For this project, sewage pipe drainage installation shall be made before soil compressed.

Photo 3.3 Installation of plumbing

3.3.1.3 Compacted Hardcore

The function of hardcore to fill the concrete volume, increase strength and concrete resilience and arrest contraction. The size is among 5mm to 50mm but for this project it prefers to use 25mm of hardcore. Then, 150mm thickness of hardcore shall be provided and laid on the sand and well rammed, compacted and blinded.

Photo 3.4 Hardcore has been compacted

3.3.1.4 Pest control

Pest control shall be applied between the lean concrete and hardcore at minimum rate of 1 litre per linear meter. Minimum surface application rate should be 5 litres per m^2 on all ground floor built-up including apron, and 1 meter from the building area. It cannot perform properly and reduce the workability of chemical when it exposed to the heavy rain. After spraying of chemical, the area must be protected or covered with an impervious black PVC sheet with minimum thickness of 0.08mm. Besides that, contractor also should remove the covering and applied lean concrete immediately. The anti-termites treatment specialist's guarantee for 2 years from the date completion works due to any defects, fault or ineffective.

Photo 3.5 Termite treatment

Lean concrete consist of cement, fine aggregate and course aggregate in the nominal ratio by volume of 1:3:6 and 1:4:8. Provide and measured all the materials separately appropriate to the nominal mix. Then, laid and flat the lean concrete about 50mm thickness and make sure cover overall the area involved.

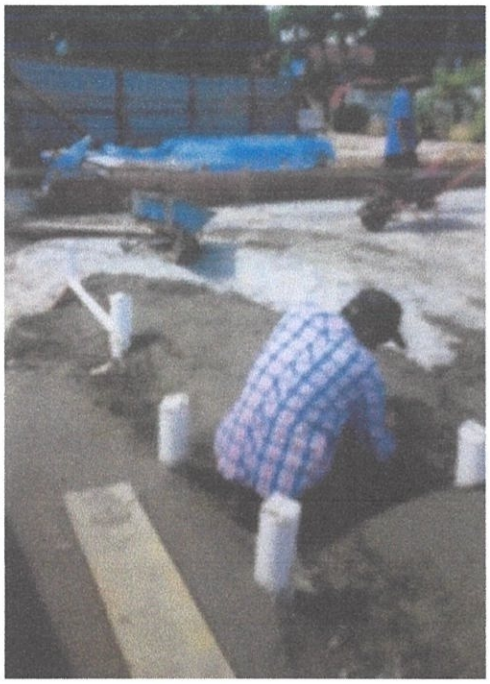


Photo 3.6 Installation of lean concrete

3.3.1.5 Installation of formwork and Damp Proof Membrane

Formwork included as temporary or permanent forms required for forming the concrete. The formwork should be sufficiently rigid and tight to prevent loss of grout or mortar and be appropriate for the methods of placing and compacting. Formwork required for their support to maintain the forms in correction position, shape, profile and dimensions. It must be arranged properly and remove from cast concrete without any effect to the concrete.

Photo 3.7 Setup the formwork

The next step is to laid the DPM layer on the compacted hardcore which is acts as prevention moisture from entering to the building. According in the drawing, the damp proof membrane should be extruded polythene film with nominal thickness of 0.5mm. A minimum of 150mm overlap must be providing between each of the sheet. Use double sided or mastic strip compound to join the sheet together. The durability is over than 30 years with a high compressive strength and extremely flexible.

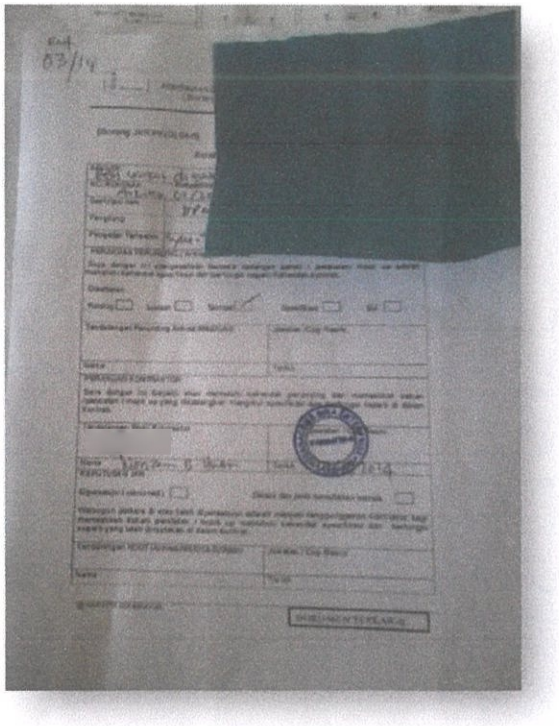


Photo 3.8 The type of DPM has been approval from JKR

3.3.1.6 Bar reinforcement concrete

In this project, two layers of bar reinforcement concrete size A7 are used. Contractor responsibility to make sure the reinforcement is laid out correctly and supported by spacing block to forms the displacement during the placing and compacting of concrete. Spacing block are use to ensure that reinforcement is correctly position, consistent with their purpose to infill the concrete. It is commonly use between damp proof membrane and the first layer of bar reinforcement concrete. Otherwise, to form a space to the second bar reinforcement concrete they use s-curve shape. So, all intersecting bars shall be tied together with binding wire shall be turned into the main body of the concrete.

