

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 : 2024/2025

DCQ30154 : BUILDING WORKS MEASUREMENT 3

TARIKH : 28 MEI 2025

MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)

Kertas ini mengandungi **SEBELAS (11)** halaman bercetak.

Bahagian A: Subjektif (2 soalan)

Bahagian B: Subjektif (4 soalan)

Dokumen sokongan yang disertakan : Kertas Dimensa, Kertas Billing, Jadual Cut & Fill, Lukisan dan Buku SMM2

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

Notes:**Nota:**

1. Taking off should be referred to the Standard Method of Measurement of Building Works 2nd Edition (SMM2).

Pengukuran kuantiti hendaklah merujuk kepada Standard Method of Measurement of Building Works 2nd Edition (SMM2).

2. Candidates are allowed to make assumptions if the information provided in the drawing is inadequate.

Calon dibenarkan untuk membuat andaian sekiranya maklumat yang diberi di dalam lukisan adalah tidak mencukupi.

SECTION A : 50 MARKS**BAHAGIAN A : 50 MARKAH****INSTRUCTION**

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

ARAHAN

Bahagian ini mengandungi DUA (2) soalan subjektif. Jawab SEMUA soalan.

QUESTION 1**SOALAN 1**

By referring to Drawing No: **DCQ30154/FLOOR & WALL FINISHES/Q1/SA/ 01-02 & DCQ30154/FLOOR & WALL FINISHES/Q1/SA/02-02**, answer **ALL** questions below:

Dengan merujuk kepada Lukisan No: DCQ30154/FLOOR & WALL FINISHES/Q1/SA/01-02 & DCQ30154/FLOOR & WALL FINISHES/Q1/SA/02-02, jawab SEMUA soalan di bawah:

CLO 1

- (a) By referring to SMM2, explain **Clause S.1.6** and **Clause S.3.1** regarding quantity measurement for finishing work.

Dengan merujuk kepada SMM2, terangkan Klausula S.1.6 dan Klausula S.3.1 mengenai pengukuran kuantiti di dalam kerja kemasan.

[5 marks]

[5 markah]

CLO1

- (b) Prepare the quantity measurement for **Internal Wall Finishes for Bedroom 4 and Bedroom 6 only**, based on the items below:

*Sediakan pengukuran kuantiti bagi **Kemasan Dinding Dalam untuk Bilik Tidur 4 dan Bilik tidur 6 sahaja**, berdasarkan item di bawah:*

Item	Description	Unit
1.	Plaster Work / <i>Kerja-kerja Melepa</i>	?
2.	Painting Work / <i>Kerja-Kerja Mengecat</i>	?

[10 marks]

[10 markah]

CLO1

- (c) Prepare the quantity measurement for **Internal Floor Finishes for Bedrooms 4 and 5 only**, based on the items below:

*Sediakan pengukuran kuantiti bagi **Kemasan Lantai Dalam untuk Bilik Tidur 4 dan 5 sahaja**, berdasarkan item di bawah:*

Item	Description	Unit
1.	Bed and Backing Work / <i>Kerja-Kerja Dasar dan Bantalan</i>	?
2.	Tiling Work / <i>Kerja-Kerja Jubin</i>	?

[10 marks]

[10 markah]

QUESTION 2**SOALAN 2**

By referring to Drawing No: **DCQ30154/RETAINING WALL/SA/Q2/01**, answer **ALL** questions below:

*Dengan merujuk kepada No. Lukisan : **DCQ30154/RETAINING WALL/SA/Q2/01**, jawab **SEMUA** soalan di bawah:*

CLO 1

- (a) Explain the differences of measurement unit between sand blinding and concrete blinding based on SMM2.

Terangkan perbezaan unit bagi pengukuran item alas pasir dan alas konkrit berdasarkan SMM2.

[5 marks]

[5 markah]

CLO 1

- (b) Prepare the quantity measurement for retaining wall for the items below:

Sediakan pengukuran kuantiti bagi tembok penahan untuk item di bawah:

Item	Description	Unit
1.	Formwork for base / <i>Kotak bentuk untuk asas</i>	?
2.	Formwork for beam / <i>Kotak bentuk untuk rasuk</i>	?

[10 marks]

[10 markah]

CLO 1

- (c) Prepare the quantity measurement for retaining wall for the items below:
Sediakan pengukuran kuantiti bagi tembok penahan untuk item seperti di bawah:

Item	Description	Unit
1.	Concrete for base / <i>Konkrit untuk asas</i>	?
2.	Concrete for beam / <i>Konkrit untuk rasuk</i>	?

[10 marks]

[10 markah]

SECTION B : 50 Marks**BAHAGIAN B : 50 Markah****INSTRUCTION**

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

ARAHAN

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

QUESTION 1**SOALAN 1**

- CLO 1 (a) By referring to Drawing No: **DCQ30154/FURNITURE & FITTINGS/ SBQ1(a)/CAFETARIA/01-02 & 02-02**, prepare the quantity measurement of loose furniture and fitting works items.

Dengan merujuk kepada No. Lukisan : DCQ30154/FURNITURE & FITTINGS/ SBQ1(a)/CAFETARIA/01-02 & 02-02, sediakan pengukuran kuantiti bagi item kerja-kerja perabut dan perkakasan mudah alih.

Item	Description	Unit
1.	Reception Table (LF3)/Meja Penyambut Tetamu (LF3)	?
2.	Reception Chair (LF4)/ Kerusi Penyambut Tetamu (LF4)	?
3	High Dining Table (LF9) /Meja Makan Tinggi (LF9)	?
4	Bar Stool Patio (LF10) / Patio Bangku Bar (LF10)	?

[8 marks]

[8 markah]

CLO 1

- (b) By referring to Drawing No: **DCQ30154/OFFICE FURNITURE & FITTINGS/SBQ1(b)/01-02 & 02-02**, conclude a bill of quantities complete with a quantity measurement for the loose furniture and fittings works items below:

Dengan merujuk kepada No. Lukisan : DCQ30154/OFFICE FURNITURE & FITTINGS/SBQ1(b)/01-02 & 02-02, rumuskan satu senarai kuantiti lengkap dengan pengukuran kuantiti bagi item kerja perabut dan perkakasan seperti di bawah:

Item	Description	Unit
1.	Mid Back Office Chair / <i>Kerusi Pejabat 'Mid Back'</i>	?
2.	Sofa / <i>Sofa</i>	?
3	L-Shape Office Table / <i>Meja Office Bentuk-L</i>	?
4	Counter Table / <i>Meja Kaunter</i>	?

