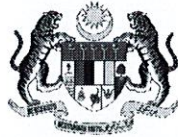


SULIT



KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN KEJURUTERAAN AWAM

PEPERIKSAAN AKHIR

SESI II : 2022/2023

DCQ10043 : BUILDING WORKS MEASUREMENT 1

TARIKH : 13 JUN 2023

MASA : 8.30 PG – 10.30 PG (2 JAM)

Kertas ini mengandungi **LAPAN (8)** halaman bercetak.

Bahagian A: Subjektif (2 soalan)

Bahagian B: Subjektif (4 soalan)

Dokumen sokongan yang disertakan : Lampiran Lukisan, Malaysian Standard Method of Measurement of Building Works, Kertas Dimensa & Kertas Billing.

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

SECTION A : 50 MARKS
BAHAGIAN A : 50 MARKAH

INSTRUCTION:

This section consists of **TWO (2)** structured questions. Answer **ALL** questions.

ARAHAN :

*Bahagian ini mengandungi **DUA (2)** soalan berstruktur. Jawab semua soalan.*

QUESTION 1

SOALAN 1

- CLO1 (a) Explain **FIVE (5)** importances of Bill of Quantities (BQ) in a construction project.

*Terangkan **LIMA (5)** fungsi Senarai Kuantiti dalam projek pembinaan.*

[10 marks]

[10 markah]

- CLO1 (b) Preliminaries is a group of items necessary for a contractor to complete a project. Describe **FIVE (5)** importances of preliminary work in the construction industry.

*Kerja awalan adalah satu kumpulan item yang diperlukan oleh kontraktor untuk menyiapkan projek. Terangkan **LIMA (5)** kepentingan kerja-kerja awalan dalam industri pembinaan.*

[15 marks]

[15 markah]

QUESTION 2**SOALAN 2**

CLO1

- (a) Interpret **FIVE (5)** contents of the Standard Method of Measurement 2 (SMM2) in Section A – General Rules.

*Terjemahkan **LIMA (5)** kandungan Kaedah Pengukuran Standard 2 (SMM2) dalam Seksyen A – Peraturan Umum.*

[10 marks]

[10 markah]

Table A2(b) : Schedule of Column Stump

Jadual A2(b) : Jadual Tiang Tunggul

Types / Jenis	C1	C2
Size of column stump <i>Saiz tiang tunggul</i>	250mm x 250mm x 1450mm	400mm x 400mm x 1450mm
Nos of column stump <i>Bilangan tiang tunggul</i>	450	120

- Notes : used Vibrated Reinforced Concrete Grade 30

CLO1

- (b) Based on Table A2(b), measure the quantity of concrete works for C1 and formwork for C1 and C2 on dimension paper.

Berdasarkan Jadual A2(b), ukur kuantiti kerja-kerja konkrit untuk C1 dan kotak acuan untuk C1 dan C2 pada kertas dimensa.

[15 marks]

[15 markah]

SECTION B : 50 MARKS
BAHAGIAN B : 50 MARKAH

INSTRUCTION:

This section consists of **FOUR (4)** structured questions. Answer **TWO (2)** questions only.

ARAHAN :

Bahagian ini mengandungi EMPAT (4) soalan berstruktur. Jawab DUA (2) soalan sahaja.

Notes:

Nota:

1. Taking off refers to the rules stated in the Standard Method of Measurement of Building Works Second Edition (SMM2).

Pengukuran Kuantiti hendaklah merujuk kepada peraturan Kaedah Piawaian Pengukuran Kuantiti untuk Kerja-kerja Bangunan, Edisi Ke-2 (SMM2)

2. Candidate is allowed to make any assumption if the information given in the drawing is inadequate.

Calon dibenarkan membuat andaian sekiranya maklumat yang diberikan tidak mencukupi.

QUESTION 1

SOALAN 1

- CLO1 (a) By referring to Malaysian Standard Method of Measurement for Building Works Second Edition (SMM2), explain the classification of bar reinforcement.

Merujuk kepada Kaedah Pengukuran Piawaian Malaysia Bagi Kerja-kerja Bangunan Edisi Kedua (SMM2), terangkan pengelasan besi tetulang.