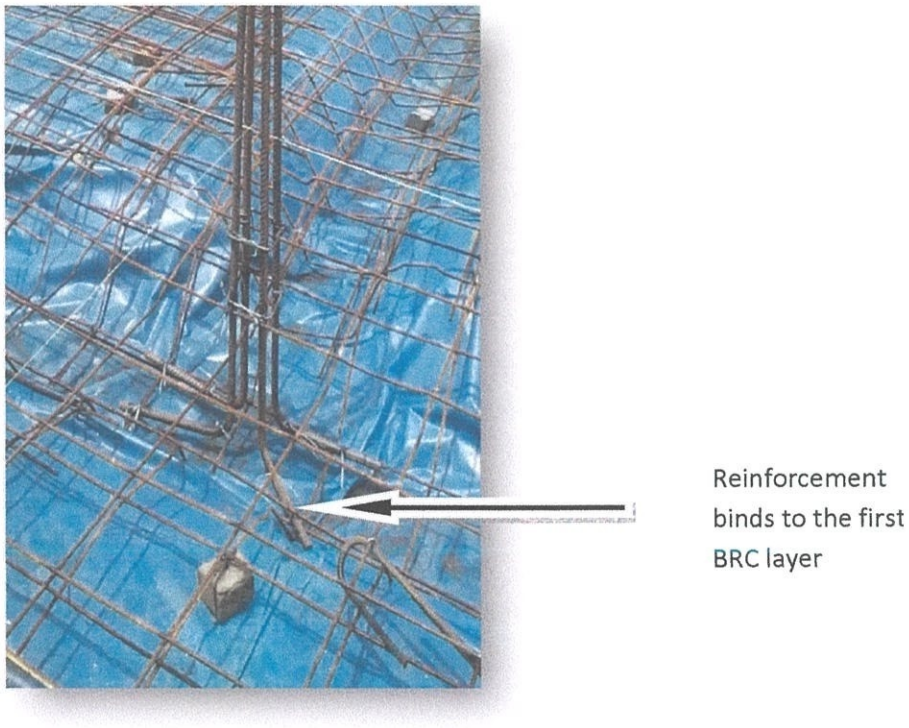


Photo 3.9 Binding the reinforcement to the first BRC layer

3.3.1.7 Concrete work

For these construction of Wakaf Bazar Rakyat, concrete grade 35 are used with the total amount of concrete is 50m³. Before start a concrete work, the contractor shall making a trial mixer and preliminary testing of the cube. The workability of each of the three trial batches determined by means of the slump test or compacting factor test. For the cube test, six cube shall be made from each batch. For each set shall be test at age of 7 to 28 days. The average strength can be decided after 28 days. Concrete shall be poured into place from a height exceeding 1.5 meters. It is because higher drops may be allowed provided that mix has been well designed and proportioned. It shall be thoroughly compacted using vibrator. Then, the concrete shall be uniformly leveled and screeded to produce a plain surface.

Photo 3.10 Using bucket to poured the concrete

3.3.1.8 Surface Finish for Structure

Formwork shall be removed without such shock or vibration as would damage the concrete. Contractor must be ensure that concrete are ready before removed the formwork. The removal of the formwork for various part of the structure as suit the requirements for its curing. The minimum period between concreting and removal of formwork is 21 days.

Photo 3.11 The raft foundation

3.3.2 Plant and Machineries in Installation of Raft Foundation

i) Mobile Crane

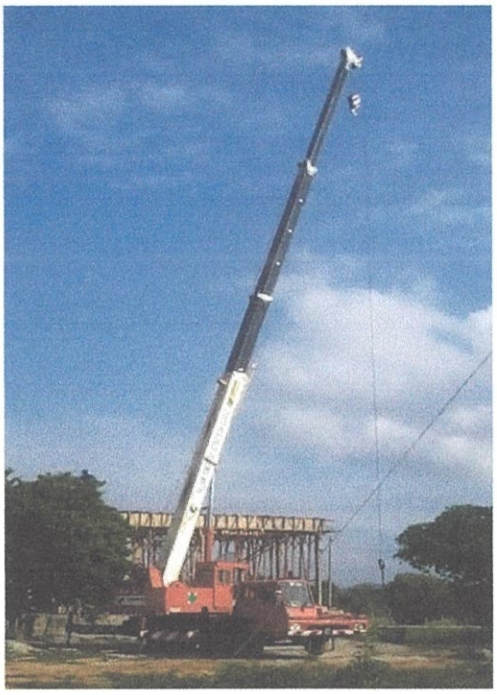


Photo 3.12 Lift up a concrete bucket use mobile crane

Crane mobile is crane with a tower that is used to lift and lower materials. Cranes are commonly used in the construction industry and in manufacturing heavy equipment. This type only suitable for small building due to ability capacity allowed. In concrete work, it uses to lift up the bucket to reach far place. Crane may either be controlled from an operator in cab, workers on the ground will communicate with the operator using hand-signals.

ii) Backhoe

Photo 3.13 Excavator use to excavate and remove the soil

Excavator commonly use in excavation work. It is because the ability to perform many jobs, for examples cleans up construction site, removal soil, digging trenches including laying pipes, cables and foundation. A shovel or bucket attachment can be control at one place. The operator can adjust the seat to control both attachments necessary.

iii) Batching Plant

Photo 3.14 Ready mix concrete from factory

According to the nature of work into cyclical mixer and the continuous mixer work. It is to make sure the concrete not become harden all the materials are mix properly. The ready mix concrete will made according to the grade order by a contractor. For this building, it used grade 35 for the whole construction. There are several type of batching plan such as mix tube structure form points pear types mixer, drum tube type mixer, dual cone mixer, the disc vertical shaft type mixer and circular trough horizontal-axis type mixer and others. In addition, mixer is divided into crack tube type and circular groove mixer.

iv) Dump Truck

Photo 3.15 Carried sand, aggregate and hardcore to the site

The function of a dump truck is to move or transport brut matter such as earth, sand, rocks, gravels, and sometimes refuses or rumbles. A typical dump truck is equipped with one open box bed, to lift the box it use hydraulic pistons which allowing the material in the bed to be deposited to the ground behind the truck at the site of delivery. Mostly founded on the road is 6 wheels, 10 wheels or 12 wheels.

v) Concrete Mixer

Photo 3.16 Concrete mixture usually use to make in small quantity of concrete

Concrete mixer always used to mix concrete in small quantity. The benefits is could simplify a work and save time. To get the consistent quality of cement concrete all ingredients like cements, sand, meta, water and additive chemicals are measured and mix per batch. It also can make the concrete durable and not hardens easily.

