

**DEPARTMENT OF BUILDING
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
UNIVERSITI TEKNOLOGI MARA
(PERAK)**

DECEMBER 2019

It is recommended that this practical training report provided

by

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2017206354**

entitled

PERIMETER WALL AND GATE

be accepted in partial fulfillment of the requirements for obtaining the Diploma In Building.

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STUDENT'S DECLARATION

I hereby declare that this report is my own work, except for extract and summaries for which the original references are stated herein, prepared during a practical training session that I underwent at P-Excell Management Sdn. Bhd. for a duration of 20 weeks starting from 5th August 2019 and ended on 20th December 2019. 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.

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Date : 13th DECEMBER 2019

ACKNOWLEDMENT

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Alhamdulillah, praise to Allah, the Most Merciful, the Most Graceful.

This Industrial training report is an accumulation of many people's endeavor. But at the beginning, praise to Allah for twenty (20) weeks I undergo my internship that begins on 5th August 2019 till 20th December 2019, I finally successfully completed my Industrial training report. The internship opportunity I had with P-Excell Management Sdn. Bhd. was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it. I am also grateful for having a chance to meet so many wonderful people and professionals who led me through this internship period.

Next, for my supervisor from Universiti Teknologi MARA (UiTM), En Zulkifli Bin Ab. Halim. I thank you for all the reprimand and guidance as it is very helpful for me in completing my report. All of his guidance regarding to the industrial training will be used for a good reason and helped me in doing report and to complete my Industrial report training.

It is my radiant sentiment to place on record my best regards, deepest sense of gratitude to En. Wan Muaazam bin W. Muhamad, Engineer, for their careful and precious guidance which were extremely valuable for my study both theoretically and practically. I perceive as this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives.

I express my deepest thanks to En. Mohd Aswan bin Azmi, Assistant Engineer for taking part in useful decision & giving necessary advices and guidance and arranged all facilities to make life easier. I choose this moment to acknowledge his contribution gratefully. Not forgotten for all the staffs working at P-Excell Management Sdn Bhd, I'm very much appreciated for their entire kindness helping

and teaching me when I was working there. I was very lucky to have such a helpful colleagues and I never felt left out in any situation.

Not forgotten, I also would like to extend my thankfulness to the most precious persons in my life, my father and mother for all their moral support, financial support and also to my friends for never ending reminding me to always be honest and trustworthy during my training at P-Excell Management Sdn. Bhd.

Thank you so much.

ABSTRACT

Perimeter wall is a border or a boundary that close areas of land while a gate is an entrance which can be opened and closed manually or automatically via an electric powered mechanism. The aim of this study are to explore different types of perimeter walls and gates used at two residential buildings in Kubang Parit, Kuala Terengganu. Data are collected through on-site inspections, interview and document review. It is found that the method of construction of the two perimeter walls are mostly similar to each other but have differences in design and materials used. Both gates between two residential building also contains different and similarities through the study .This can conclude that perimeter walls and gates for each residential building have different function for each different characteristic of the based on the building service such as design, dimension, materials and finishes.

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CHAPTER 1.0

INTRODUCTION

1.1 Background and Scope of Study

Perimeter wall is a structure that circles around an area that makes a boundary. This perimeter wall is very similar to fence which is to put between two areas of land as a boundary or around a garden or yard, field to keep the animal and human in and out. Fence is a structure that enclosed an area, typically outdoor, usually consisting of posts that a connected by boards, wire, rails or netting (Encyclopedia Britannica, 1982). A fence may be solid in appearance or construction but differs from a wall in not having a solid foundation along its whole length.

There are many reasons why this type of wall should have at their property and it is also one of the important elements in any building constructions. Other than for security and privacy, perimeter walls and gates are also used for establish boundaries. Sometime people trespass on land accidentally and not realizing that they have upsetting the owner. It is not only for private property, but also for public building like hospital, government building and commercial building.

In addition, a perimeter wall is to protect people and animals. If there are children, dogs, cats or even horses, a perimeter wall can keep them wrangle up in the yard, so that they do not run off, injure themselves or get lost. It might also a concern with the landscape elements outside of the yard like lakes and ponds. By installing a perimeter wall, it ensures that nobody within the yard will accidentally fall into the lakes or ponds.

Furthermore, just because a perimeter wall is an important element in an area, that does not mean it cannot be grand and aesthetic. Some building owners choose to build a perimeter wall primarily for its appealing design. Not every of it acts as a shield or barrier, some may simply look lovely and nicely.

This study was carried out at Mukim Kubang Parit, Kuala Terengganu, Terengganu. The buildings selected were at unit (1)KP Perdana Tambahan and Unit (2)5A. This study focused on perimeter walls and gates of residential buildings in the area. These buildings were chosen as the subject of the study because the data of the buildings can be access easily. Both of the sites were really near and made the process of study more effective. From the data collected, what can be studied was the method installation, differences and similarities of each perimeter walls and gates. Problems did not arise and the studies was done effectively.



Figure 1: Location of KP Perdana Tambahan and Unit 5A

1.2 Objectives

1. To study the construction method of perimeter wall at two different houses.
2. To analyze the difference of perimeter wall and gate for two different unit houses.

1.3 Methods of Study

1. Site Observation

This study was done by site observation. The site was led by a supervisor and other staff. They showed and guided through the site. Sometimes, they were absent and not being able to visit the site. So, they allowed me to have a tour around the site myself. Moreover, they advice to wear personal protective equipment such as safety boot and safety helmet as protection to avoid danger and accident occurred.

2. Interview

The supervisor allowed me to ask question about the project and other staff also helped. Mostly the supervisor answered the question because he knew better than others. They explained the method of construction made, definition, installation and even materials involved. This made the two ways communication works more effective. Therefore, data and information take were noted and recorded.