[17 marks]

[17 markah]

QUESTION 2**SOALAN 2**

By referring to Drawing No: **DCQ30154/EARTHWORKS/SB/Q2/01**, scope of work is from **grid point A2, A3, A4, B2, B3, B4, B5, C2, C3, C4 & C5**. Answer **ALL** questions below:

Merujuk kepada No. Lukisan : DCQ30154/EARTHWORKS/SB/Q2/01, skop kerja adalah dari titik grid A2, A3, A4, B2, B3, B4, B5, C2, C3, C4 & C5. Jawab SEMUA soalan di bawah:

- CLO 1 (a) By using the Weighted Average Excavation Method, prepare a table for quantity measurement of cutting and filling works for the area marked on the drawing.

Dengan menggunakan Kaedah Pengorekan Purata Pemberatan, sediakan jadual pengukuran kuantiti untuk kerja pemotongan dan penambakan bagi kawasan yang ditanda pada lukisan.

[8 marks]

[8 markah]

- CLO 1 (b) Conclude a bill of quantities complete with the quantity measurement for cutting and filling items as prepared in Question 2(a).

Rumuskan semua pengukuran sebagai senarai kuantiti bagi pemotongan dan penambakan seperti yang telah disediakan pada Soalan 2(a).

Item	Description	Unit
1.	Excavation / Pengorekan	?
2.	Filling reuse material / Menambak dengan bahan asal	?
3.	Disposed material off site/Imported material / Pembuangan bahan ke luar tapak/import tanah.	?

[17 marks]

[17 markah]

QUESTION 3**SOALAN 3**

By referring to Drawing No: **DCQ30154/ROAD WORK/SB/Q3/01-03** until **DCQ30154/ ROAD WORK/SB/Q3/03-03**, answer ALL questions below:

Dengan merujuk kepada No. Lukisan : **DCQ30154/ROAD WORK/SB/Q3/01-03** hingga **DCQ30154/ ROAD WORK/SB/Q3/03-03**, jawab **SEMUA** soalan di bawah:

CLO 1

- (a) Prepare the quantity measurement for the road work items below:

Sediakan pengukuran kuantiti untuk kerja jalan seperti item di bawah:

Item	Description	Unit
1.	Stop Signage / <i>Papan Tanda Berhenti</i>	?
2.	Direction Arrow / <i>Anak Panah Arah.</i>	?

[8 marks]

[8 markah]

CLO 1

- (b) Conclude a bill of quantities complete with quantity measurement for the road work items as below:

Rumuskan satu senarai kuantiti lengkap dengan pengukuran kuantiti untuk kerja jalan seperti di bawah:

Item	Description	Unit
1.	Crusher Run Base Course (new road area only) <i>Lapisan Asas Batu Pecah (kawasan jalan baharu sahaja)</i>	?
2.	Premix Wearing Course (new road area only) <i>Lapisan Premix Wearing (kawasan jalan baharu sahaja)</i>	?
3.	Stop Line (new road area only) <i>Garis Berhenti (kawasan jalan baharu sahaja)</i>	?
4.	Centre Line (new road area only) <i>Garis Tengah (kawasan jalan baharu sahaja)</i>	?

[17 marks]

[17 markah]

QUESTION 4**SOALAN 4**

By referring to Drawing No: **DCQ30154/BASEMENT/SB/Q4/01-02 & DCQ30154/BASEMENT/SB/Q4/02-02**, answer ALL questions below:

Dengan merujuk kepada No. Lukisan : **DCQ30154/BASEMENT/SB/Q4/01-02 & DCQ30154/BASEMENT/SB/Q4/02-02**, jawab **SEMUA** soalan di bawah:

CLO 1

- (a) Prepare the quantity measurement for the items below:

Sediakan pengukuran kuantiti bagi item di bawah:

<i>Item</i>	<i>Description</i>	<i>unit</i>
1.	Lean concrete laid under beam/ <i>Konkrit alas di bawah rasuk</i>	?
2.	Hardcore / <i>Hadkor</i>	?

[8 marks]

[8 markah]

CLO 1

- (b) Conclude a bill of quantities complete with quantity measurement for the items below:

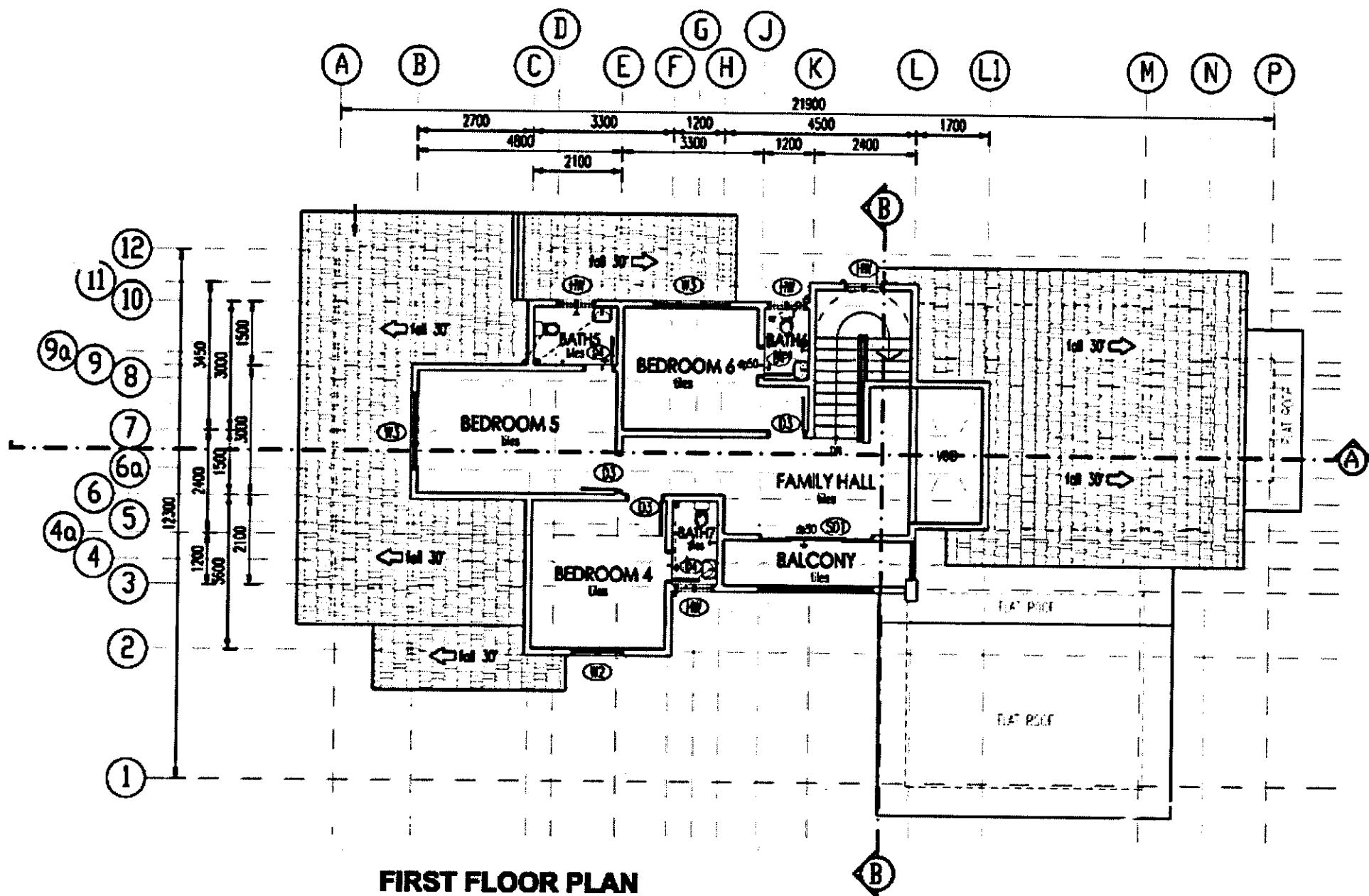
Rumuskan semua pengukuran sebagai senarai kuantiti bagi item di bawah:

