

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

DCQ 40204 : BUILDING WORKS MEASUREMENT 4

TARIKH : 18 MEI 2025

MASA : 8.30 PAGI – 10.30 PAGI (2 JAM)

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

Bahagian A : Subjektif (2 soalan)

Bahagian B : Subjektif (4 soalan)

Dokumen sokongan yang disertakan : Buku SMM 2, Kertas Dimensa, Kertas Billing dan Lukisan

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

Notes:**Nota:**

- (a) Measurement of work is based on Malaysian Standard Method of Measurement Works 2nd edition (SMM2).

Pengukuran kerja adalah berdasarkan Kaedah Standard Malaysia Pengukuran Kerja edisi ke-2 (SMM2).

- (b) Student is allowed to make any reasonable assumption if the information given in the drawings are inadequate.

Pelajar boleh membuat andaian yang munasabah jika maklumat di dalam lukisan tidak memadai.

- (c) Marks will be given for the knowledge of the subject and systematic setting of dimensions, adequacy and accuracy of description and dimensions.

Markah akan diberikan berdasarkan pengetahuan tentang subjek dan dimensi yang sistematik, kecukupan dan ketepatan penerangan dan dimensi.

SECTION A : 50 MARKS
BAHAGIAN A : 50 MARKAH

INSTRUCTION:

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

ARAHAN :

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

QUESTION 1

SOALAN 1

Based on Drawing No: **DCQ40204/SHEETPILE/01**, answer all the questions below.

Berdasarkan Lukisan No: DCQ40204/ SHEETPILE/01, jawab semua soalan di bawah.

- CLO1 (a) Referring to SMM2, describe Sections E.5.1 and E.5.2 that are related to steel sheet piles.

Merujuk kepada SMM2, huraikan Seksyen E.5.1 dan E.5.2 berkaitan dengan cerucuk kepingan keluli.

[5 marks]
[5 markah]

- CLO1 (b) Prepare a quantity measurement for piling works related to Sections E.5.5.a and E.5.8 only.

Sediakan pengukuran kuantiti bagi kerja-kerja cerucuk yang berkaitan dengan Seksyen E.5.5.a dan E.5.8 sahaja.

[10 marks]
[10 markah]

- CLO1 (c) Prepare a quantity measurement for piling works related to Section E.5.5.c only.

Sediakan pengukuran kuantiti bagi kerja-kerja cerucuk yang berkaitan dengan Seksyen E.5.5.c sahaja.

[10 marks]
[10 markah]

QUESTION 2**SOALAN 2**

Based on Drawing No: **DCQ40204/BS/01** to **DCQ40204/BS/04**, answer the questions below.

Berdasarkan Lukisan No: DCQ40204/BS/01 hingga DCQ40204/BS/04, jawab semua soalan di bawah.

- CLO1 (a) Explain **TWO (2)** quantity measurement methods of trench excavation to lay service pipes.

Terangkan dengan jelas kaedah pengukuran kuantiti untuk penggalian peparit untuk meletakkan paip perkhidmatan.

[5 marks]
[5 markah]

- CLO1 (b) Prepare a quantity measurement for the excavation to lay service pipes and water tank support.

Sediakan pengukuran kuantiti bagi kerja penggalian peparit untuk meletakkan paip perkhidmatan dan penyokong tangki air.

[10 marks]
[10 markah]

- CLO1 (c) Prepare a quantity measurement for riser main pipe and pipe fittings, from the water meter to the kitchen sink.

Sediakan pengukuran kuantiti untuk 'riser main pipe' dan lekapan paip dari meter ke sinki dapur.

[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 :

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

QUESTION 1

SOALAN 1

Based on Drawing No: **DCQ40204/BOREPILE/01**, answer all questions below.

Berdasarkan Lukisan No: DCQ40204/BOREPILE/01, jawab semua soalan di bawah.

- CLO1 (a) Prepare a quantity measurement for isolated bored pile and contiguous bored pile related to Section E.5.4.b only.

Sediakan pengukuran kuantiti kerja untuk "isolated bored pile" dan "contiguous bored pile" bagi seksyen berkaitan dengan E.5.4.b sahaja.