vi) Vibrator

Photo 3.17 Vibrate the concrete produce a strength and higher density of concrete

A concrete vibrator is a construction tool used on concrete pouring sites. It used to ensure concrete free from bubbles, make the concrete strong and have a smooth finishes even after the formwork is removed. Proper use of concrete vibrator requires some training. It is because it can effected the instability concrete mix where a concrete mix with a wide range of materials sizes causing weaker concrete paste to fill the area. The head should always be slowly lowered into the pour and pulled out gradually to avoid the formation of an air pocket.

vii) Compactor

Photo 3.18 Compact hardcore

Compacted machineries is a kind of heavy equipment which is use for construction work. The function is for compacting soil or other material so that the soil or other materials will reach the determined density level. It will make the soil structure tighter ad more hardens. Compacted machineries totally made from steel. A special small compacted machineries more easy because the direction of compact area can be control manually. It makes work easier and need short time to finish while the result is very good.

CHAPTER 4

CONCLUSION AND RECOMMENDATION

4.1 Conclusion

The conclusion is about the construction of raft foundation. The site project are located at Lot 32, Masjid Ar-Rahman, Kg. Gelam, Mukim Kedawang, Langkawi was purpose to built 1 storey of wakaf bazaar for four units. The objective for this project is to study the installation method of raft foundation and identify the plant and machineries involve in this project. From this report, learn the process from beginning started from setting out, excavate soil, compacted hardcore, pest control, installation of formwork, DPM and BRC and also concrete works. Besides that, the plant and machineries use are mobile crane, excavators, concrete lorry, dump truck, concrete mixer, vibrator and compactor. Therefore, learn more detail and exposure to the site activity can gain new experiences.

4.2 Recommendation

For the future report, is preferred to make a research about pad foundation. The construction of pad foundation commonly use even in built a house. There several function of pad foundation is to carry load then separeted to the ground level, support existing and unstable structures and resist a soil movement when have a forces.

REFERENCES

Gvsonlineuk, (2012). A Guide to DPM Damp Proof Membrane And Its Uses. Retrieved on 21 July 2014, from http://www.ebay.com/gds/A-Guide-To-DPM-Damp-Proof-Membrane-And-Its-Uses-/10000000176470477/g.html.

Sharat Chandra Gupta, (2007). Raft Foundation Design and Analysis With A Practical Approach. Retrieved on 15 July 2014, from http://books.google.com.my

Thomas Telford, (2000). Design Applications of Raft Foundation. Retrieved on 26 July 2014, from http://books.google.com.my

PELAN TAPAK

LOT 1176, 4042, 4049-4051 & 5488
BANDAR SG PETANI
SEKSYEN 55
DAERAH KUALA MUDA
KEDAH DARULAMAN

SKALA 1 : 300
SYIT PAWAL 140-C

U

LEBUH INTAN

SIMPANAN JALAN SEDIAADA 40' 0"

SIMPANAN JALAN SEDIAADA 66' 0"

PENCAWANG

TEMPAT KORSAN

RUMAH KONKRIT SEDIAADA

TBM JUJ1 RL 3.873

TBM JUJ2 RL 4.197

TEMPAT WUDUK DAN TANDAS

MASJID SEDIAADA

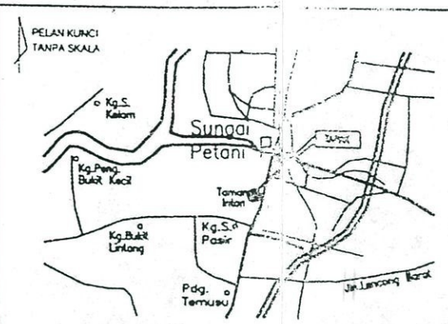
SURAU SEDIAADA

TAPAK MASJID

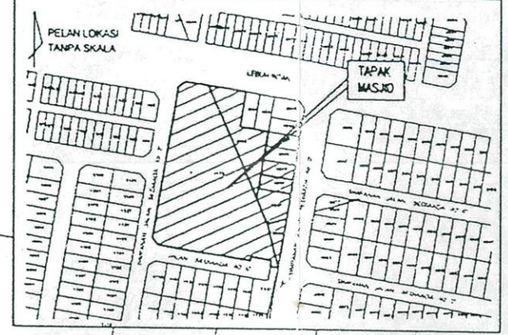
4042 4043 4044 4045 4046 4047 4048 4049 4050 4051 1176 4.115

641 642 559 1129 1128 1130 1131 1132 1133 1134 1135 4067 4068 4069 4070 340 4077 4078 4928 4929 4930 4931 4932 4933 4934 4950

PELAN KUNCI
TANPA SKALA



PELAN LOKASI
TANPA SKALA



NOTA

UKURAN YANG DITUNJUKKAN ADALAH SEBAGAI PANDUAN
UKURAN SEBENAR HENDAKLAH DITENTUKAN DI TAPAK

PETUNJUK :

- IL – INVERT LEVEL
- – BATU ARAS SEMENTARA (TBM)
- TL – TIANG LAMPU
- TE – TIANG ELEKTRIK
- TT – TIANG TELEFON
- H – PILI BOMBA
- – PAPAN TANDA
- M – MANHOLE
- M.H – MANHOLE BULAT
- – PBO – PASU BUNGA
- MW – MANHOLE MIK
- – KOTAK ELEKTRIK
- – SUMP
- – PINTU PAGAR
- PB – PAIP BARU
- PKB – PAKU BARU
- TT – TIADA TANDA

BIRU – KERJA–KERJA MEROBOH
MERAH – KERJA–KERJA CADANGAN BARU

NOTA :

1. SEMUA UKURAN ADALAH DALAM UNIT METER
2. ARAS BUMI ADALAH DIMULAI DARIPADA BM K 0696 (RL 2.346) DI KIRI JALAN BUTTERWORTH–SG.PEDANI,TEPI PEMBETONG,DI SIMPANG KE TAMAN INTAN,0.5m DARI PADA KM 604
3. JARAK DARI BM K 0696 KE TBM JUJ1 ADALAH 2KM SEHALA

JKR

BAHAGIAN ARKITEK
JABATAN KERJA RAYA KEDAH DARUL AMAN

PELANGGAN

PENGARAH
SAMSUDIN BIN BAKAR

KETUA PENOLONG PENGARAH ARKITEK
HAJJAH FAIZAH BT IBRAHIM

PENOLONG PENGARAH ARKITEK
HAJJAH KIZA BINTI HAJI O

PROJEK
CADANGAN MEMBINA BANGUNAN BAZAR WAKAF RAKYAT 1 TINGKAT (4 UNIT) DI ATAS SEBAHAGIAN LOT 1176 & 5488, MASJID TAMAN INTAN, SEKSYEN 55,BANDAR SG. PETANI, DAERAH KUALA MUDA, KEDAH D.A.