3. Document reviews

Document reviews were also one of the study methods. They allowed me to review and checked the drawing plan and project progress. Besides, the drawing plans such as architectural plan, structural plan and floor plan but I only focused on study topic that has design and dimension plan. Project progress or site diary was a record of many information at the site. Example, numbers of workers, weather, machineries and even worked done in that day. All of these were recorded in the site diary for revision or other purposes.

CHAPTER 2.0

COMPANY PROFILE

2.1 Introduction of Company

P-Excell Management Sdn Bhd (PEM) is the new name of the dormant Primula Kapas Island Village Resort company after it ceased operations since 1997 where the company originally carried out activities in the field of hospitality and tourism management. The name change was approved by Suruhanjaya Syarikat Malaysia (SSM) on 1 December 2009. The company will be the vehicle for a number of PMINT activities such as tourism, construction, engineering management and other activities that have the potential to be implemented.

The company has an authorized capital of RM250,000 and a paid-up capital of RM200,000 which is 100% owned by Primula Resort Management Sdn Bhd (PRM) and recorded an accumulated loss of RM1,126,156 as at 31 December 2008. In order to launch the company's operations especially in the construction sector which required strong company background during project tender participation, the company's current structure was restructured where PMINT injected capital of RM100,000, PRM capitalizing on P-Excell's debt of RM200,000.

With this restructuring, the company's paid-up capital will increase to RM1 million with a breakdown of the company's equity holdings by PRM by 70% and PMINT by RM30%.

The company's current activities include managing agents to manage the project, managing the Palm Oil Plantation in Tersat and also overseeing the Terengganu State Development Corporation (PMINT) Paya Bunga Square building.

2.1.1 Company Establishment Objectives

1. Continue the business of fixed price, housing development and construction and provide management and other executive services, including supervisory and consultancy services in all aspects of building engineering, repairs, maintenance and to submit the complete Occupational Safety and Health Act (OSHA) - compliance with building safety solutions including safety inspections, assessments, training and documentation.

2. Carry on business in the real estate management sector, farmers, sellers and buyers from outside and in palm oil, rubber, cocoa, rice, fruits and other products such as artificial fertilizers and agricultural products and various forms of agricultural products and various products. And to provide management and other executive, supervisory and legislative services related to the management of the company.

3. To carry on business as a consultant and consultant to the government, business, trade, industry, real estate, plantation and engineering in all its branches specifically for the above advice, direct or manage accounting, budget and other methods and systems of cost control of business, effectiveness , policy, organization, restructuring, development, expansion, administration, management, supervision, personnel, purchases, stores, production and sales of any company, firm, individual or organization and business, enterprise, operation and project.

2.1.2 Location of Company



Figure 2: Location of company

2.1.3 P-Excell Projects (Project Managements)

1. Project Development

P-Excel Management Sdn Bhd has been appointed by State Economic Development Corporation (PMINT) as real estate developer for Taman KP Perdana Phase 5, Kuala Terengganu. The development involves 144 unit of semi-detached houses consist of 4 phases which is, Phase 5A (46 Unit), 5B (16 Unit), 5C (46 Unit), 5D (36 Unit) and KP Perdana Tambahan (16 Unit).

The real estate development was started by the construction of 16 unit of sample houses in Phase 5B. It was initiated on December 2013 to July 2014 (7 month). The project was awarded to H.E Supply Sdn Bhd as its contractor. The best achievement in this project was P-excel obtained score of 80% in Quality Assessment System in Construction (QLASSIC).

The next development project which involves 46 unit of houses Phase 5C, a new initiative was proposed. P-Excel appointed Rancangan Kita Sdn Bhd as a JV Developer. This project started on February 2015 and finished on July 2016 and the remainder 82 constructed after that.

2. Project Construction

P-Excel Management Sdn Bhd was appointed by the state government of Terengganu as the main contractor for two (2) project which is Pangsapuri Ladang Gemilang II and Pangsapuri Mampu Milik Pulau Duyong.

The Pangsapuri Ladang Gemilang II project costs RM 42Million and was submitted to state government of Terengganu in 2011, and the Pangsapuri Mampu Milik Pulau Duyong which involves Rm24Million cost was submitted on 2012.

3. Quantity Surveyor technical support

P-Excel Management Sdn Bhd was given the responsibility to provide technical support in quantity surveying division in the construction of projects especially in PMINT projects.



Figure 3: Location of P-Excell projects

2.2 Company Profile

COMPANY INFORMATION	
NAME	P-EXCELL MANAGEMENT SDN. BHD.
ADRESS	TINGKAT 9, MENARA PMINT, JALAN SULTAN ISMAIL, 20200 KUALA TERENGGANU, TERENGGANU.
TELEPHONE	
FAX	
COMPANY NUMBER	228308-T
SHAREHOLDER	1. PRIMULA RESORT MANAGEMENT SDN. BHD. (70%) 2. PERBADANAN MEMAJUKAN IKTISAD NEGERI TERENGGANU PMINT. (30%)
MAIN BANK	MAYBANK BERHAD, CAWANGAN PERBANKAN ISLAM KUALA TERENGGANU.