[8 marks]
[8 markah]

- CLO1 (b) Conclude a bill of quantities, complete with its measurements for isolated bored pile and contiguous bored pile related to Sections E.5.6.a and E.5.6.c.

Rumuskan senarai kuantiti lengkap dengan pengukuran untuk "isolated bored pile" dan "contiguous bored pile" bagi seksyen berkaitan dengan E.5.a and E.5.6.c.

[17 marks]
[17 markah]

QUESTION 2**SOALAN 2**

Based on Drawing No: **DCQ40204/BS/01** to **DCQ40204/BS/04**, answer the questions below.

Berdasarkan Lukisan No: DCQ40204/BS/01 hingga DCQ40204/BS/04, jawab semua soalan di bawah.

- CLO1 (a) Prepare a quantity measurement for imported marble, laid on the top and edge of the kitchen table top.

Sediakan pengukuran kuantiti untuk marmar import yang diletakkan di atas dan tepi meja dapur.

[8 marks]
[8 markah]

- CLO1 (b) Conclude a bill of quantities, complete with its measurements for water closet, shower, wash hand basin and kitchen sink.

Rumuskan senarai kuantiti lengkap dengan pengukuran bagi mangkuk tandas, pancuran, besin basuh tangan dan sinki dapur.

[17 marks]
[17 markah]

QUESTION 3**SOALAN 3**

Based on Drawing No: **DCQ40204/BS/01** to **DCQ40204/BS/04**, answer all questions below.

Berdasarkan Lukisan No: DCQ40204/BS/01 hingga DCQ40204/BS/04, jawab semua soalan di bawah.

- CLO1 (a) Prepare a quantity measurement for trench excavation to receive a sanitary pipe.

Sediakan pengukuran kuantiti penggalian peparit untuk menerima paip sanitari.

[8 marks]

[8 markah]

- CLO1 (b) Conclude a bill of quantities, complete with its measurements for vent pipe, gully trap, gauge ball and sanitary pipe system test.

Rumuskan senarai kuantiti lengkap dengan pengukuran bagi paip pengudaraan, perangkap kelodak, bebola jejaring dan ujian terhadap sistem paip sanitari.

[17 marks]

[17 markah]

QUESTION 4**SOALAN 4**

Based on Drawing No: **DCQ40204/BS/01** to **DCQ40204/BS/04**, answer all questions below.

Berdasarkan Lukisan No: DCQ40204/BS/01 hingga DCQ40204/BS/04, jawab semua soalan di bawah.

- CLO1 (a) Prepare a quantity measurement for built-in decorative box for lighting and trench excavation to receive the main cable.

Sediakan pengukuran kuantiti bagi binaan kekotak hiasan untuk pencahayaan dan penggalian peparit untuk menerima kabel utama.

[8 marks]

[8 markah]

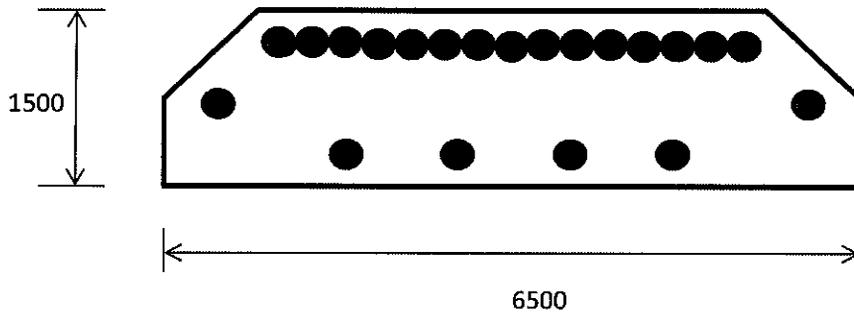
- CLO1 (b) Conclude a bill of quantities, complete with its measurements for electrical points, including wiring as shown in the electrical schedule.

Rumuskan senarai kuantiti lengkap dengan pengukuran bagi "electrical points" termasuk pendawaian seperti yang ditunjukkan di dalam jadual elektrik.