<i>Item</i>	<i>Description</i>	<i>unit</i>
1.	Concrete for wall / <i>Konkrit untuk dinding</i>	?
2.	Concrete for slab / <i>Konkrit untuk lantai</i>	?

[17 marks]

[17 markah]

SOALAN TAMAT



FIRST FLOOR PLAN

DRAWING NO: DCQ30154/FLOOR & WALL FINISHES/Q1/SA/01-02

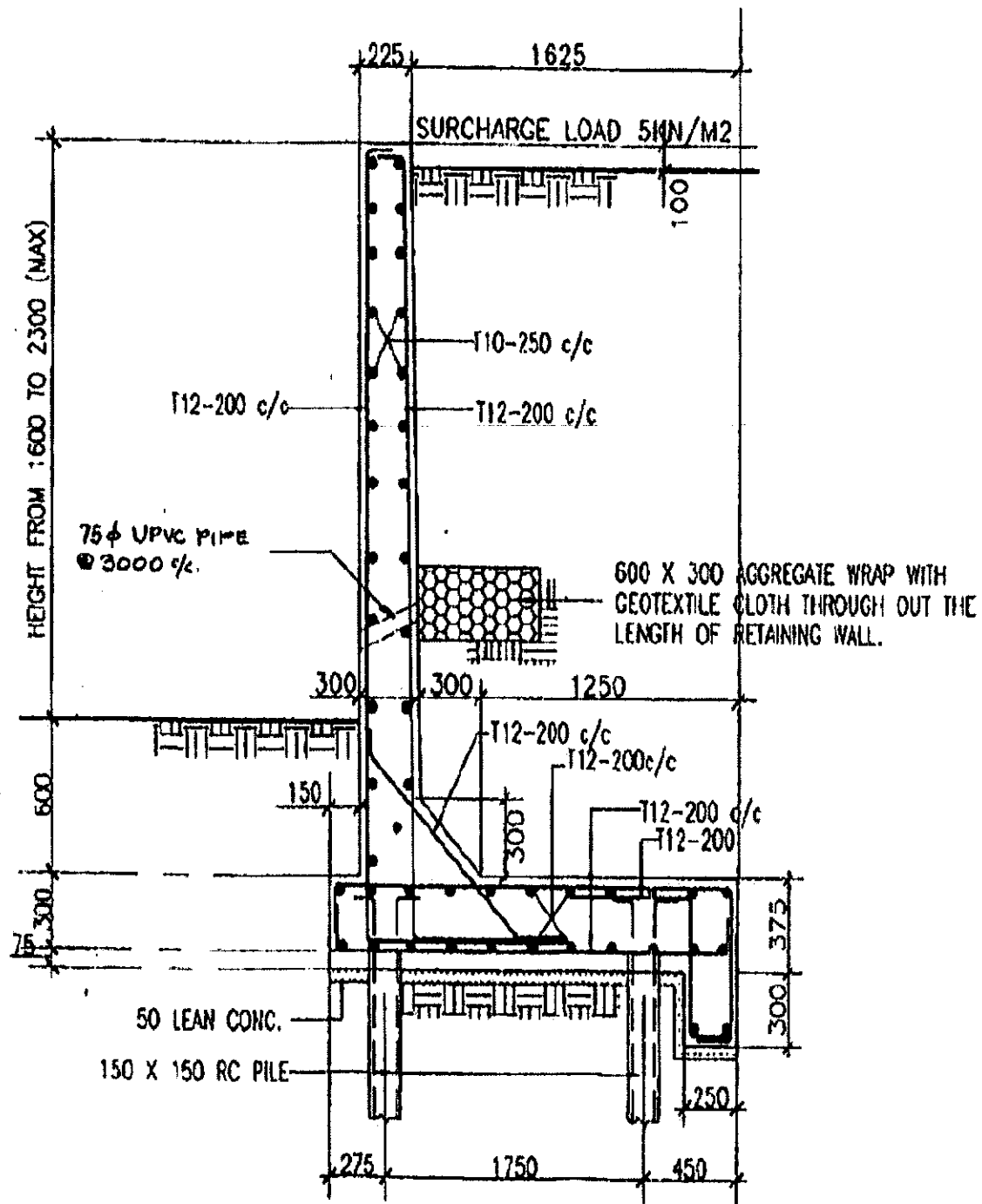
N.T.S

TABLE OF DRAWING NOTES

WINDOW SCHEDULE		SIZE (W X H)	DOOR SCHEDULE		SIZE (W X H)
W1	TIMBER FRAME CASEMENT WINDOW WITH TOP HUNG ABOVE	600 MMX 2000MM	D1	TIMBER FRAME DOUBLE LEAF PANEL DOOR	1800MM X 2100MM
W2	TIMBER FRAME CASEMENT WINDOW WITH TOP HUNG ABOVE	1200MM X 1600MM	D2	TIMBER FRAME PANEL DOOR	900MM X 2100MM
W3	TIMBER FRAME CASEMENT WINDOW WITH TOP HUNG ABOVE	1800MM X 1600MM	D3	TIMBER FRAME CASEMENT WINDOW WITH TOP HUNG ABOVE	900MM X 2100MM
W4	TIMBER FRAME CASEMENT WINDOW WITH TOP HUNG ABOVE	900MM X 450MM	D4	PVC DOOR	750MM X 2100MM
HW	TIMBER FRAME TOP HUNG HIGH LEVEL WINDOW	900MM X 450MM	SD1	ALUMINIUM FRAME SLIDING DOOR	2400MM X 2100MM