Table 1: Company profile



Figure 4: Company logo

2.3 Organization Chart

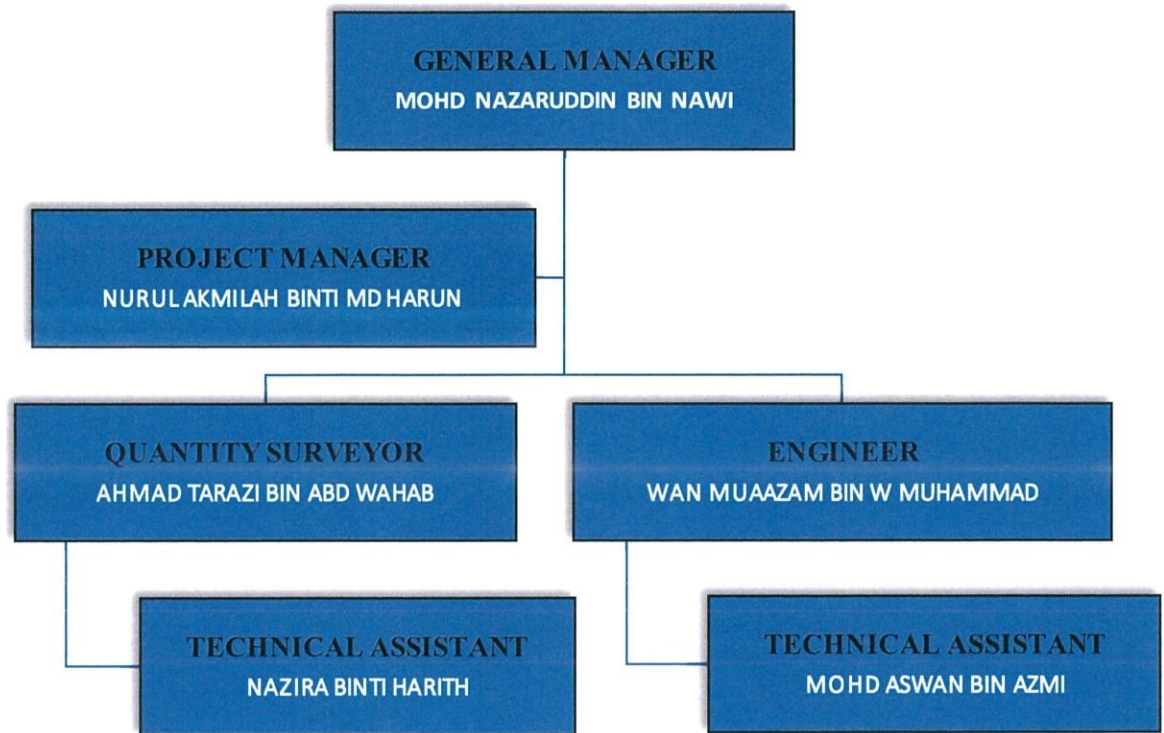


Figure 5: Company organization chart

2.4 Completed Project and On-going Projects

2.4.1 Project Ongoing

NO.	PROJECT	PRICE	FINISHED DATE
1	PROJECT KP PERDANA TAMBAHAN , MUKIM KUBANG PARIT, KUALA TERENGGANU.	RM 4 162 620.00	ESTIMATED TIME ON END OF YEAR 2019

Table 2: Project on-going

2.4.2 Completed Projects

NO.	PROJECT	PRICE	FINISHED DATE
1	PROJEK PEMBINAAN PASAR MALAM TANJUNG, KUALA TERENGGANU YANG MERANGKUMI 34 UNIT GERAI DAN DATARAN YANG BOLEH MENEMPATKAN 58 UNIT PETAK JUALAN DALAM SATU MASA	RM 14 MILLION	SEPTEMBER 2016
2	PROJEK PERUMAHAN 46 UNIT BERKEMBAR DUA TINGKAT FASA 5C , MUKIM KUBANG PARIT, KUALA TERENGGANU.	RM 11 MILLION	15 DECEMBER 2017
3	PROJEK PERUMAHAN 16 UNIT RUMAH BERKEMBAR 2 TINGKAT FASA 5B , MUKIM KUBANG PARIT, KUALA TERENGGANU.	RM 5.2 MILLION	FEBRUARY 2014

Table 3: Completed projects

CHAPTER 3.0

CASE STUDY

3.1 Introduction to Case Study

Based on the case study at Mukim Kubang Parit, Kuala Terengganu, Terengganu. The houses selected were at unit (1)KP Perdana Tambahan and (2)5A, both area was surrounded with perimeter walls made from brick but have different design shown in figure 1. At KP Perdana Tambahan ,3 frame were added at every wall while in brick wall in 5A does not used any frame. The uses of this wall were to attach with strategic points along the length of the wall where additional strength was needed. These two types of perimeter wall had similarities and also different due to same residential project .For addition information, the perimeter wall for both places used five to six skilled labours. The labour completely installed the perimeter walls around the area for one month due to the weather problems and manual process. Almost RM 40,000 was used to buy machineries and the mixture such as sand, cement, aggregate and lime mortar to complete the boundary walls. These perimeter walls use ground beam as the base. The gates between two residential building were also had more similarities such as design, cost and labours used yet had some difference. For the KP Perdana Tambahan , it had 16 unit houses , so gate used were 16 each house while 5A had 36 unit houses used.



Figure 6: Location of KP Perdana Tambahan and 5A

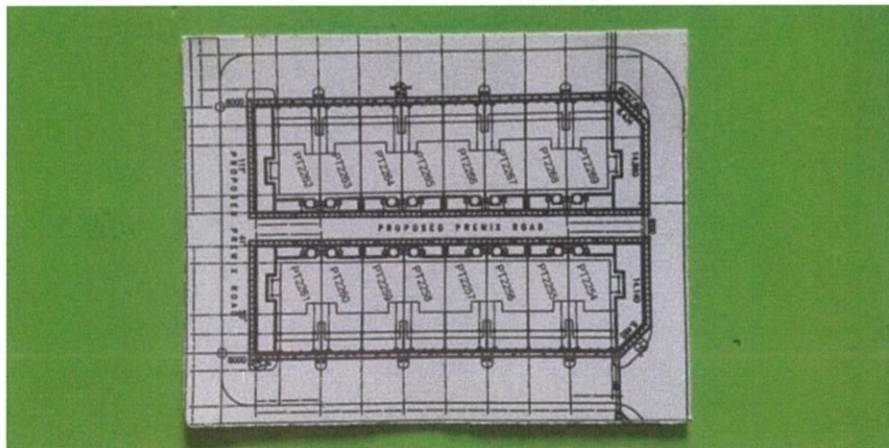


Figure 7: Layout plan of perimeter wall at KP Perdana Tambahan



Figure 8: Layout plan of perimeter wall at 5A.