[17 marks]

[17 markah]

SOALAN TAMAT



PLAN OF ABUTMENT (NORTH)

TABLE 1

PILE DIAMETER (mm)	MAIN REINFORCEMENT	HELICAL LINKS	Estimate Length Of Pile (m)	Estimate Length from cut off Pile (m)	Max. Working Load (kN)
300	12-32mm diameter	12mm dia - 125mm c/c	13	12	1900

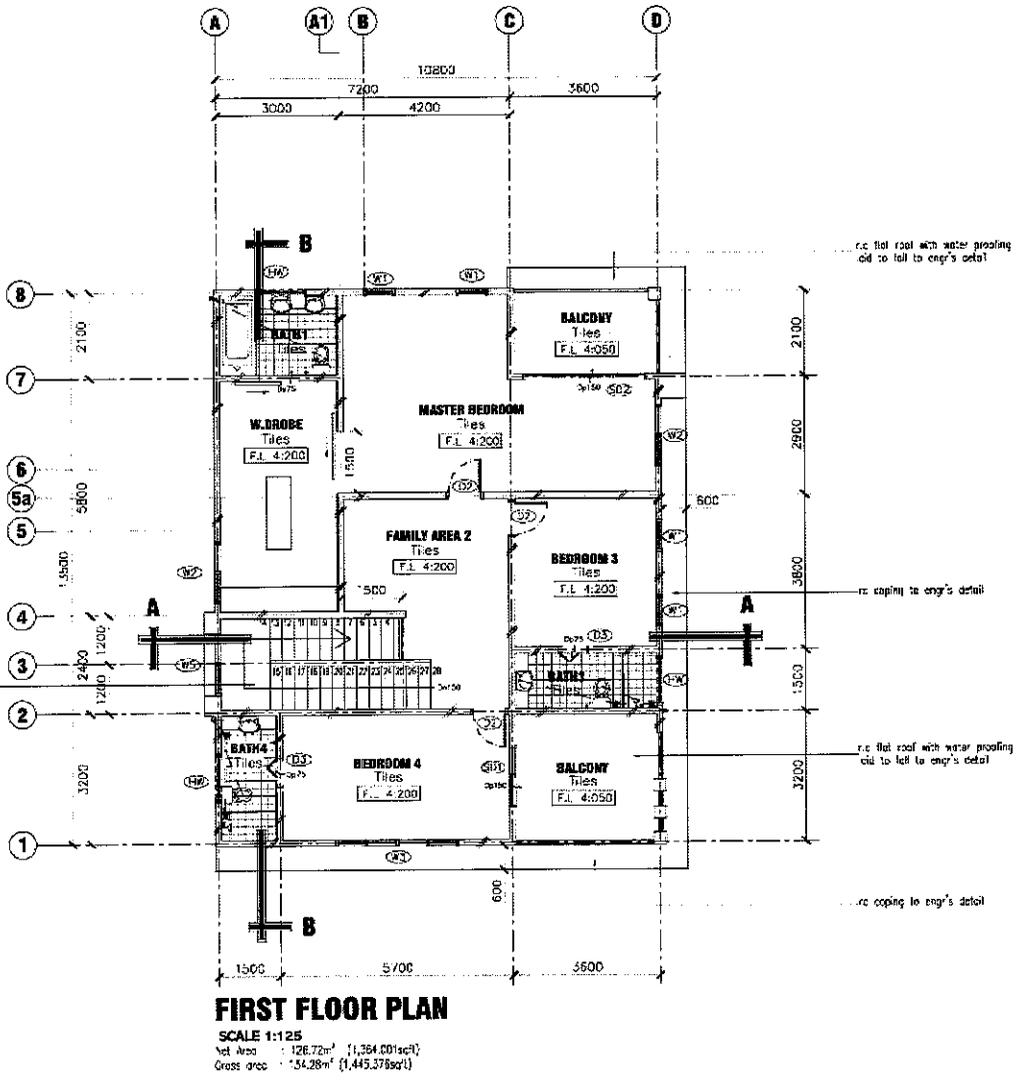
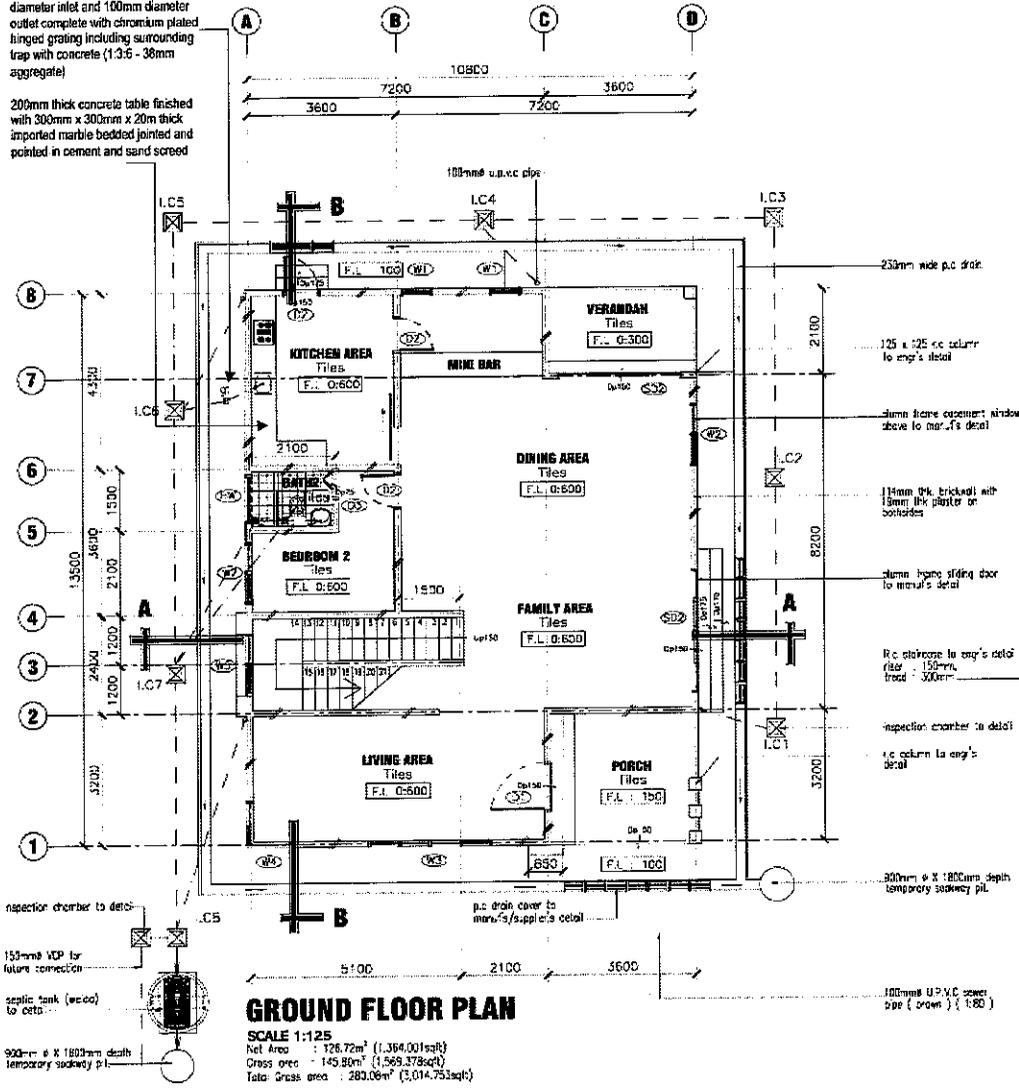
Notes