[5 marks]

[5 markah]

- CLO1 (b) Based on drawing no. **DCQ10043/WBLFF/001-002**, measure the quantity of links in column stumps.
- Merujuk lukisan no. DCQ10043/WBLFF/001-002, ukur kuantiti besi pengikat di dalam tiang tunggal.*
- [7 marks]
[7 markah]

- CLO1 (c) Based on drawing no. **DCQ10043/WBLFF/001-002**, conclude a bill of quantities (BQ) complete with measurement main bar in pad foundation.
- Merujuk lukisan no. DCQ10043/WBLFF/001-002, rumuskan satu senarai kuantiti lengkap dengan pengukuran kuantiti besi utama di dalam asas pad.*
- [13 marks]
[13 markah]

QUESTION 2

SOALAN 2

- CLO1 (a) By referring to Malaysian Standard Method of Measurement for Building Works Second Edition (SMM2), explain about the disposal of excavated materials by stating relevant clauses.
- Merujuk kepada Kaedah Pengukuran Piawaian Malaysia Bagi Kerja-kerja Bangunan Edisi Kedua (SMM2), terangkan tentang buangan hasil korekan dengan menyatakan klausa yang berkaitan.*
- [5 marks]
[5 markah]

- CLO1 (b) Based on drawing no. **DCQ10043/WBLFF/003**, measure the quantity of pit excavation.
- Merujuk lukisan no. DCQ10043/WBLFF/003, ukur kuantiti pengorekan lubang.*
- [7 marks]
[7 markah]

- CLO1 (c) Based on drawing no. **DCQ10043/WBLFF/003**, conclude a bill of quantities (BQ) complete with measurement for bar reinforcement in all column stumps.
- Merujuk lukisan no. . DCQ10043/WBLFF/003, rumuskan satu senarai kuantiti lengkap dengan pengukuran kuantiti besi tetulang di dalam tiang tunggal.*
- [13 marks]
[13 markah]

QUESTION 3

SOALAN 3

- CLO1 (a) By referring to Malaysian Standard Method of Measurement for Building Works Second Edition (SMM2), explain the method to measure fabric reinforcement by stating the relevant clauses.
- Merujuk kepada Kaedah Pengukuran Piawaian Malaysia Bagi Kerja-kerja Bangunan Edisi Kedua (SMM2), terangkan kaedah mengukur tetulang fabrik dengan menyatakan klausa yang berkaitan.*
- [5 marks]
[5 markah]

- CLO1 (b) Based on drawing no. **DCQ10043/WBLFF/004 - 007**, measure the quantity of wiremesh BRC No. A8 in ground floor slab (gridline 1-2/A-H only).
- Merujuk lukisan no. DCQ10043/WBLFF/004 - 007, ukur kuantiti keluli tetulang fabrik BRC No. A8 pada lantai bawah (Grid 1-2/A-H sahaja).*
- [7 marks]
[7 markah]

- CLO1 (c) Based on drawing no. **DCQ10043/WBLFF/004 - 007**, conclude a bill of quantities (BQ) complete with measurement concrete works for column stumps.
- Merujuk lukisan no. DCQ10043/WBLFF/004 - 007, rumuskan satu senarai kuantiti lengkap dengan pengukuran kuantiti kerja-kerja konkrit untuk tiang tunggal.*
- [13 marks]
[13 markah]

QUESTION 4

SOALAN 4

- CLO1 (a) By referring to Malaysian Standard Method of Measurement for Building Works Second Edition (SMM2), explain the classification thickness of concrete by stating the relevant clauses.
- Merujuk kepada Kaedah Pengukuran Piawaian Malaysia Bagi Kerja-kerja Bangunan Edisi Kedua (SMM2), terangkan pengkelasan ketebalan konkrit dengan menyatakan klausa yang berkaitan.*
- [5 marks]
[5 markah]

- CLO1 (b) Based on drawing no. **DCQ10043/WBLFF/001 - 002**, measure the quantity of lean concrete in pad foundation.

*Merujuk lukisan no. **DCQ10043/WBLFF/001 - 002**, ukur kuantiti konkrit alas pada asas pad.*

[7 marks]

[7 markah]

- CLO1 (c) Based on drawing no. **DCQ10043/WBLFF/001 - 002**, conclude a bill of quantities (BQ) complete with measurement concrete in ground beam.