3.2 Method Construction

First of all, the method of constructions between two residential buildings were very similar to each other. The difference were labour used, design and material cost. Before starting the construction process, site clearance has been done to the building surrounding. It consists of rocks, dirt or any other obstructions that will interfere with the proper construction of the fence.



Figure 9: Site clearance

Then, the workers installed formworks for ground beam. The slab was above the drain, so this process need to take more serious on safety to avoid collapsed during installation. The formwork was made of wood. Struts were also needed to support the base of the slab. Formworks for grating were also were installed. Besides, position and joints were correctly done. The formworks were designed to withstand construction loads such as fresh concrete pressure and weight of workers and operators and their machine.



Figure 11: Formwork installation



Figure 10: Formwork installation

Next, reinforcements were installed inside the formwork. Priority to the placement of reinforcement for concrete floor slab construction, inspection and checked forms to confirm that the dimensions and the location of the concrete members confirmed to the structural plans. Added to that, the reinforcement were properly cleaned and oiled but not in such amount as to run onto bars or concrete construction joints. The reinforcement were also overlapped each other. These processes were referred to design drawings that designated bar size, cutting required length, and make necessary hooks and bents. The concrete cover and spacing for floor slabs can be maintained by introducing spacers and bars supporters. Therefore, incorrect reinforcing steel placement can lead to serious concrete structural failures.



Figure 14: Overlapped reinforcements



Figure 12: Cutting over reinforcements



Figure 13: Reinforcements installation

Pouring the concrete was most important things and took cautious. The processed started by placing the concrete against one edge of the formwork and added further batches worked away from the edge, spread with a shovel to ensure that all of the edges and corners of the formwork were completely filled. Fill all the way to the top of the formwork, the labor used shovel to tamp the product into position to get any air pockets out of the concrete. The concrete was leveled with a screed held against the top of the formwork and by working from side to side and moving from one end of the formwork across to the other. It was necessary to repeat this process to ensure that the surface was flat. Furthermore, the fresh concrete was compacted adequately in order to mould it within the forms and around embedded items and reinforcement and to eliminate stone pockets, honeycomb, and entrapped air. Vibration also was used to consolidate the concrete. The concrete were left for curing for 2 to 3 days.



Figure 16: Concrete pouring and vibrating



Figure 15: Curing process of concrete



Figure 17: Concrete mixer truck

Then, after the concrete were cured, the labor continued installed reinforcement for columns. The columns were tied with links.



Figure 19: Installation of column reinforcement

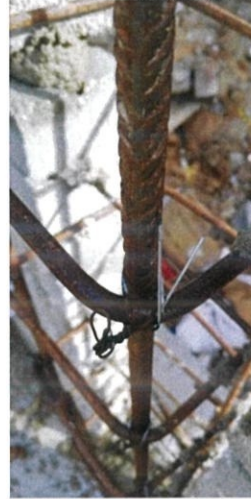


Figure 18: Link that attached to column

The labor made a guideline with string for brick layering. Guideline was a must for setting bricks in perfectly straight rows.



Figure 20: Thread as guideline

The first brick pressed into the mortar. The labours pushed down slightly, then level used to check that the brick even with the ground. To do so, the labours pressed the level up against the side of the brick and then check it with string. Once the first brick was set, the labours laid down some mortar for the next few bricks. For the next bricks, the labours took a slab of mortar and coat the end of the brick that will be pushed up against the first brick. The level used again to ensure that the bricks are flush and at an even height, pushing on the bricks lightly to make sure that they fit perfectly. The labours scraped away any excess mortar.

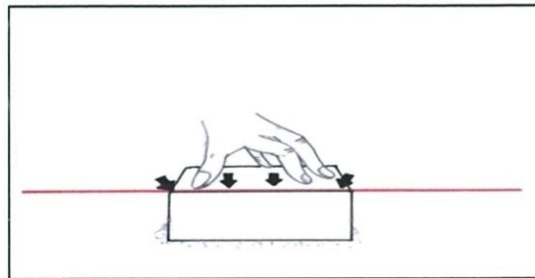


Figure 21: Brick being push down

To build second additional rows, the labours moved the guideline up to the next marker. The labours started the second row with 1/2 a brick on both ends. Mortar and one full brick placed on top of the ends. With each row, the process was the same. However, the labours used half-bricks every other row to ensure that the joints in each row are not perfectly lined up.

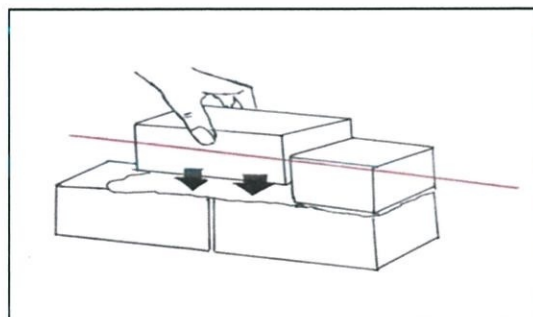


Figure 22: Lay brick half to a brick Size

At every three or four of brick layering, the labours applied reinforcement bar then continued till the end of the wall. This forms an integral structure to absorb stress and vibration in building. After done build the wall with the height that measured, the labours filled in any missing patches of mortar along the wall.



Figure 23: Reinforcement every 3 layers

Besides, frames were also layered after reaching at some point. The process was still similar to layering brick. The frames were made of concrete. Therefore, these frames were only had at unit KP Perdana Tambahan .At the top, capping also was build. It were still used bricks but in different position.



Figure 24: Laying of frames

After reaching near the end, the labour installs the formwork for column. Then quickly proceed to concrete it. Curing process took place after worked done. The duration to construct these perimeter walls between two residential building which takes around four weeks for KP Perdana Tambahan and six weeks for 5A. 5A took more time because had long distance and area needed.