1. All dimension are in millimeters unless noted otherwise
2. Concrete shall be grade 30.
3. No enlarge base required.
4. Static load test on driven piles shall be twice the working load
5. Temporary casing shall be 20mm thick FSH-12 tubular steel for isolated pile only
6. Allow 10% of excavation in rock.

Project Title:-	Drawing Title:-	Drawing No:-	Scale :-
Proposed Construction and Completion of piling abutment at Bidara Bay, Kuala Selangor	PLAN	DCQ40204/BOREDPILE/01	Not To Scale

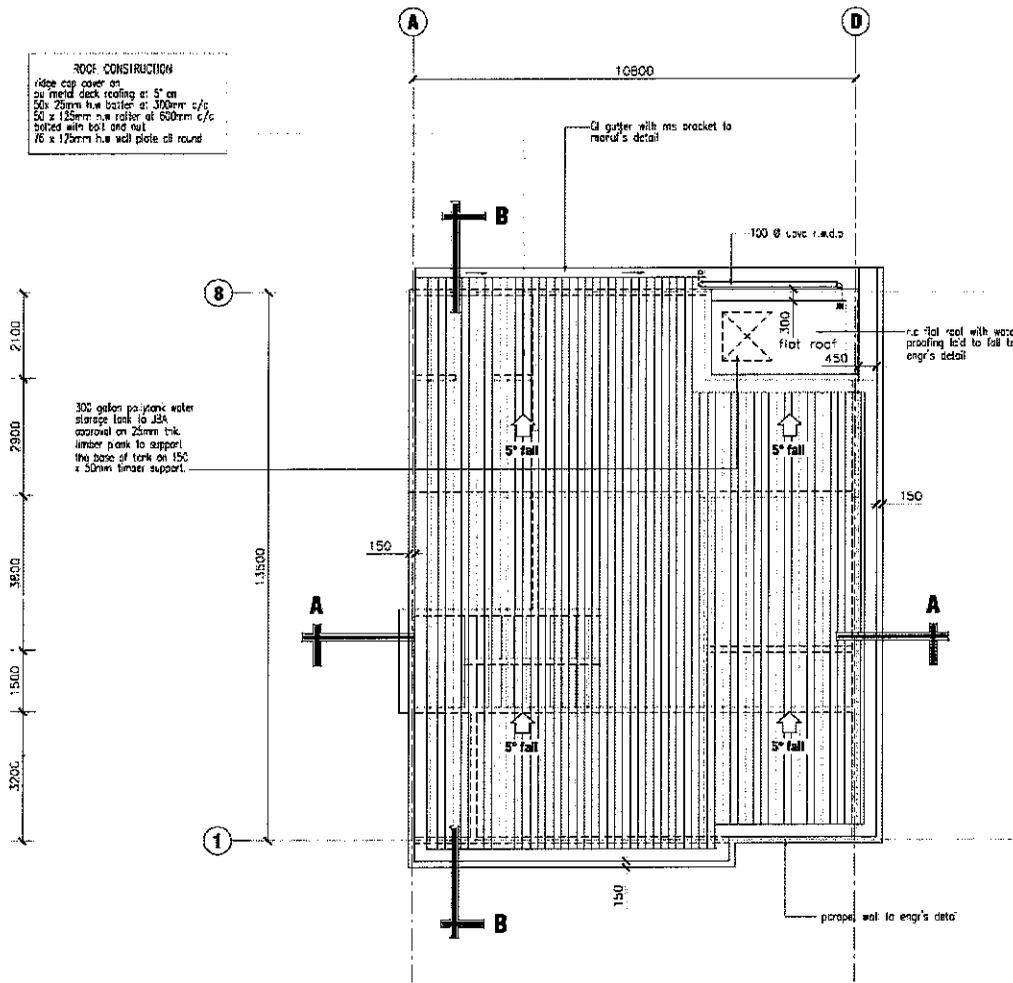
225mm x 225mm x 450mm deep cast iron gully trap with 76mm x 52mm diameter inlet and 100mm diameter outlet complete with chromium plated hinged grating including surrounding trap with concrete (1:3:6 - 38mm aggregate)

200mm thick concrete table finished with 300mm x 300mm x 20mm thick imported marble bedded jointed and pointed in cement and sand scored