NOTES FOR INTERNAL FLOOR FINISHES		
AREA	TYPE	SIZE TILE
BEDROOM 4,5 & 6	CERAMIC TILE	600MM X 300MM X 8MM THICK
BATH 5,6 & 7	NON-SLIP HOMOGENOUS TILE	300MM X 300MM X 8MM THICK
FAMILY HALL	MARBLE TILE	600MM X 600MM X 10MM THICK
NOTES FOR INTERNAL WALL FINISHES		
AREA	TYPE	HIGH OF WALL
BEDROOM 4,5 & 6	PLASTER & PAINT	3100MM HIGH
BATH 5,6 & 7	FULL HIGH HOMOG. WALL TILE 300MM X 300MM X 8MM THICK	
FAMILY HALL	PLASTER & PAINT	
OTEHRS: 115MM THICK Brickwall with 18mm thk Cement Plastering on Bothside		

DRAWING NO: DCQ30154/FLOOR & WALL FINISHES/Q1/SA/02-02

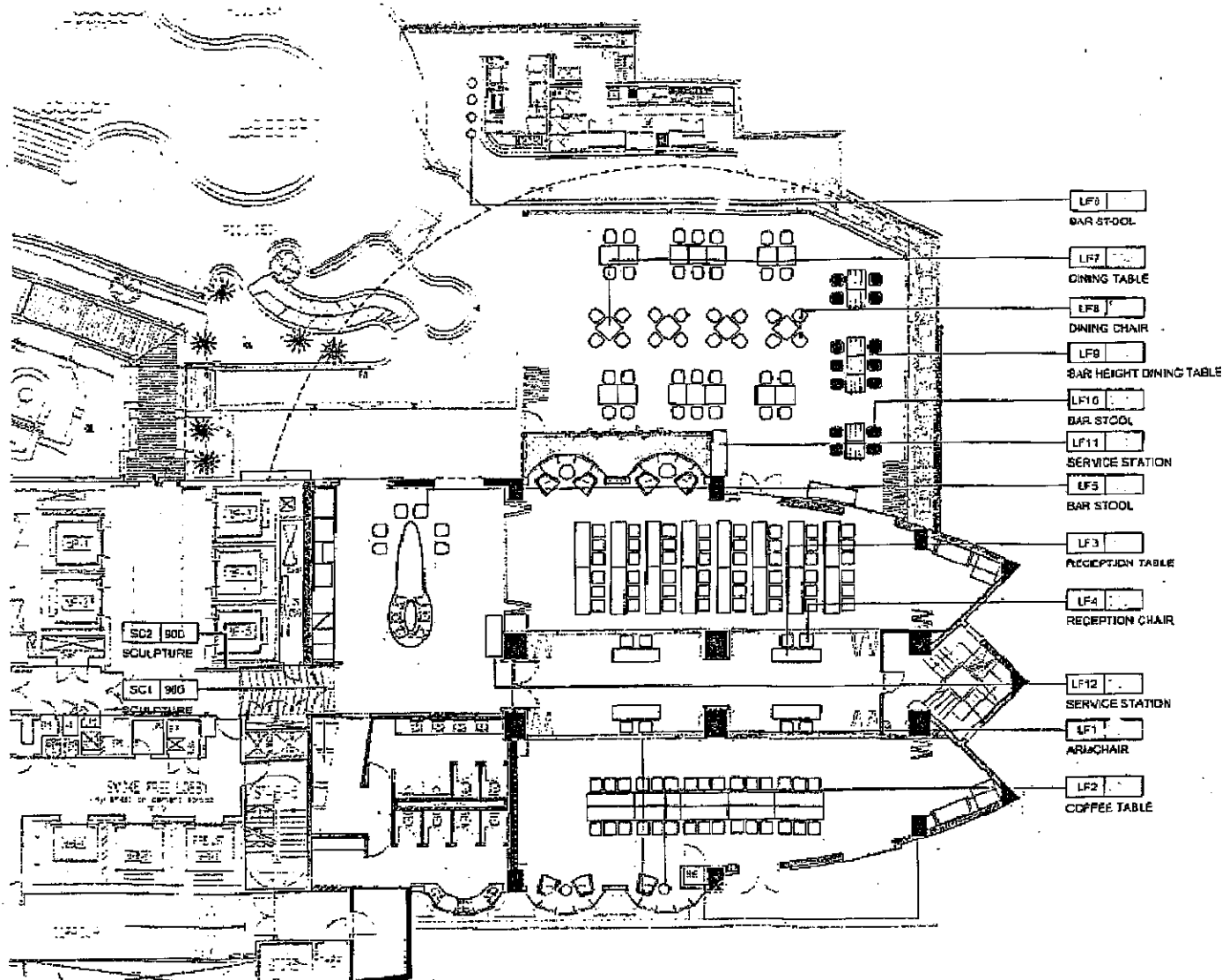


Notes:

1. Drawing Not To Scale
2. Concrete wall shall be grade 30
3. Lean concrete shall be grade 20
4. All reinforcement used is from High Tensile Steel unless otherwise stated
5. Length of Proposed Retaining Wall is 30M

CROSS SECTION & DETAIL OF RW

DRAWING NO: DCQ30154/RETAINING WALL/SA/Q2/01



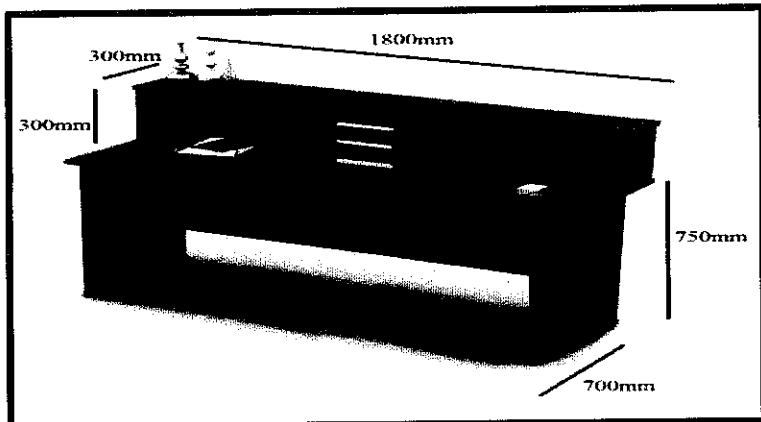
LEGEND:

LEGEND	DESCRIPTION
LF1	ARMCHAIR
LF2	COFFE TABLE
LF3	RECEPTION TABLE
LF4	RECEPTION CHAIR
LF5	BAR STOOL (INDOOR)
LF6	BAR STOOL (OUTDOOR)
LF7	DINING TABLE
LF8	DINING CHAIR
LF9	BAR HEIGHT DINING TABLE
LF10	BAR STOOL (PATIO)
LF11	SERVIVE STATION WITH WHEEL
LF12	SERVIVE STATION WITH WHEEL