*Merujuk lukisan no. **DCQ10043/WBLFF/001 - 002**, rumuskan satu senarai kuantiti lengkap dengan pengukuran kuantiti konkrit di dalam rasuk tanah.*

[13 marks]

[13 markah]

SOALAN TAMAT

Notes :

1. All excavation works must be starting from ground level unless otherwise stated.
2. Substructure concrete shall be Vibrated Reinforced Concrete Grade 30 unless otherwise stated.
3. Concrete cover for pad footing, column stump, and ground beam shall be 25mm thick.



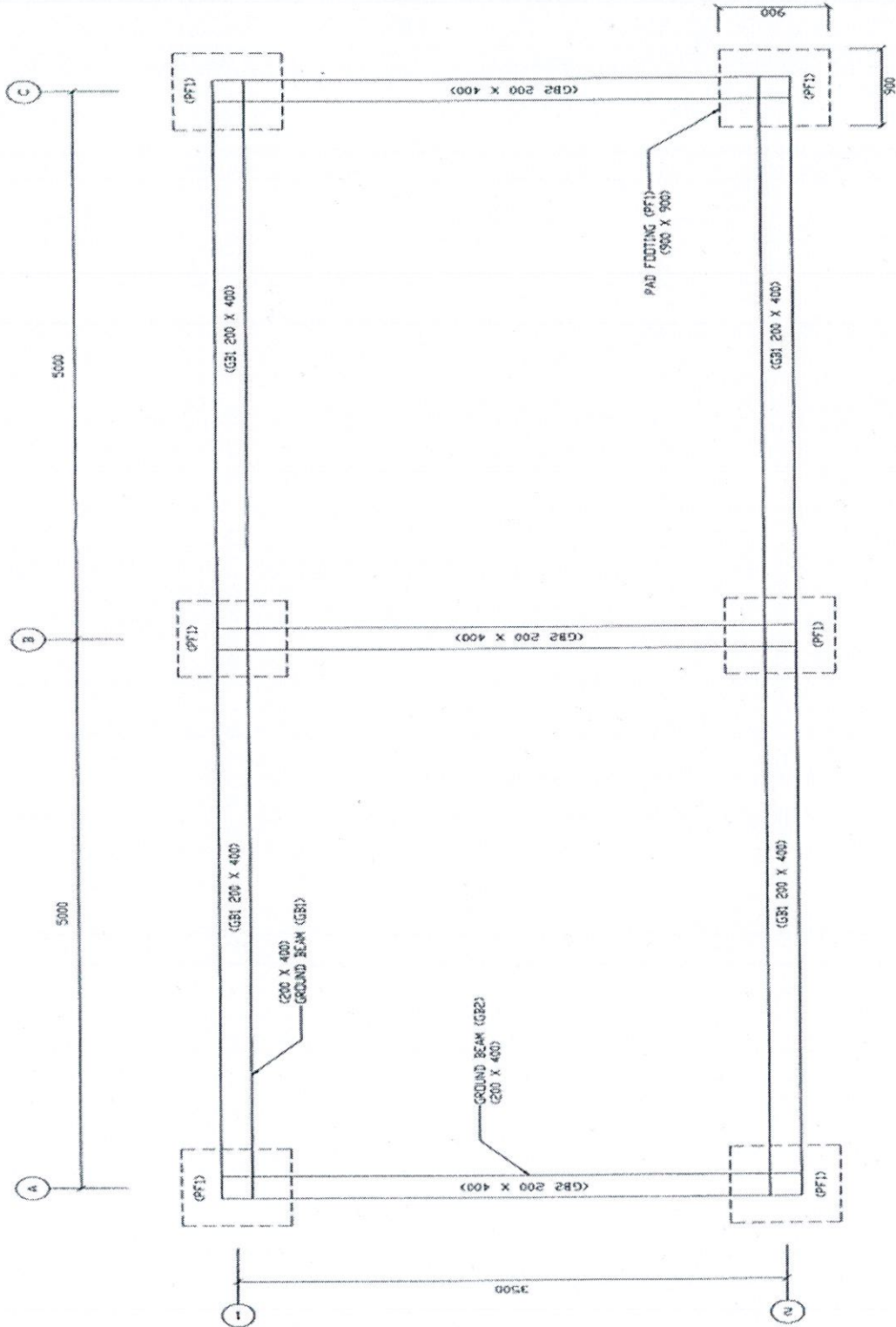
PROJECT :
PROPOSED SINGLE STOREY STOREROOM
AT LOT 81, TAMAN DESA SEJAHTERA,
KOTA TINGGI JOHOR

DRAWING TITLE :
FLOOR PLAN

DRAWING NO :

DCQ10043/WBLFF/001

SCALE :
NOT TO SCALE



Notes :

1. All excavation works must be starting from ground level unless otherwise stated.
2. Substructure concrete shall be Vibrated Reinforced Concrete Grade 30 unless otherwise stated.
3. Concrete cover for pad footing, column stump, and ground beam shall be 25mm thick.