PERKARA
PELAN TAPAK
PELAN LOKASI
PELAN KUNCI

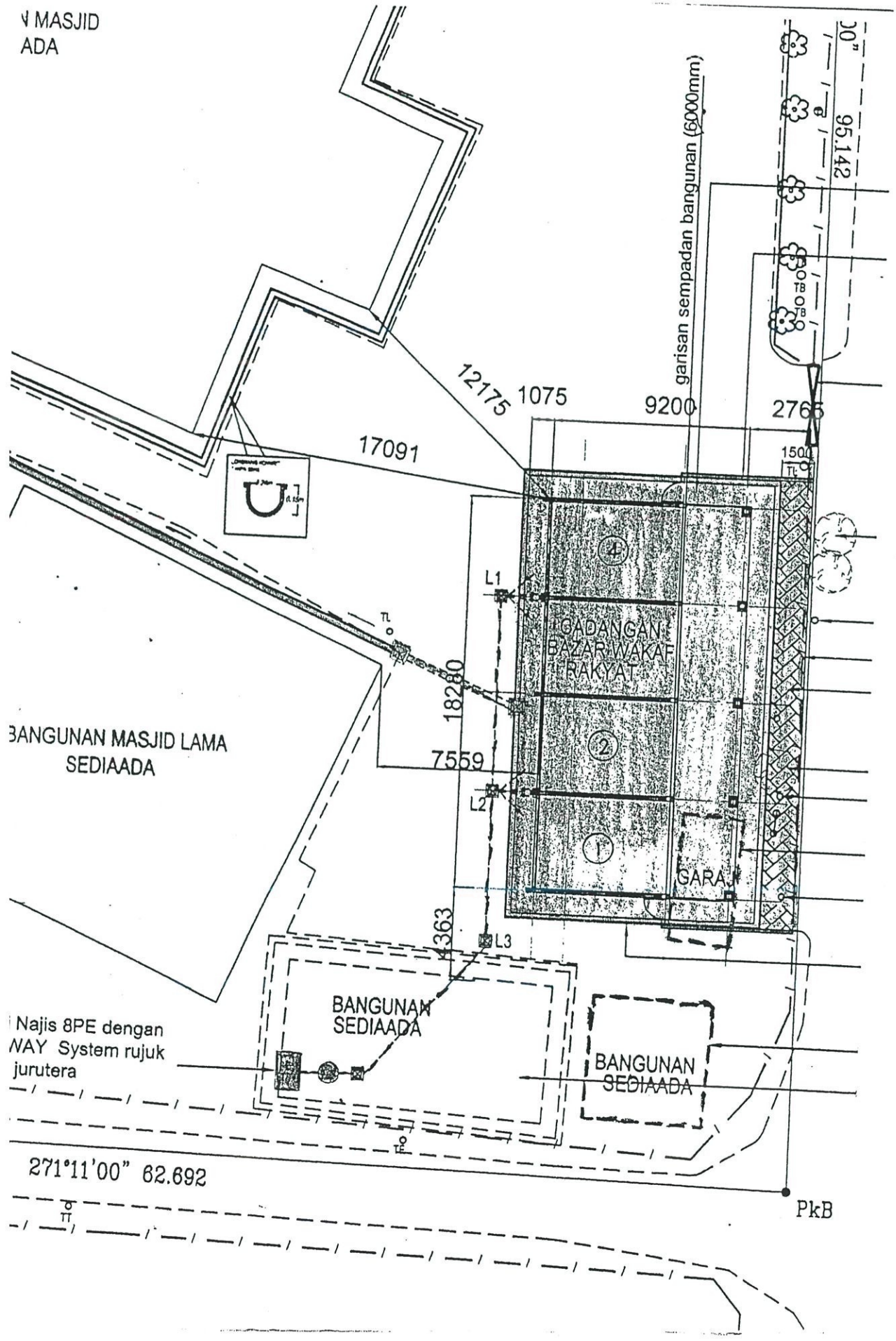
DILUKIS

DISEMAK

UKURAN 1:300 | TARIKH JUNE 2014

NO LUKISAN
IPJKR (K) 7245/001

PELAN TAPAK BAZAR WAQAF RAKYAT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ADA
garisan sempadan bangunan (6000mm)
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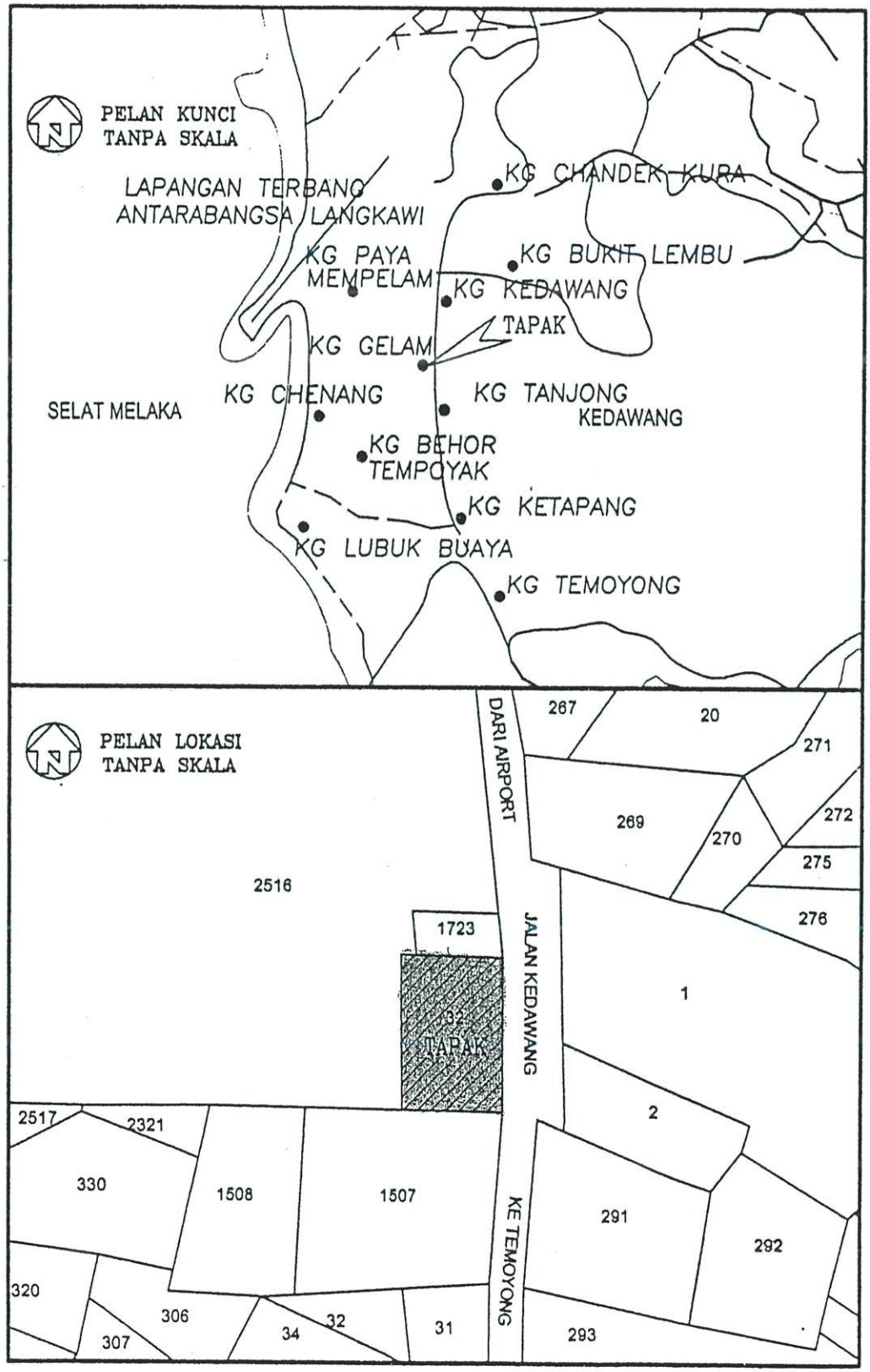
12175
1075
9200
2765
17091
1500
TL
GADANGAN
BAZAR WAKAF
RAKYAT
L1
L2
L3
18280
7559
4363
GARAJ
BANGUNAN MASJID LAMA
SEDIAADA
BANGUNAN
SEDIAADA
BANGUNAN
SEDIAADA