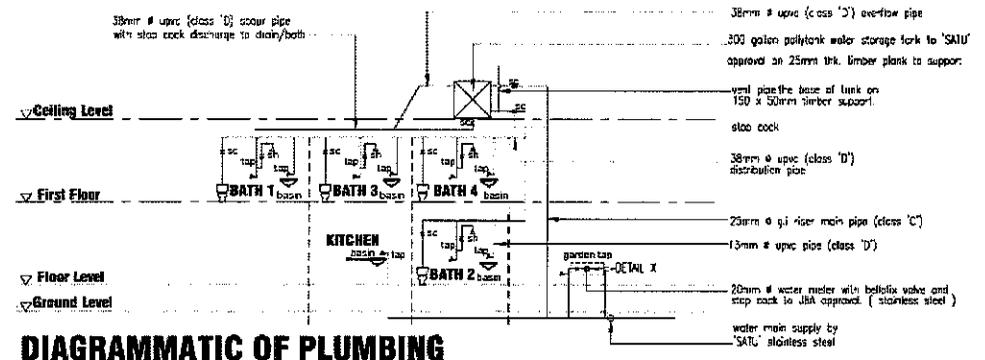
DRAWING NO:
DCQ40204/BS/02

ROOF CONSTRUCTION
 ridge cap cover on
 20 metal deck roofing at 5° on
 150 x 25mm flw batten at 300mm c/c
 50 x 150mm s.w. rafters at 600mm c/c
 treated with bolt and nut
 76 x 175mm p.u. wall plate all round

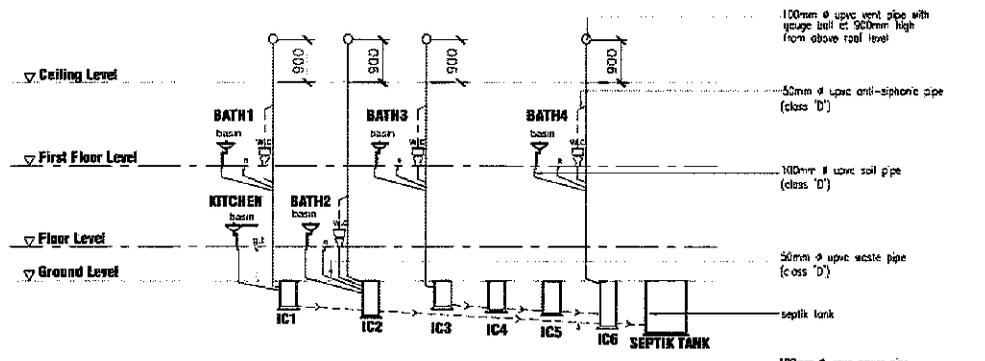


ROOF PLAN

SCALE 1:125

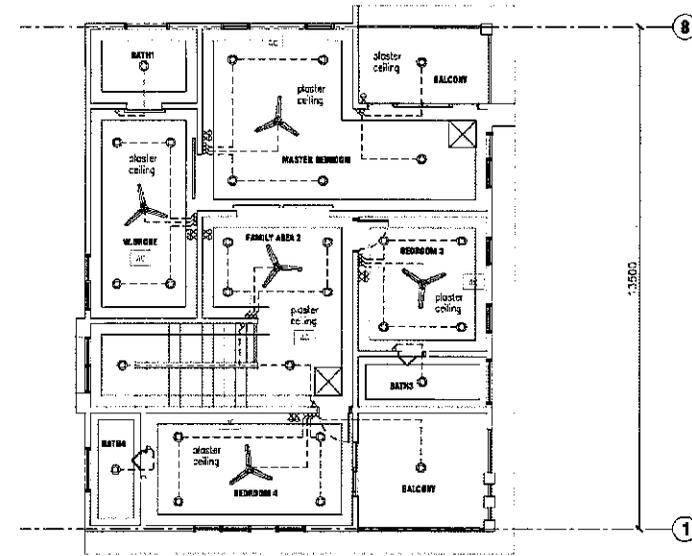
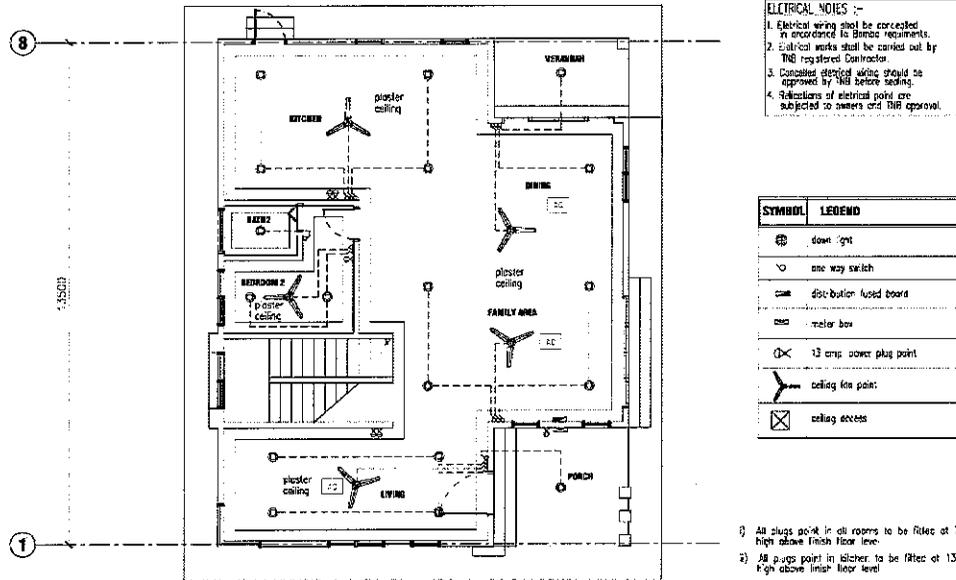