PROJECT :

PROPOSED SINGLE STOREY STOREROOM
AT LOT 81, TAMAN DESA SEJAHTERA,
KOTA TINGGI JOHOR

DRAWING TITLE :

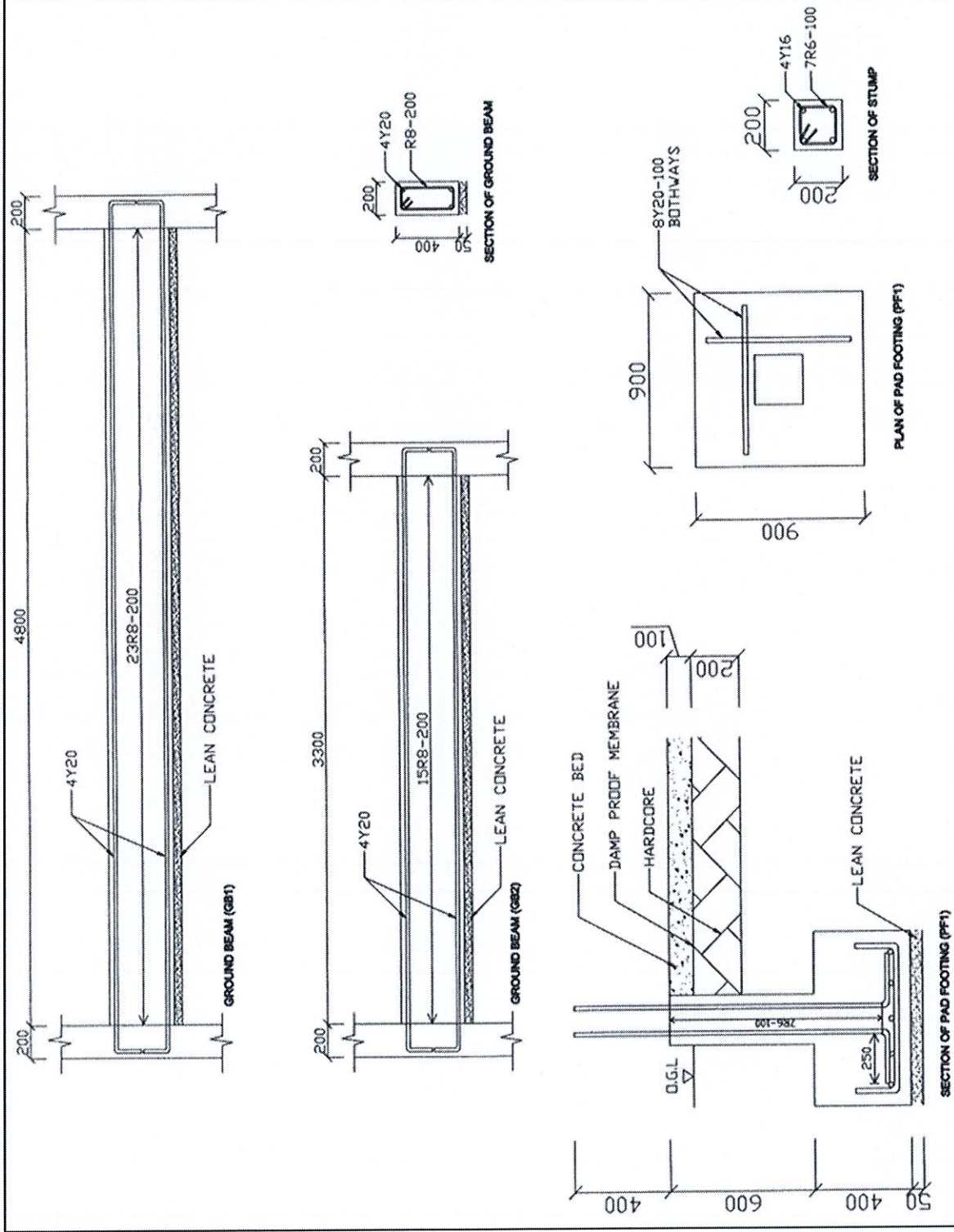
SECTION AND DETAILS

DRAWING NO :