DRAWING: NOT TO SCALE

FURNITURE LAYOUT PLAN: CAFETERIA UPM SERDANG SELANGOR

DRAWING NO: DCQ30154/FURNITURE & FITTINGS/SBQ1(a)/CAFETERIA/01-02

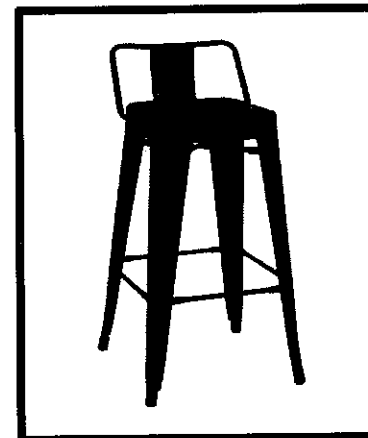


Type of Product: RECEPTION TABLE (LF3)

Size :1800mm length x 700mm width x 1050mm high

Finishes: Frame Oak Oxidised finish, Top & Modesty panel: oak finish smoke

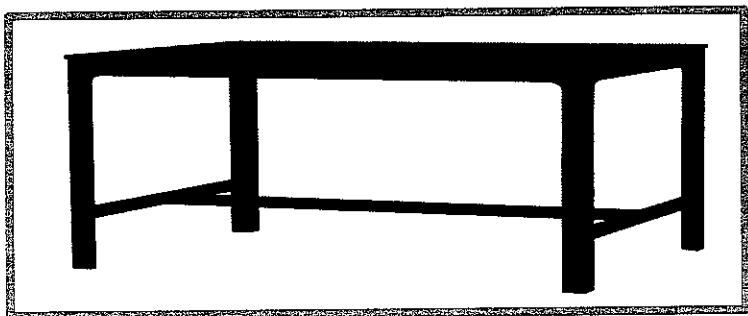
Colour: Dark brown wood



Type of Product: TOLIX BAR STOOL -PATIO (LF10)

Size: 440mm length x 500mm width x 1875mm high seat

Finishes: Steel Finishing by colour powder coating black



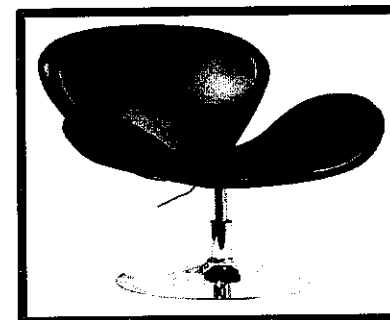
Type of Product: BAR HEIGHT DINING TABLE (LF9)

Size: 3000mm length x 1800mm width x 2626mm high

Tabletop: Particleboard, Ash veneer, Stain, Clear acrylic lacquer, Solid ash

Underframe/Footrest: Solid pine, Adhesive, Ash veneer, Stain, Clear acrylic

Leg: Birch plywood, Ash veneer, Stain, Tinted clear acrylic lacquer



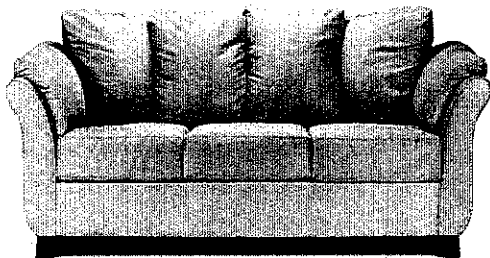
Type of product: RECEPTION CHAIR (LF4)

Size: 500mm x 500mm x 1500mm high seat

Material & Colour: Hercules Threston Black Leather reception chair

Component: Complete with stainless steel adjustable height and has a rounded mid-back design

DRAWING NO: DCQ30154/FURNITURE & FITTINGS/SBQ1(a)/CAFETARIA/02-02



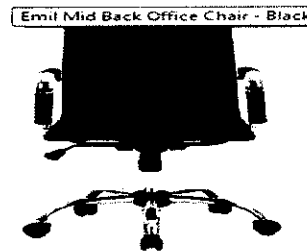
SOFA

Seat Size : Four seater 2400mm x 600mm
Back rest : 2400mm x 600mm x 100mm thick pad
Fabric : 100% leather
Frame : metal chrome



HIGH BACK REST CHAIR

Seat Size : 530mm x 530mm x 70mm thick pad
Back rest : 530mm x 530mm x 70mm thick pad
Fabric : 100% polyester with polyurethane foam
Armrest : PVC
Leg : Stainless steel with gas lift height adjustment and knee tilt



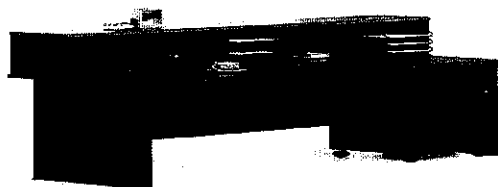
MID BACK OFFICE CHAIR

Seat size : 450mm x 450mm x 50mm thick pad
Back rest : 450mm x 450mm x 50mm thick pad
Fabric : 100% PVC
Armrest : Stainless steel
Leg& frame: Stainless steel with gas lift height adjustment and knee tilt



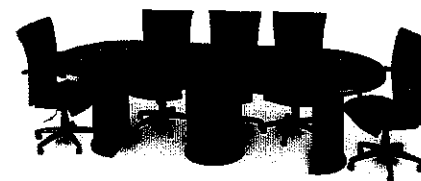
L-SHAPE OFFICE TABLE

Size :1800mm x 900mm x 750mm
Frame : Timber frame with 5mm thick laminate melamine ply
Table top : 40mm thick MDF board with PVC surface