Figure 25: Column formworks

Plastering was one of the final steps in finishing an interior or exterior wall. While applying plaster was a highly technical process that usually best left to professionals, any homeowner can do it themselves provided they follow a few key guidelines. First, the labor started with a batch of thick, freshly-mixed plaster. Then spread the plaster onto a clean wall with a trowel, then use a handheld float to smooth it from corner to corner. After that, labor worked out lumps and inconsistencies.



Figure 26: Plastering process



Figure 27: Finished plastered

Lastly, painting works took place. This work needed 4 to 5 labor. Common procedures for painting work were firstly painting the primer which was white paint. Then proceed to secondary paint that was other colours. For KP Perdana Tambahan project used Jotun Jotaplast (Crystal White) as primer, Jotun Jotashield 1135 (Croissant) and Jotun Gardex 7249 (Adele). Besides, for 5A used same primer as KP Perdana Tambahan. The labor used rollers to paint the wall fence instead of brush because it was more time efficient. Then, the painted wall being dried.



Figure 29: Painting work



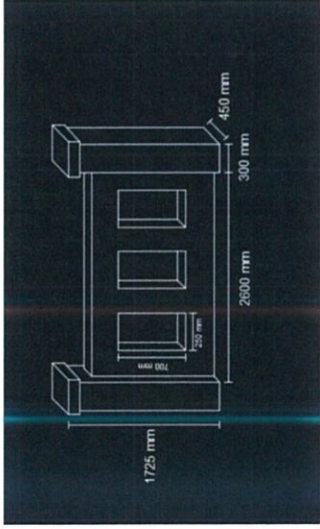
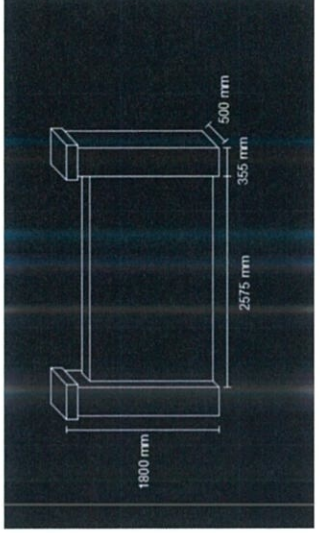




Figure 30: Painted fence



Figure 28: Type of paints





3.3 Difference and Similarities of Perimeter Walls

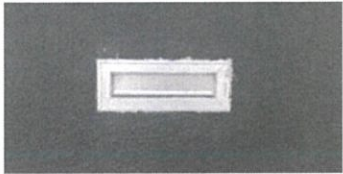
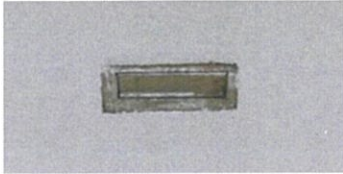

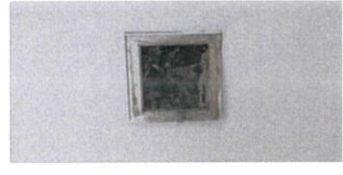
UNIT HOUSE	KP PERDANA TAMBAHAN	5A
<p>Design</p>		
<p>Dimension (Length x Width x Height)</p>	 <p>(drawn using AUTOCAD – not to scale)</p>	 <p>(drawn using AUTOCAD – not to scale)</p>


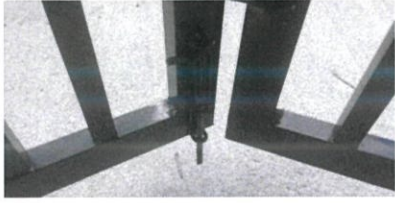






<p>Type of Foundation</p>	<p>Ground Beam</p> 
<p>Type of brick</p>	<p>Concrete Brick</p> 



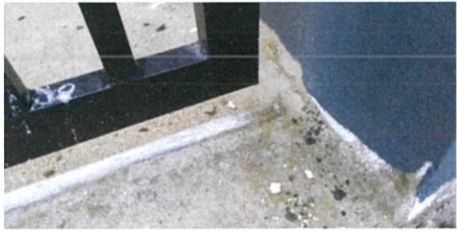



<p>Bonding</p>	<p>Stretcher bond with frame</p> 	<p>Stretcher bond without frame</p> 
<p>Finishes</p>	<p>Plastering and painting</p> 	<p>Plastering and painting</p> 
<p>Frame</p>	<p>250mm x 700mm each frame</p> 	<p>No frame</p> 

3.4 Difference and Similarities of Gates

UNIT HOUSE	KP PERDANA TAMBAHAN	5A
Design and shape		
Cost	RM1200.00 per unit RM19200.00 for 16 unit houses	RM2100.00 per unit RM75600.00 for 36 unit houses
Length x Width	5450mm x 1425mm	5800 mm x 850mm
Opening	5550mm The openings only serve for vehicle such as car and motorcycle. So, it does not need to have a wide opening.	6000mm The openings only serve for vehicle such as car and motorcycle. So, it does not need to have a wide opening.
Dustbin		

Letter Box	Outside 	Outside 
	Inside 	Inside 
Material	Wrought iron Wrought iron is very sturdy and it will not wear out or bend easily. It is also difficult for anyone to try and cut through wrought iron. It come with variety of designs.	
Handling	Manual The gate is controlled manually make it easier for people to go in and out from the area. It is not necessary for the building to use an automatic gate as it can be costly and does not need a fast opening since they are not in a rush situation.	
Finishes	Painting – Oil-based Paint Painting is use as finishes as it can prevent the gate from rusty because of the rain and hot weather.	
	Black Oil-based Paint	White Oil-based Paint

<p>Lock</p>	<p>Middle</p>  <p>Bottom</p> 	<p>Middle</p>  <p>Bottom</p> 
	<p>These locks provide more safety to the area.</p>	
<p>Hinges (1)</p>		
<p>Funtion of the hinges is to connect leaf gate to the wall attach each other with bolt.</p>		
<p>Hinges (2)</p>		
<p>Funtion of the hinges is to connect between 2 leaf gate.</p>		