DCQ10043/WBLFF/002

SCALE :

NOT TO SCALE



Notes :

1. Excavate topsoil 150m deep to be deposited 10.00 from site.
2. Substructure concrete shall be Grade 35 unless otherwise stated.
3. Lean concrete shall be Grade 15.
4. Concrete cover shall be 45mm thick.



PROJECT :

CADANGAN MEMBINA DAN MENYIAPKAN
MAKMAL KOMPUTER DI S.K. HAKIM TEH,
TUNJANG, JITRA, KEDAH.

DRAWING TITLE :

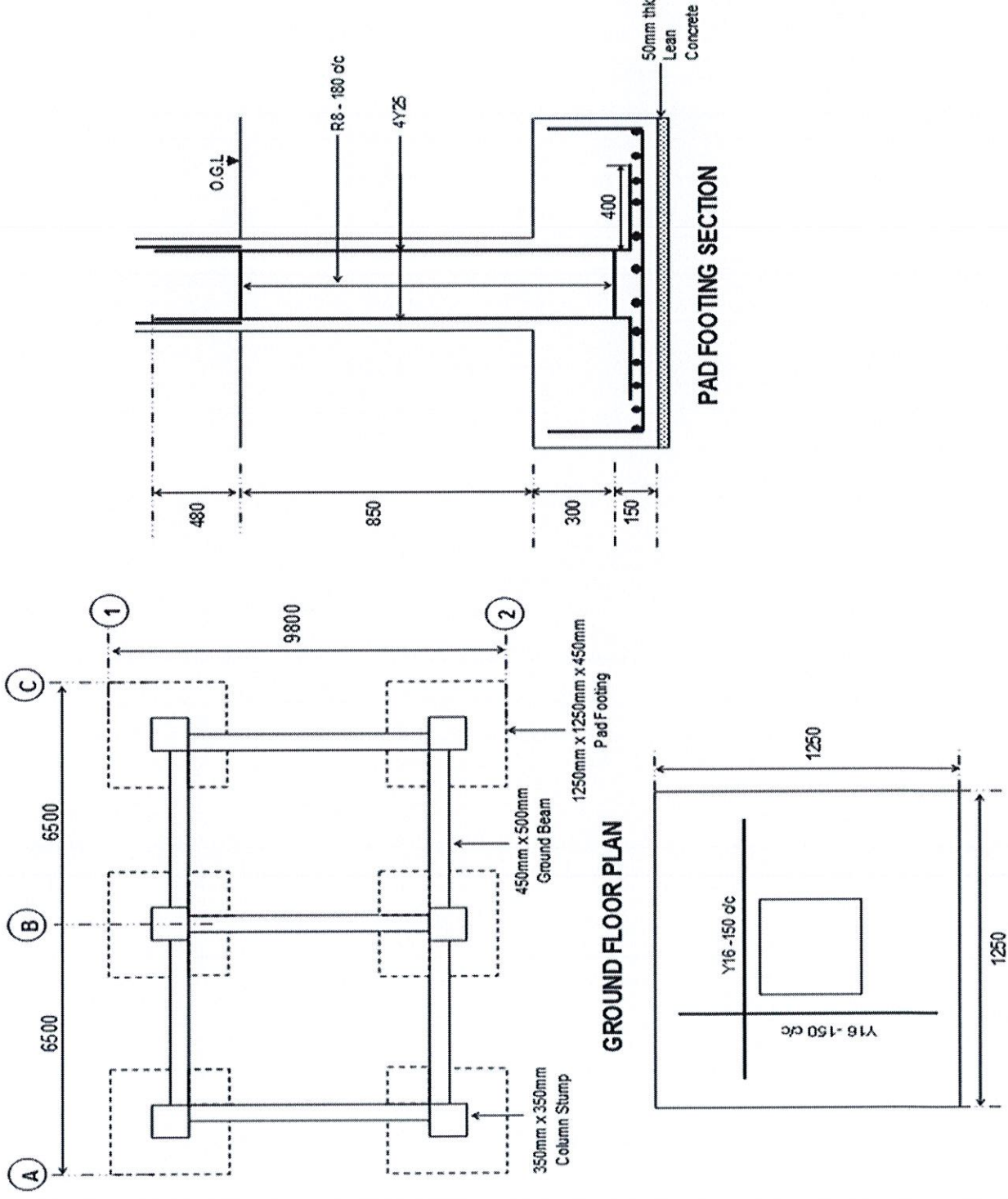
PAD FOOTING LAYOUT PLAN

DRAWING NO :