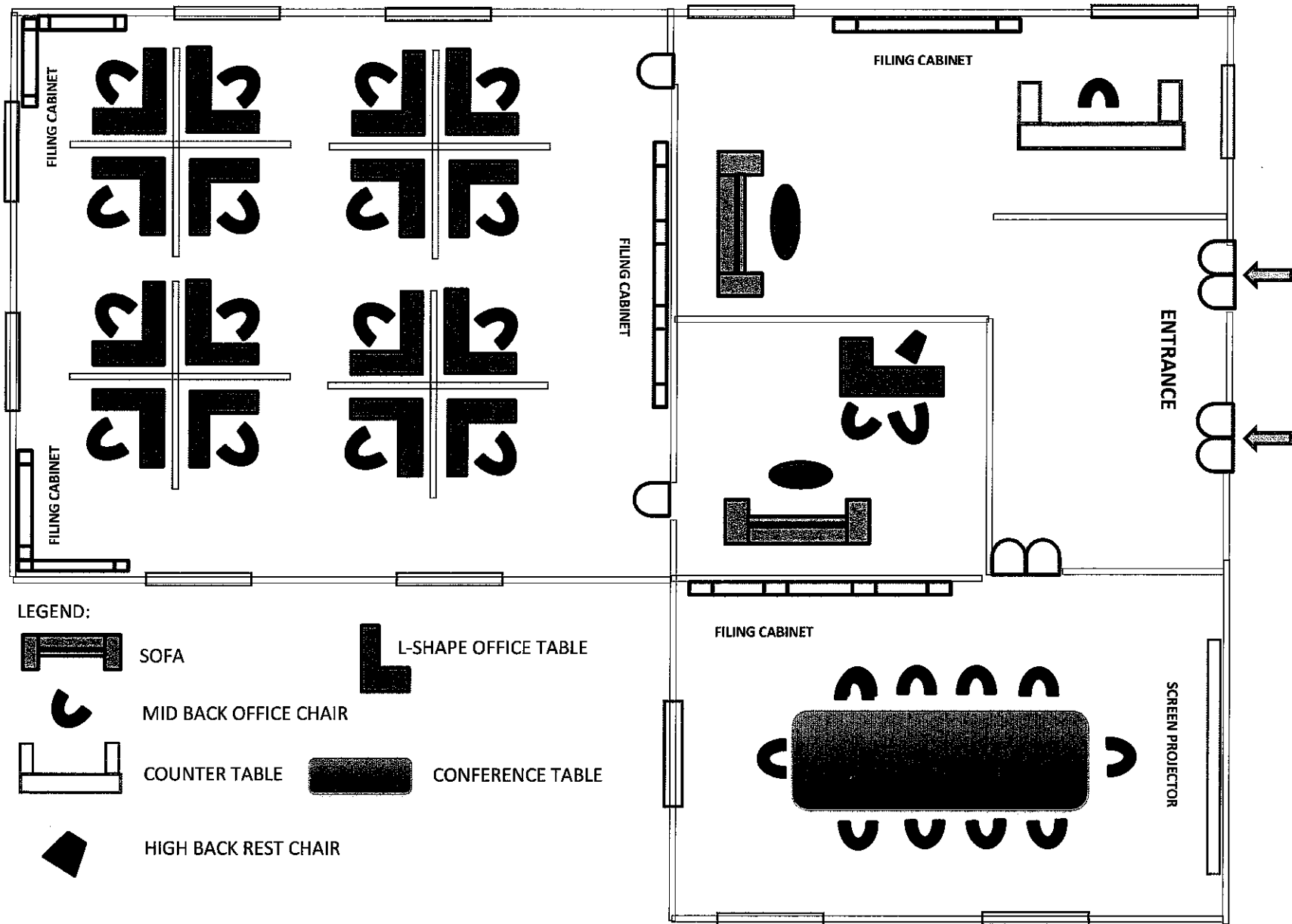
COUNTER TABLE

Size :1200mm x 730mm x 740mm
Frame : Timber frame with 5mm thick laminate melamine ply
Table top : 40mm thick MDF board with PVC surface



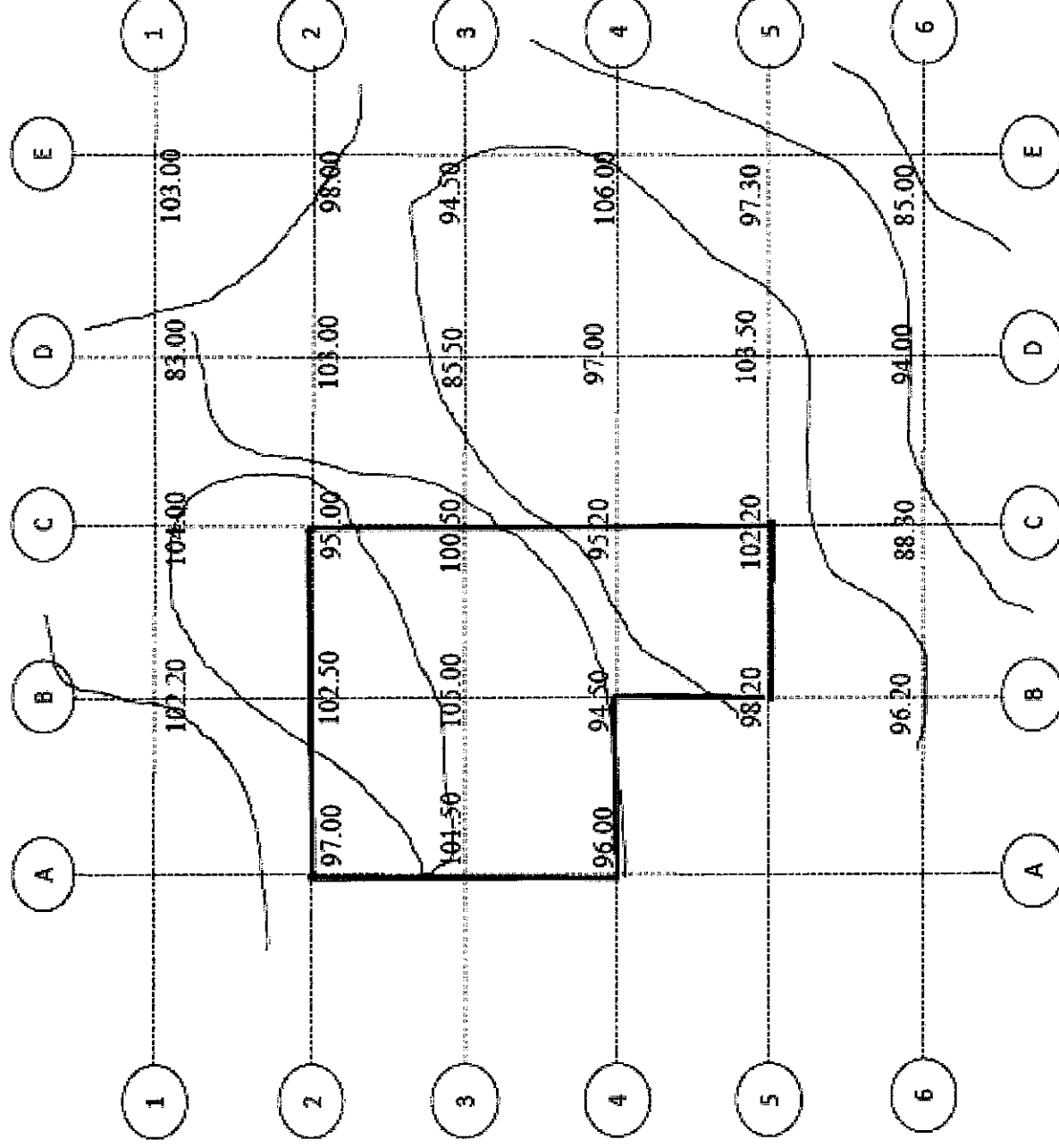
CONFERENCE TABLE

Size : 3000mm x 900mm x 750mm
Frame : Timber frame with 5mm thick laminate melamine ply
Table top : 40mm thick MDF board