<p>Track Line And Steel Roller</p>		
<p>Function of track line is to make sure the gate stay on the track which make it easier to slide open or close and to prevent the gate from swinging or fall. Steel roller is to move the gate from one point to another point.</p>		
<p>Stopper</p>		
<p>The funtion of stopper is to prevent the gate from overslide. Both gate are not finish installing.</p>		
<p>Rear Door</p>	<p>850m x 1530mm</p> 	<p>Wall were all connected</p> 

CHAPTER 4.0

CONCLUSION

4.1 CONCLUSION

The study on perimeter walls and gates had properly taken and were located at Mukim Kubang Parit, Kuala Terengganu, Terengganu. The houses selected were at unit (1)KP Perdana and (2)5A. These houses that were visited have differences and similarities of material type and function for land owned by the government. The construction procedure was similar for all residential buildings across Malaysia. In this study, both of the perimeter walls used a simple footing for foundation but the design was different according to the purpose of the building.

The finishes used for each government buildings were also similar in common due to same use of characteristic and standard. This can be seen from this study that the both houses used plaster as the wall finishes. In unit 5A, the design was fully brick wall while at unit KP Perdana Tambahan used concrete frames as a decorative panel. The gates also had its own function that completed one of the important building elements. It was important that construction works needed to recognize project management and procedures as a discipline and cooperation to requiring specific knowledge, skills, and abilities to apply in future study or works.

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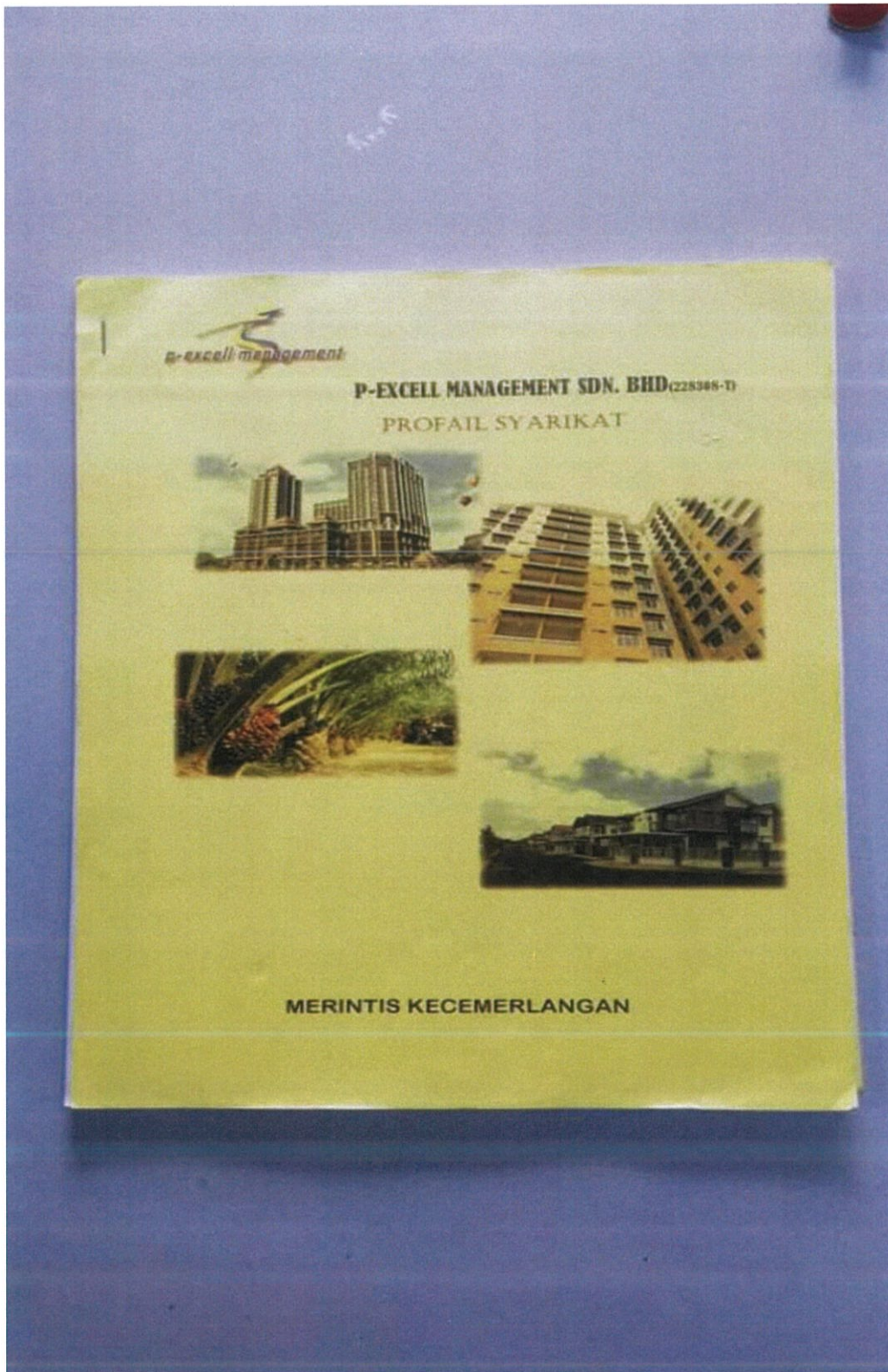
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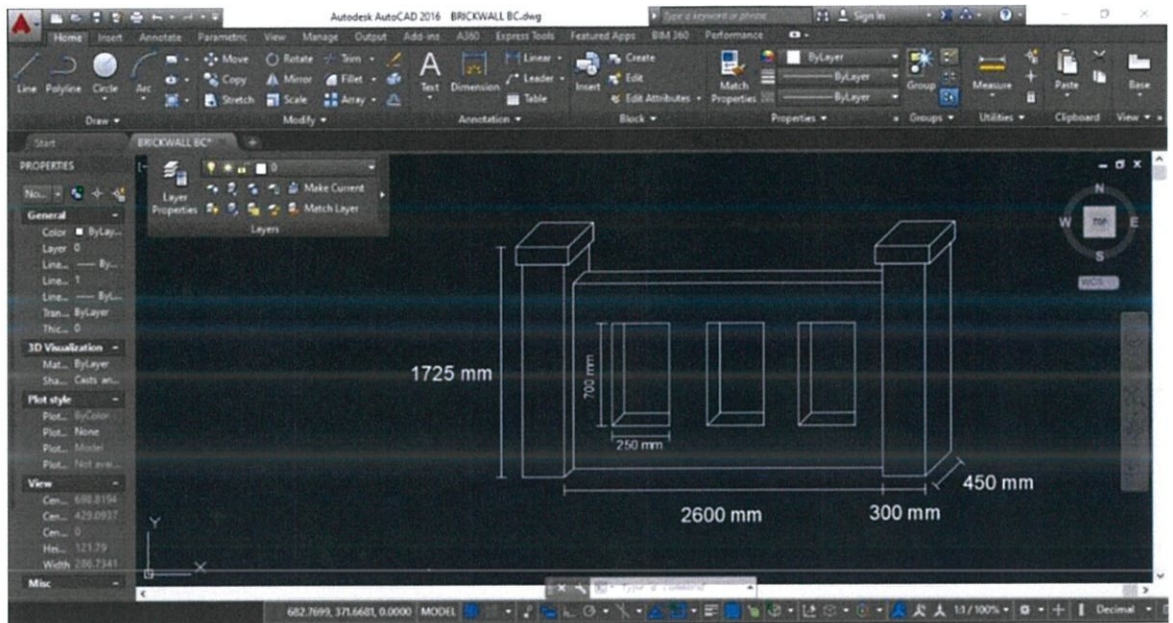
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APPENDIX A