DCQ10043/WBLFF/003

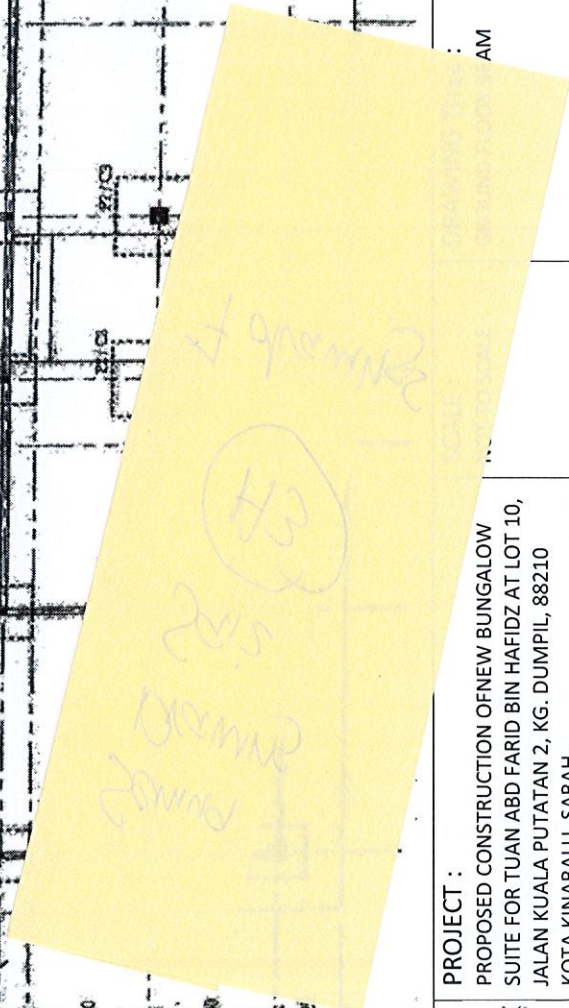
SCALE :

NOT TO SCALE



BUNGALOW SUITE

Scale 1 : 100



PROPOSED CONSTRUCTION OF NEW BUNGALOW
SUITE FOR TUAN ABD FARID BIN HAFIDZ AT LOT 10,
JALAN KUALA PUTATAN 2, KG. DUMPIL, 88210
KOTA KINABALU, SABAH.

AM

DRAWING NO :
DCQ10043/WBLFF/004

POLITIK

This floor plan shows a building layout with several rooms and a central staircase. The rooms are labeled with numbers in boxes: 100, 125, and 150. The dimensions of the rooms and corridors are also indicated. A large hatched area is located at the bottom of the plan, with a large 'X' marked over it. The plan is oriented with a north arrow pointing towards the top right. The building is bounded by a dashed line on the left and a solid line on the right. The rooms are arranged in a U-shape around the central staircase. The dimensions are given in feet and inches, with some rooms being 100 feet wide and 125 feet deep, and others being 150 feet wide and 125 feet deep. The hatched area is 150 feet wide and 75 feet deep. The overall dimensions of the building are 150 feet wide and 125 feet deep.

PROPOSED CONSTRUCTION OF NEW BUNGALOW
SUITE FOR TUAN ABD FARID BIN HAFIDZ AT LOT 10,
JALAN KUALA PUTATAN 2, KG. DUMPII, 88210
KOTA KINABALU, SABAH.