Najis 8PE dengan
WAY System rujuk
jurutera
271°11'00" 62.692
PkB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TANPA SKALA
LAPANGAN TERBANG
ANTARABANGSA LANGKAWI
KG CHANDEK KURA
KG PAYA
MEMPELAM
KG BUKIT LEMBU
KG KEDAWANG
TAPAK
KG GELAM
KG CHENANG
KG TANJONG
KEDAWANG
SELAT MELAKA
KG BEHOR
TEMPOYAK
KG KETAPANG
KG LUBUK BUAYA
KG TEMOYONG
PELAN LOKASI
TANPA SKALA
DARI AIRPORT
JALAN KEDAWANG
KE TEMOYONG
267
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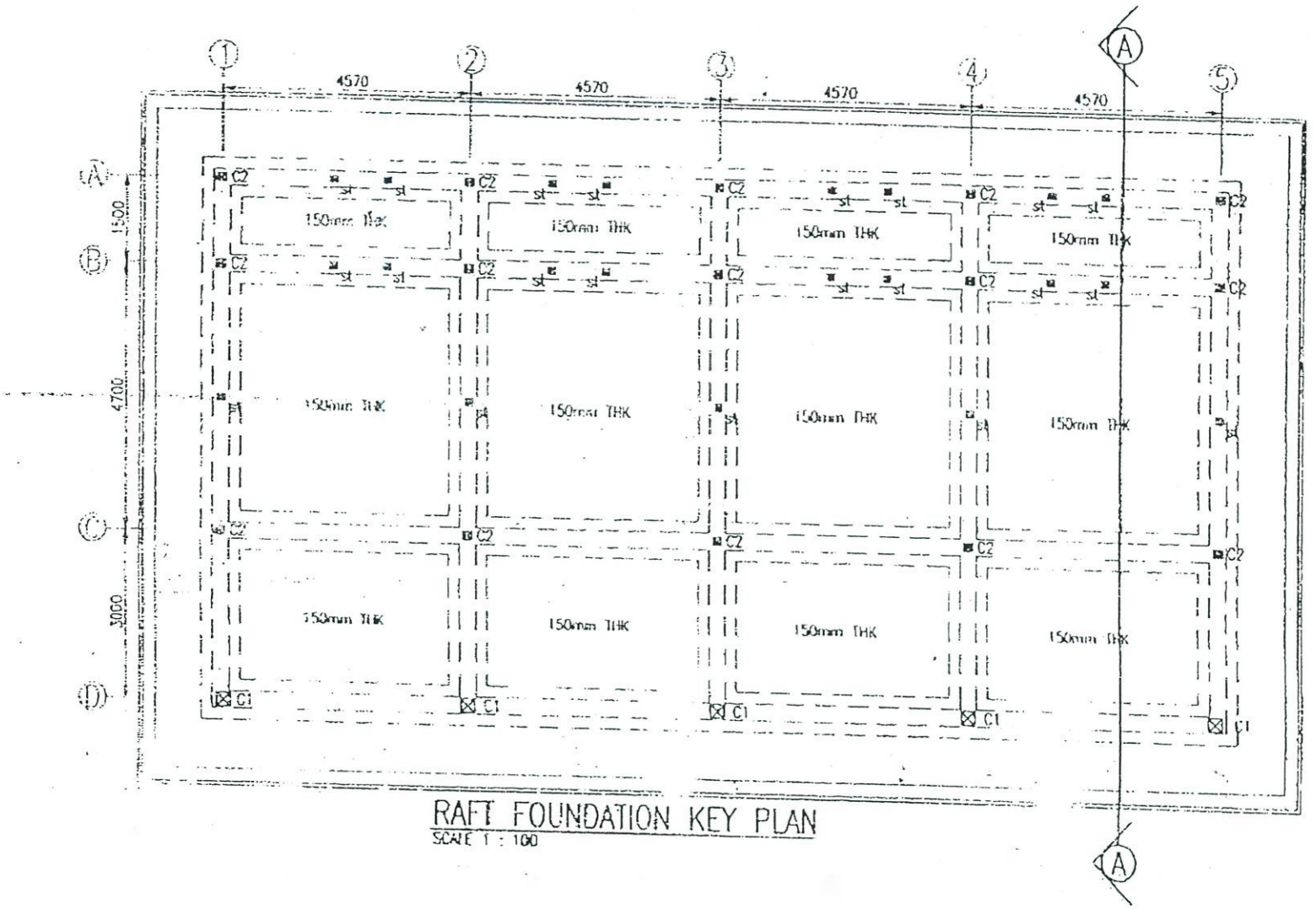
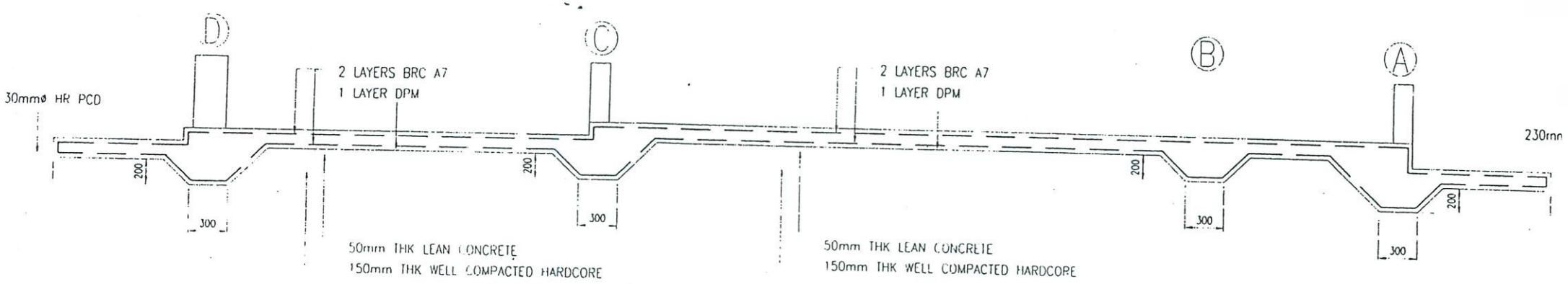