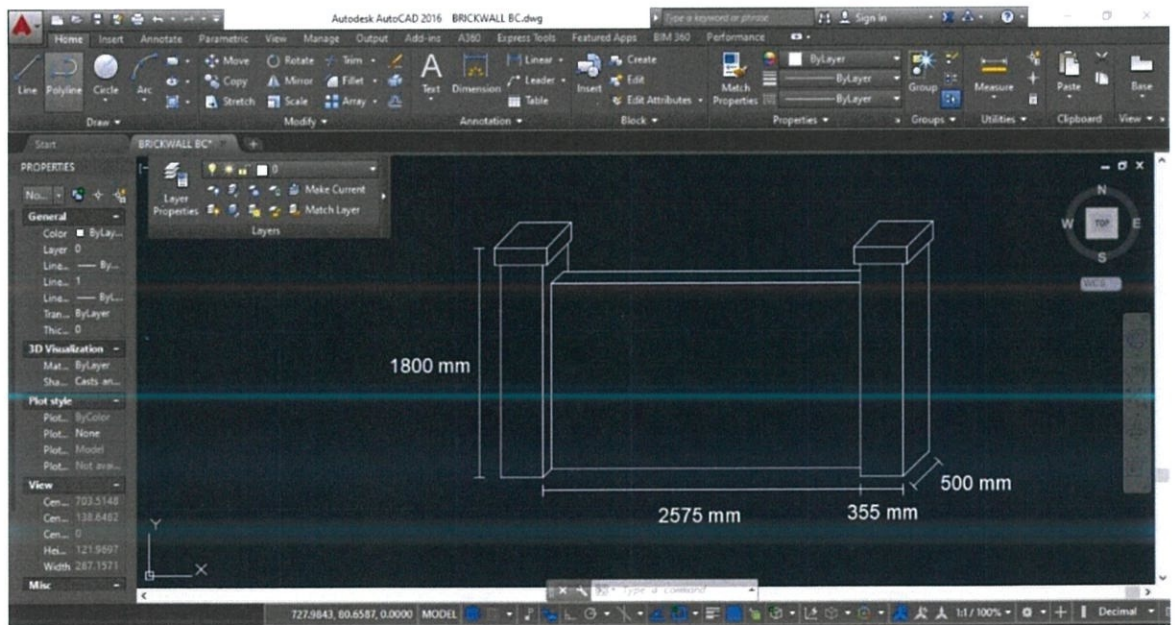


Company Profile

APPENDIX B



Draw Using AutoCAD Software for Fence at Project KP Perdana Tambahan



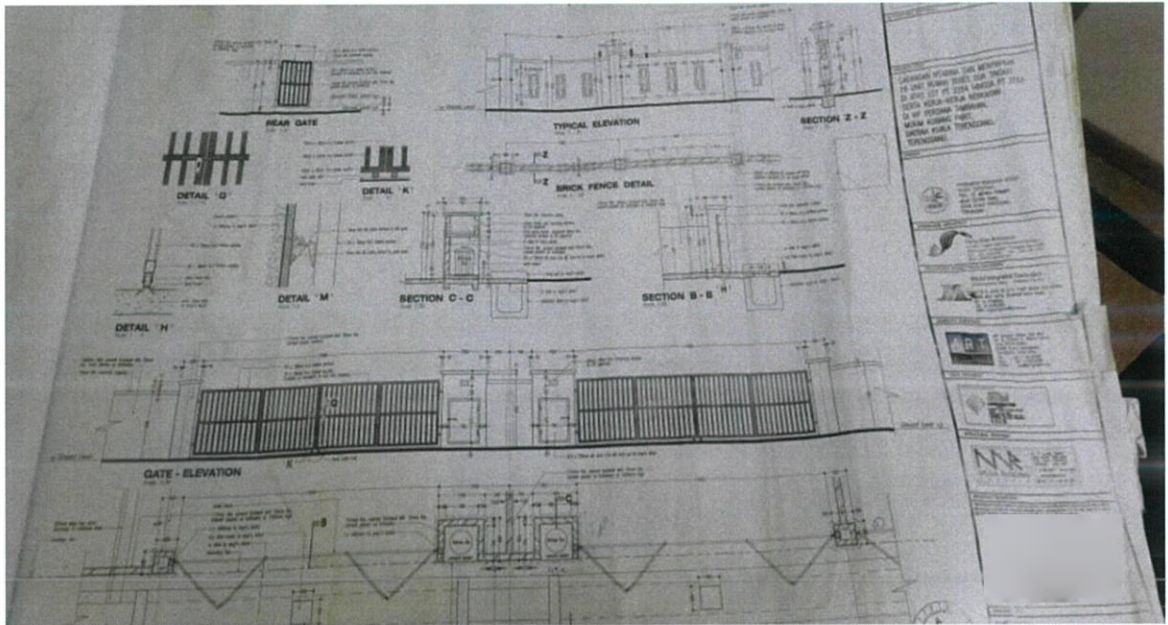
Draw Using AutoCAD Software for Fence at Project 5A