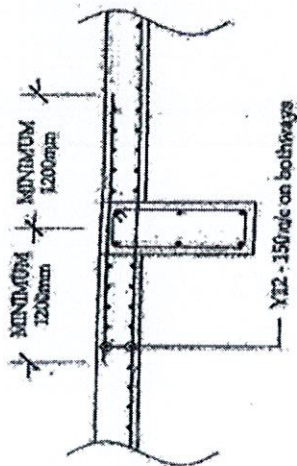
SCALE :
NOT TO SCALE

DRAWING TITLE :
GROUND FLOOR SLAB THICKNESS

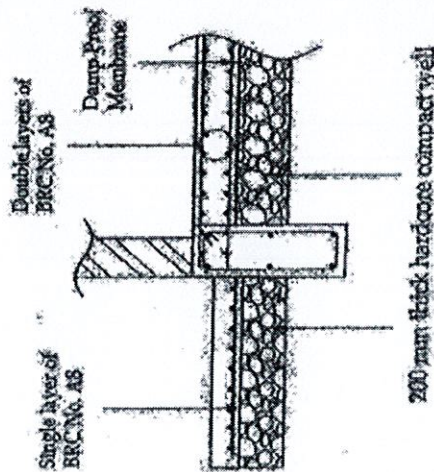
DRAWING NO :
DCQ10043/WBLFF/005

POLYTECH

BUNGALOW SUITE



FIRST FLOOR SLAB
Not To Scale

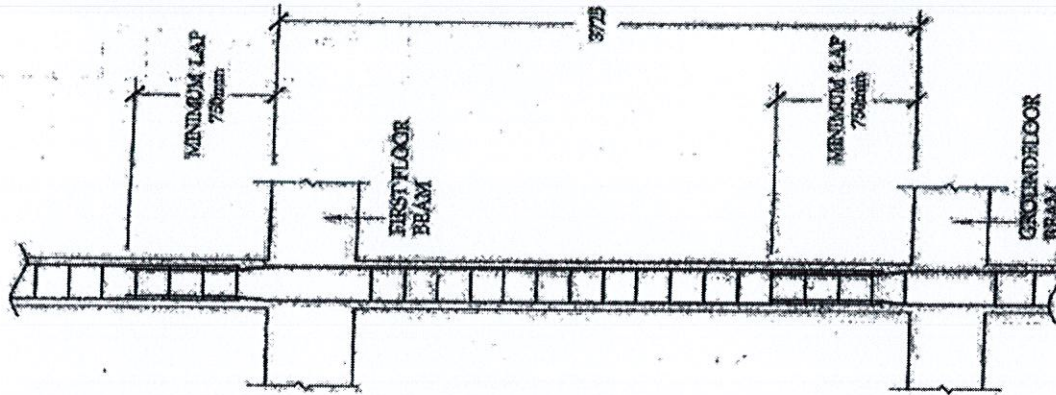


GROUND FLOOR SLAB
Not To Scale

TYPE C1 - r.c. mix (1:2:4)			
	COLUMN		
SIZE	200 x 350		
REBAR	6Y16		
LINKS	R10 - 150 c/c		

TYPE C2 - r.c. mix (1:2:4)			
	COLUMN		
SIZE	250 x 350		
REBAR	6Y16		
LINKS	R10 - 150 c/c		

TYPE C3 - r.c. mix (1:2:4)			
	COLUMN		
SIZE	350 x 350		
REBAR	6Y16		
LINKS	R10 - 150 c/c		



COLUMN
Not To Scale

TYPE C1 - r.c. mix (1:2:4)			
	COLUMN		
SIZE	200 x 350		
REBAR	6Y16		
LINKS	R10 - 150 c/c		

TYPE C2 - r.c. mix (1:2:4)			
	COLUMN		
SIZE	250 x 350		
REBAR	6Y16		
LINKS	R10 - 150 c/c		

TYPE C3 - r.c. mix (1:2:4)			
	COLUMN		
SIZE	250 x 350		
REBAR	6Y16		
LINKS	R10 - 150 c/c		

PROJECT :

PROPOSED CONSTRUCTION OF NEW BUNGALOW
SUITE FOR TUAN ABD FARID BIN HAFIDZ AT LOT 10,
JALAN KUALA PUTATAN 2, KG. DUMPI, 88210
KOTA KINABALU, SABAH.