RAFT FOUNDATION KEY PLAN

SCALE 1 : 100



: #CSB/2014/BW. JKR/LG/RC.

RAFT FOUNDATION DETAIL (SECTION A–A)
SCALE 1 : 30

2
1320
1320

3
1320

USAHACORP BINA ENTERPRISE
Kg. Perana, Mukim Ulu Melaka, 07000 Langkawi, Kedah Darul Aman.

Ruj. Kami : UBE/JKR/15/2014
Tarikh : 26 Ogos 2014

Ketua Penolong Pengarah Arkitek
Jabatan Kerja Raya Negeri Kedah,
Tingkat 5,Bangunan Sultan Abdul Halim,
Jalan Sultan Badlishah,
05582 Alor Setar,
Kedah Darul Aman.

Tuan,

CADANGAN MEMBINA BANGUNAN BAZAR WAKAF RAKYAT 1 TINGKAT (4 UNIT) DI LOT 32, MASJID AR-RAHMAN, KAMPUNG GELAM, MUKIM KEDAWANG, DAERAH LANGKAWI, KEDAH DARULAMAN.
(NO.SEBUTHARGA : ARKITEK 01/2014)
–Tuntutan Bayaran Kemajuan No. 2

Merujuk kepada perkara diatas.

2. Bersama-sama dengan ini disertakan BQ bagi Tuntutan Bayaran Kemajuan No.2 yang berjumlah RM 195,890.00 (Ringgit Malaysia : Seratus Sembilan Puluh Lima Lapan Ratus Sembilan Puluh Sahaja.