LAYOUT FURNITURE PLAN FOR JKA OFFICE AREA (N.T.S)

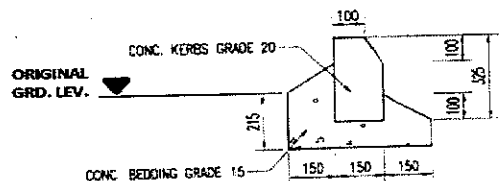
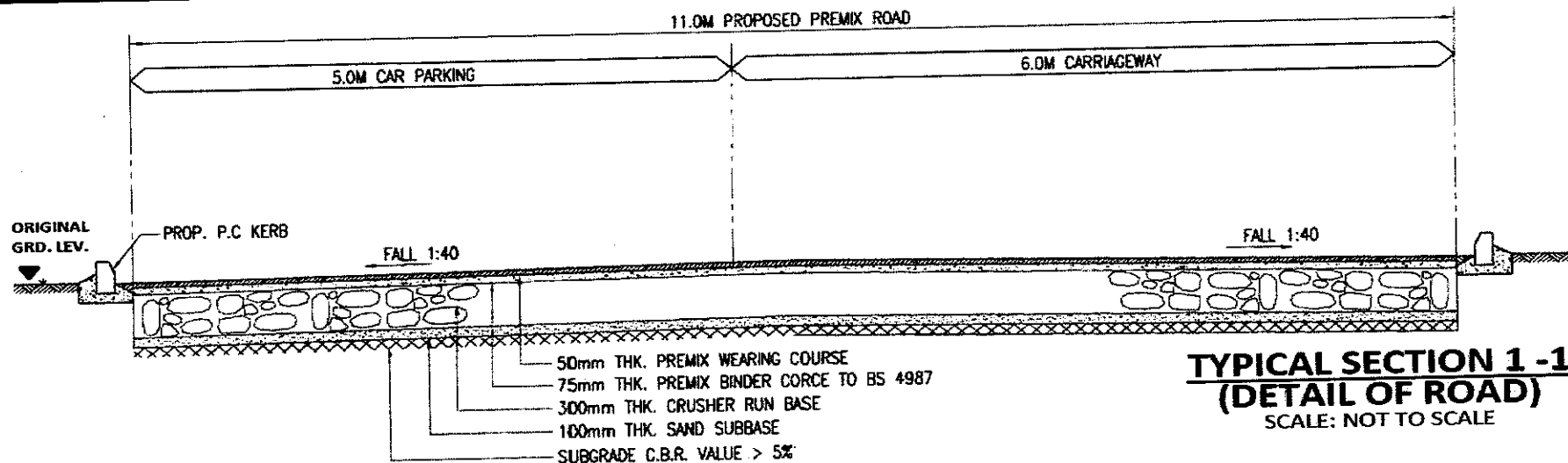
DCQ30154/OFFICE FURNITURE & FITTINGS/SBQ1(b)/01-02



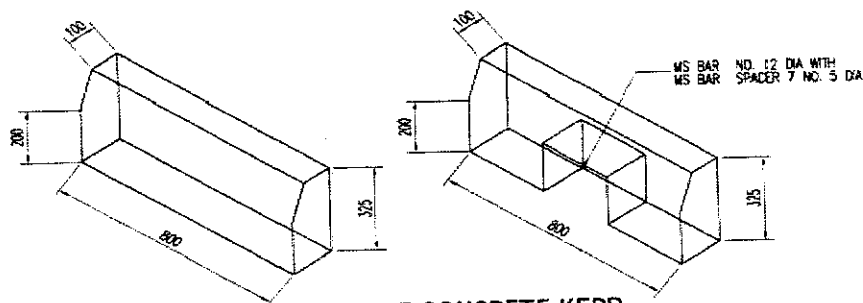
SPECIFICATION:-

1. All grid dimension 5m x 5m
2. Proposed platform level: 100.00
3. Excavation for top soil is not required
4. All level shown are original ground level
5. All excavation strictly within site boundary
6. Allow 10% for excavation in rock
7. Excavated material shall be reuse for filling work after selected and treated.

DRAWING NO: DCQ30154/EARTHWORKS/SB/Q2/01
(N.T.S)



DETAIL OF BED HAUNCH FOR PC KERBS



PRECAST CONCRETE KERB

NOTES:

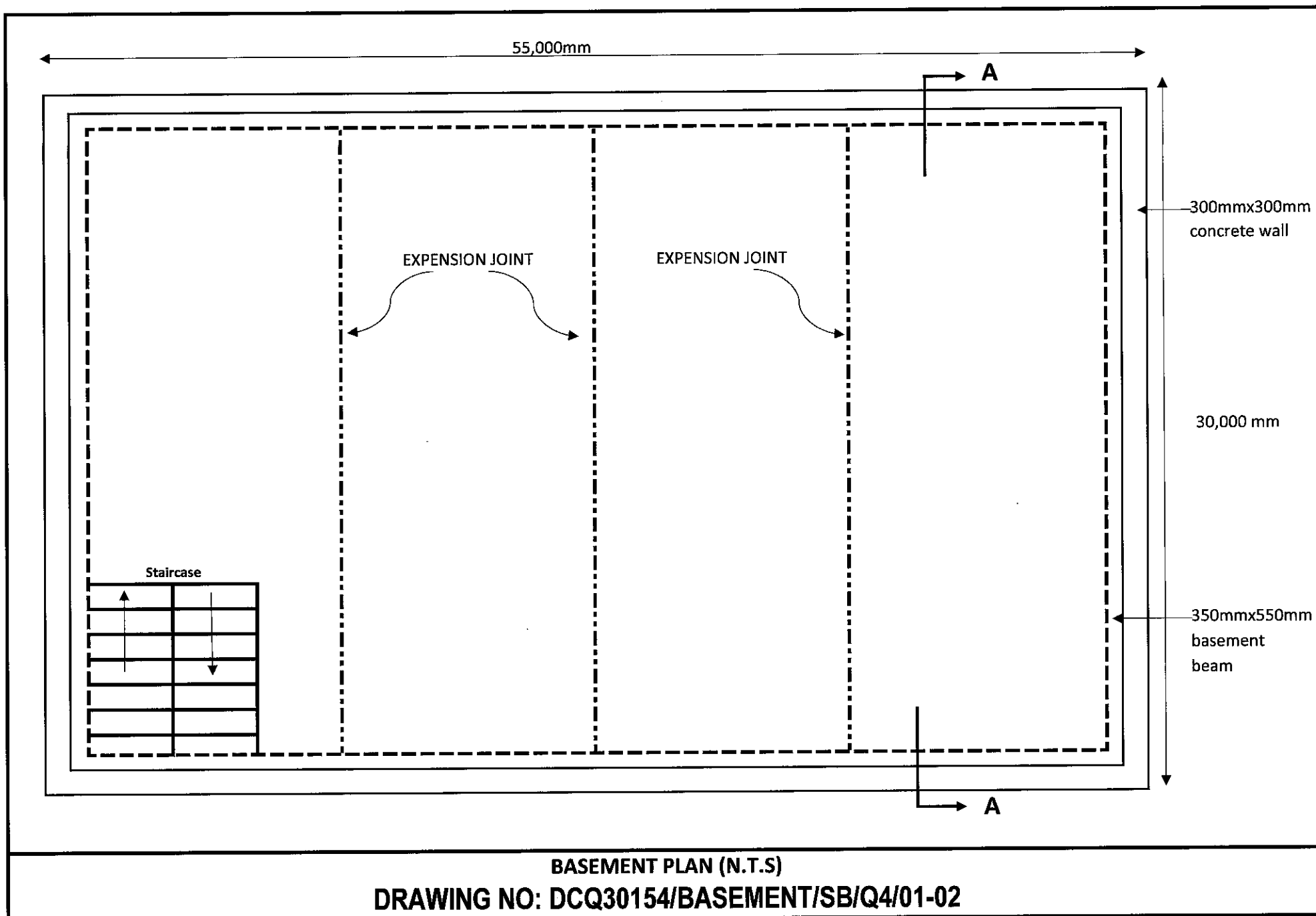
1. All dimensions in millimeter unless otherwise stated.
2. Length of proposed new premix road is 65938mm.
3. Assumed original ground level is 0.00m.
4. No top soil to be preserved.
5. The sub-grade shall be compacted to CBR value of 5%.
6. The base course (road base) shall be crusher run shall be crushed rock/gravel from approved source. It shall be suitable graded with max. size of gradation not exceeding 50mm Ø. Compaction of the base source shall be done in layers each not exceeding 200mm thick.
7. The base course (road base) shall be prime coats with low viscosity bituminous with bitumen of grade 80/100 to 9.0 kg/10 sq.m.
8. The binder course shall be tack coats with liquid bitumen 80/100 @ 2.0 to 2.5 kg/10 sq.m.
9. The binder and wearing courses shall be of bituminous macadam supplied from an approved source. The mix shall be graded with the following requisite:

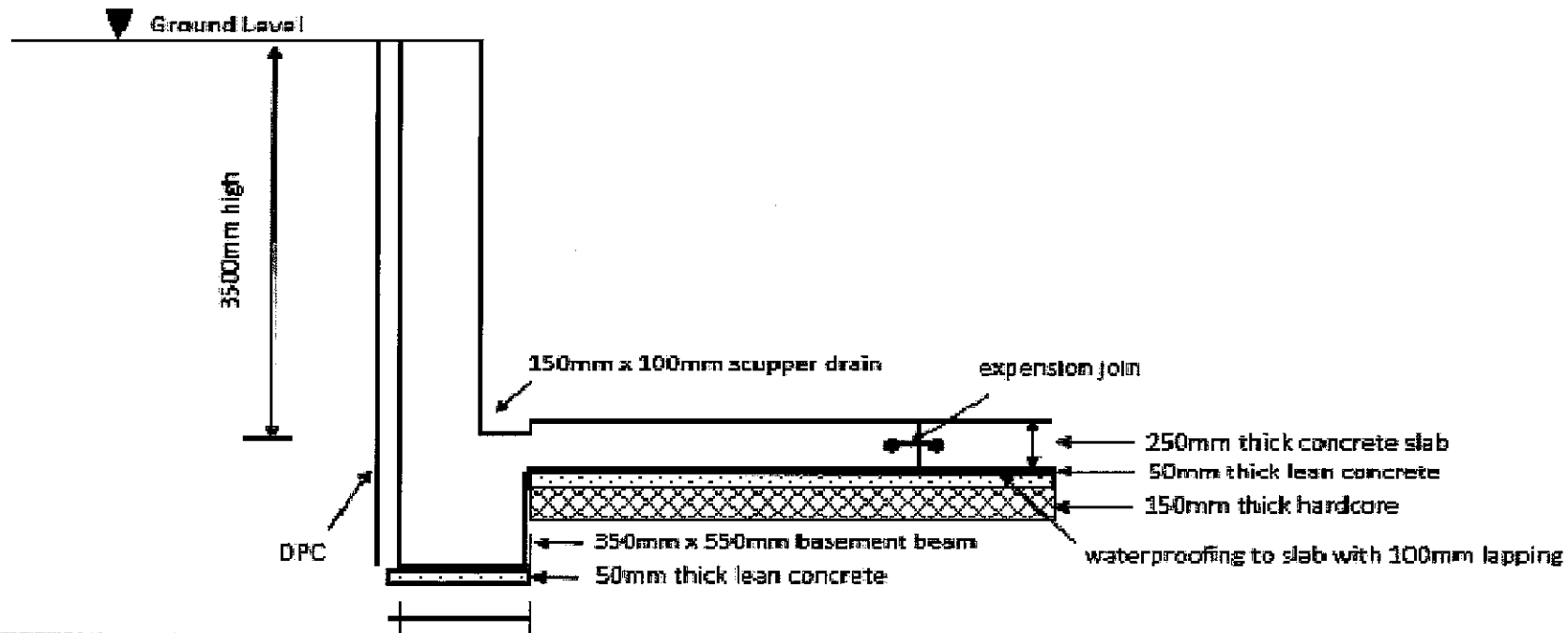
	max. agg size	binder content
Wearing course	14mm	5.0±0.5%
Binder course	20mm	4.7±0.6%
10. The compaction work shall be done using roller weighting not less than 10 tons or an equivalent vibrating roller.
11. Center to center opening p.c. kerb is 3.0m.

DRAWING: NOT TO SCALE

DRAWING NO: DCQ30154/ROAD WORK/SB/Q3/02-03







NOTES:

- 1 Thickness of external concrete wall shall be 300mm thick.
- 2 All concrete works for wall & beam shall be grade 40
- 3 Concrete grade 20 for lean concrete
- 4 Expansion joint consist of sealant compound type Theflex 600 or equivalent
- 5 Profax 12 or equivalent waterproofing membrane to manufacture's spec
- 6 Internal wall Finishing shall be paint with one coat Alkaline resisting primer sealer & two coats of ICI dulux/client approval.
- 7 From bore hole investigation, site are free from ground water

SECTION A-A

TYPICAL CONCRETE WALL & SLAB DETAIL

DRAWING NO: DCQ30154/BASEMENT/SB/Q4/02-02