APPENDIX C



Layout Plan of P-Excell Projects

APPENDIX D



Detail Drawing of Gate at KP Perdana Tambahan

APPENDIX E

KONTRAK 01/2017 : CADANGAN MEMBINA DAN MENYIAPKAN 16 UNIT RUMAH TERES 2 TINGKAT DI ATAS LOT PT. 2254 HINGGA PT. 2269 SERTA KERJA-KERJA BERKAITAN DI KP PERDANA TAMBAHAN, MUKIM KUBANG PARIT, KUALA TERENGGANU, TERENGGANU.

LAPORAN KEMAJUAN NO. 34

LAPORAN BERGAMBAR

SEHINGGA 16 JULAI 2019

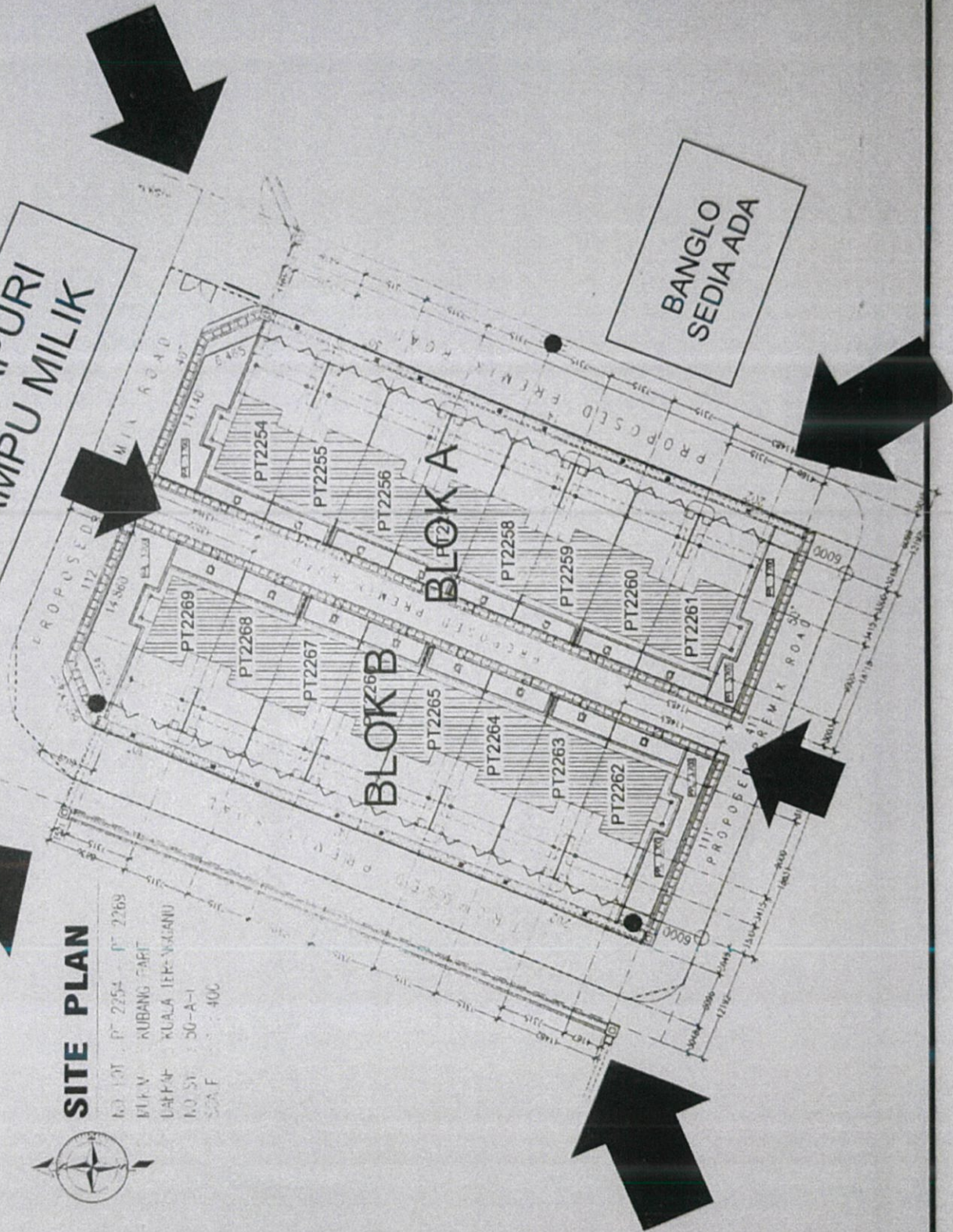
PANGSAPURI
MAMPU MILIK

BANGLO
SEDIA ADA



SITE PLAN

NO. LOT : PT 2254 - PT 2269
BLK. : KUBANG PARIT
DAFTAR : KUALA TERENGGANU
NO. SK : 50-A-1
SKA F : 400



APPENDIX F

APPENDIX G