SCALE :

NOT TO SCALE

DRAWING TITLE :

- COLUMN DETAIL
- GROUND FLOOR SLAB DETAIL

DRAWING NO :

DCQ10043/WBLFF/006

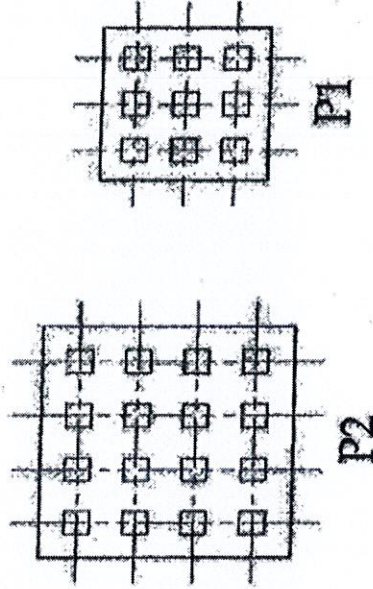
POLITEKNIK
MALAYSIA

BUNGALOW SUITE

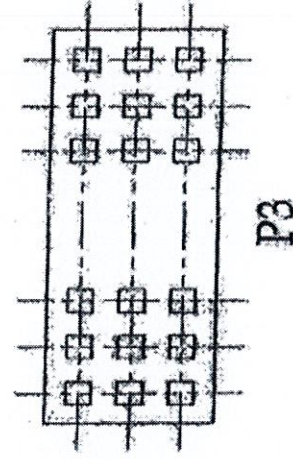
TYPE P1 - r.c. mix (1:1½:3)			
SIZE	PILECAPE	STUMP	
1000 x 1000 x 300		350 x 350	
R.C. SQUARE PILES (9 no.)			NIL -
REBAR	Y16 - 150 c/c (on both ways)		6Y16
LINKS	- NIL -	R10 - 150 c/c	

TYPE P2 - r.c. mix (1:1½:3)			
SIZE	PILECAPE	STUMP	
1500 x 1500 x 450		350 x 350	
R.C. SQUARE PILES (16 no.)			NIL -
REBAR	Y16 - 150 c/c (on both ways)		6Y16
LINKS	- NIL -	R10 - 150 c/c	

TYPE P3 - r.c. mix (1:1½:3)			
SIZE	PILECAPE	STUMP	
1000 x 2600 x 450		350 x 350	
R.C. SQUARE PILES (18 no.)			NIL -
REBAR	Y16 - 150 c/c (on both ways)		6Y16
LINKS	- NIL -	R10 - 150 c/c	



R.C. PILES POINT



DETAIL SUBSTRUCTURE

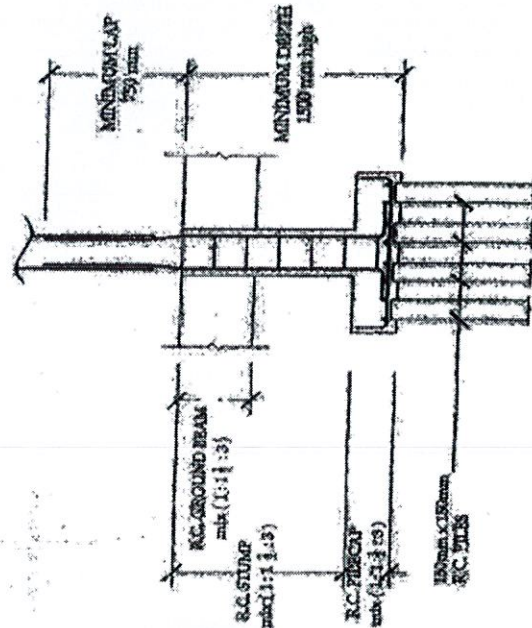
Not To Scale

NOTE :
All size of GROUND FLOOR BEAM to be 200mm wide x 600mm high and must refer to every level attached and r.c. mix (1:2:4).

REBAR	6Y16
LINKS	R6 - 150 c/c

NOTE :
All reinforced concrete GROUND FLOOR SUSPENDED SLAB to be 125mm thick unless stated in drawing and r.c. mix (1:2:4).

Double layers of BRC No. A8
Damp Proof Membrane
200 mm thick hardcore compact well
125 Thickness of slab



PROJECT :
PROPOSED CONSTRUCTION OF NEW BUNGALOW SUITE FOR TUAN ABD FARID BIN HAFIDZ AT LOT 10, JALAN KUALA PUTATAN 2, KG. DUMPI, 88210 KOTA KINABALU, SABAH.

DRAWING TITLE :
DETAIL SUBSTRUCTURE

SCALE :
NOT TO SCALE

DRAWING NO :
DCQ10043/WBLFF/007