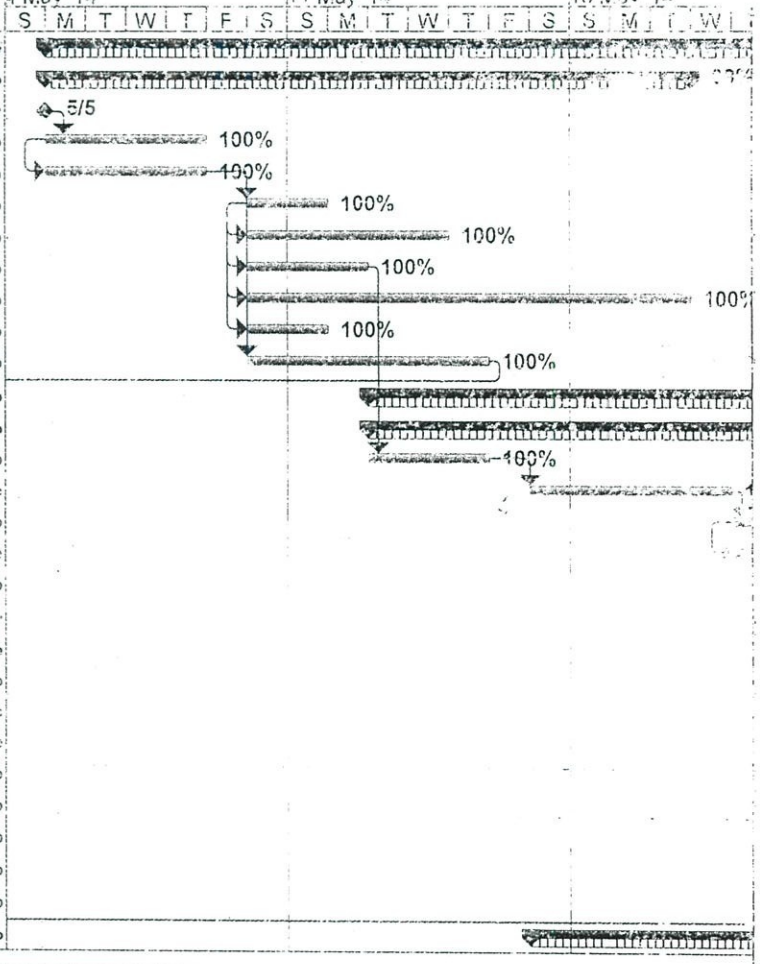
3. Kerjasama dan kelulusan dari pihak tuan amat dihargai.

Sekian, terima kasih.

Yang benar,

s.k: Juruukera Daerah,
Jabatan Kerja Raya Langkawi,
Jalan Ayer Hangat,
07000 Kuah, Langkawi
Kedah Darulaman.

ID	Task Name	Duration	Start	Finish	% Complete
1	BAZAR WAKAF RAKYAT MASJID KEDAWANG LKWI	100 days	Mon 5/5/14	Thu 28/8/14	73%
2	KERJA-KERJA AWALAN	14 days	Mon 5/5/14	Tue 20/5/14	99%
3	Milik tapak	0 days	Mon 5/5/14	Mon 5/5/14	0%
4	Insuran	4 days	Mon 5/5/14	Thu 8/5/14	100%
5	program kerja & CPM	4 days	Mon 5/5/14	Thu 8/5/14	100%
6	Mobilisation mesin & alatan	2 days	Sat 10/5/14	Sun 11/5/14	100%
7	Memasang dinding adang	5 days	Sat 10/5/14	Wed 14/5/14	100%
8	Kerja-kerja meroboh	3 days	Sat 10/5/14	Mon 12/5/14	100%
9	Mengalih tiang TNB & STMB	10 days	Sat 10/5/14	Tue 20/5/14	100%
10	Mengalih garaj	2 days	Sat 10/5/14	Sun 11/5/14	100%
11	Kerja rekabentuk struktur binaan	6 days	Sat 10/5/14	Thu 15/5/14	100%
12	KERJA-KERJA BANGUNAN	93 days	Tue 13/5/14	Thu 28/8/14	68%
13	STRUKTUR ASAS RAKIT	15 days	Tue 13/5/14	Thu 29/5/14	100%
14	sedingout & penyediaan tapak	3 days	Tue 13/5/14	Thu 15/5/14	100%
15	Penyediaan asas tapak/CR base	5 days	Sat 17/5/14	Wed 21/5/14	100%
16	Kerja rawatan anai-anai	2 days	Thu 22/5/14	Sat 24/5/14	100%
17	Pasang acuan	3 days	Thu 22/5/14	Sun 25/5/14	100%
18	Pasang BRC & besi tetulang& DPM	2 days	Mon 26/5/14	Tue 27/5/14	100%
19	Kerja konkrit asas rakit	2 days	Wed 28/5/14	Thu 29/5/14	100%
20	KERJA KERANGKA BANGUNAN	26 days	Sat 31/5/14	Sun 29/6/14	85%
21	Memasang besi tetulang utk tiang	2 days	Sat 31/5/14	Sun 1/6/14	100%
22	Memasang acuan tiang	2 days	Mon 2/6/14	Tue 3/6/14	100%
23	Kerja konkrit tiang	2 days	Wed 4/6/14	Thu 5/6/14	100%
24	Memasang acuan rasuk bumbung	6 days	Sat 7/6/14	Thu 12/6/14	100%
25	Memasang besi tetulang	2 days	Sat 14/6/14	Sun 15/6/14	100%
26	Kerja konkrit rasuk bumbung	2 days	Mon 16/6/14	Tue 17/6/14	100%
27	Membina konkrit gutter	6 days	Wed 18/6/14	Tue 24/6/14	100%
28	Membina dinding konkrit (perabong)	4 days	Wed 25/6/14	Sun 29/6/14	0%
29	KERJA BINAAN BUMBUNG	46 days	Sat 17/5/14	Tue 8/7/14	100%



Project: JKR Masjid KedawangReport3
Date: Tue 19/8/14

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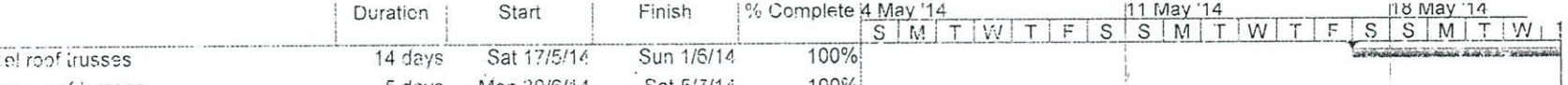
Critical Progress	Summary	Manual Summary Rollup	
Task	Project Summary	Manual Summary	
Split	External Tasks	Start-only	
Task Progress	External Milestone	Finish-only	
Baseline	Inactive Task	Deadline	
Baseline Split	Inactive Milestone		
Baseline Milestone	Inactive Summary		

ID	Task Name	Duration	Start	Finish	% Complete
30	Rekabentuk steel roof trusses	14 days	Sat 17/5/14	Sun 1/6/14	100%
31	Kerja pemasangan roof trusses	5 days	Mon 30/6/14	Sat 5/7/14	100%
32	Kerja pemasangan atap	3 days	Sun 6/7/14	Tue 8/7/14	100%
33	**KERJA MEMBINA SILING**	**9 days**	**Sun 6/7/14**	**Tue 15/7/14**	**91%**
34	Pasang kerangka kayu	5 days	Sun 6/7/14	Thu 10/7/14	100%
35	Pasang siling asbestos	4 days	Sat 12/7/14	Tue 15/7/14	80%
36	**KERJA MEMBINA LANTAI & APRON**	**10 days**	**Wed 9/7/14**	**Sun 20/7/14**	**94%**
37	Pasang acuan & BRC	2 days	Wed 9/7/14	Thu 10/7/14	100%
38	Kerja Pasang longkang	3 days	Sat 12/7/14	Mon 14/7/14	100%
39	Kerja konkrit	2 days	Tue 15/7/14	Wed 16/7/14	100%
40	Kerja Lepaan simen 20mm	3 days	Thu 17/7/14	Sun 20/7/14	80%
41	**KERJA MEMBINA DINDING**	**22 days**	**Wed 16/7/14**	**Sun 10/8/14**	**71%**
42	Kerja pasang frame tingkap & pintu	4 days	Wed 16/7/14	Sun 20/7/14	100%
43	Kerja memasang bata & party wall	8 days	Mon 21/7/14	Tue 29/7/14	100%
44	Kerja melepa dinding	8 days	Mon 21/7/14	Tue 29/7/14	80%
45	Kerja mengecat dalam & luar	10 days	Wed 30/7/14	Sun 10/8/14	30%
46	**KERJA KEMASAN LANTAI,DINDING & PINTU**	**24 days**	**Wed 30/7/14**	**Tue 26/8/14**	**30%**
47	Pemasangan jubin	10 days	Wed 30/7/14	Sun 10/8/14	30%
48	Pemasangan pintu & Rolier shutter	8 days	Mon 11/8/14	Tue 19/8/14	30%
49	pemasangan griil	6 days	Wed 20/8/14	Tue 26/8/14	30%
50	pemasangan penutup longkang bgn	6 days	Mon 11/8/14	Sun 17/8/14	30%
51	**KERJA BILIK AIR**	**13 days**	**Mon 11/8/14**	**Mon 25/8/14**	**30%**
52	Memasang jubin dinding & lantai	6 days	Mon 11/8/14	Sun 17/8/14	30%
53	Mamasang sinki	4 days	Mon 18/8/14	Thu 21/8/14	30%
54	Memasang tandas duduk	3 days	Sat 23/8/14	Mon 25/8/14	30%
55	**KERJA-KERJA LUAR**	**8 days**	**Mon 18/8/14**	**Tue 26/8/14**	**30%**
56	Pasang longkang & penutup	8 days	Mon 18/8/14	Tue 26/8/14	30%
57	Memasang laluan jalan kaki	8 days	Mon 18/8/14	Tue 26/8/14	30%
58	**KERJA BEKALAN AIR**	**9 days**	**Mon 18/8/14**	**Wed 27/8/14**	**71%**



Project: JKR Masjid KedawangReport3
Date: Tue 19/8/14

Critical	Milestone	Manual Task	
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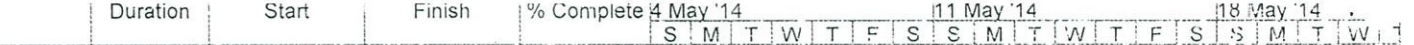
Critical Progress	Summary	Manual Summary Rollup	
Task	Project Summary	Manual Summary	
Split	External Tasks	Start-only	
Task Progress	External Milestone	Finish-only	
Baseline	Inactive Task	Deadline	
Baseline Split	Inactive Milestone		
Baseline Milestone	Inactive Summary		

ID	Task Name	Duration	Start	Finish	% Complete
59	Pasang paip bekalan dalaman	4 days	Mon 18/8/14	Thu 21/8/14	100%
60	Pasang paip luaran & pili bomba	2 days	Sat 23/8/14	Sun 24/8/14	20%
61	Pasang tangki	2 days	Mon 25/8/14	Tue 26/8/14	100%
62	sambunagn bekalan SADA	1 day	Wed 27/8/14	Wed 27/8/14	0%
63	**KERJA SISTEM KUMBAHAN**	**9 days**	**Mon 18/8/14**	**Wed 27/8/14**	**39%**
64	membina lurang	4 days	Mon 18/8/14	Thu 21/8/14	50%
65	memasang paip VCP	4 days	Sat 23/8/14	Tue 26/8/14	30%
66	memasang tangki septik	1 day	Wed 27/8/14	Wed 27/8/14	30%
67	**KERJA ELEKTRIK**	**26 days**	**Wed 30/7/14**	**Thu 28/8/14**	**77%**
68	Pendawaian	20 days	Wed 30/7/14	Thu 21/8/14	100%
69	pemasangan lampu	4 days	Sat 23/8/14	Tue 26/8/14	0%
70	sambungan TNB	1 day	Wed 27/8/14	Wed 27/8/14	0%
71	TESTING & COMMISSIONING	1 day	Thu 28/8/14	Thu 28/8/14	0%
72	SERAHAN PROJEK SIAP	0 days	Thu 28/8/14	Thu 28/8/14	0%



Project: JKR Masjid KedawangReport3
Date: Tue 19/8/14

Critical		Milestone		Manual Task	
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Task		Project Summary		Manual Summary	
Split		External Tasks		Start-only	
Task Progress		External Milestone		Finish-only	
Baseline		Inactive Task		Deadline	
Baseline Split		Inactive Milestone			
Baseline Milestone		Inactive Summary			