DIAGRAMMATIC OF PLUMBING LAYOUT
 Not To Scale

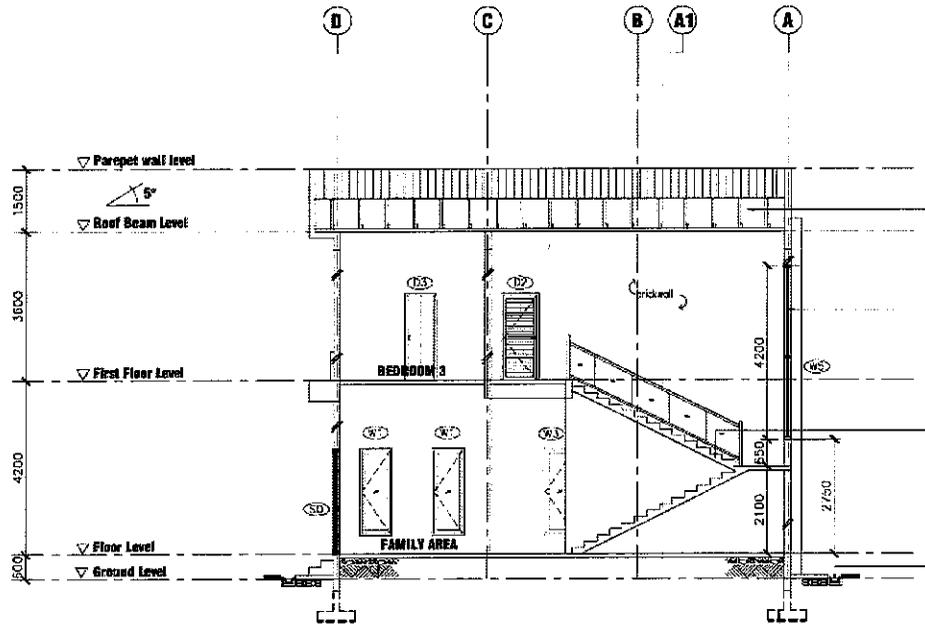


DIAGRAMMATIC OF SANITARY LAYOUT
 Not To Scale

DRAWING NO:
DCQ40204/BS/03



CEILING & ELECTRICAL LAYOUT (FIRST FLOOR)
N.T.S.



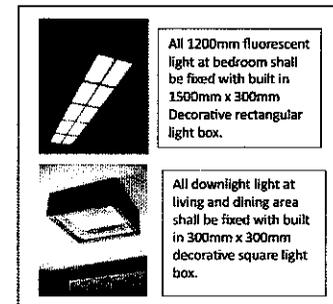
FOUNDATION CONSTRUCTION
 900 x 600 x 150 mm foundation
 50 mm 1:4 conc. lean

SECTION A-A
SCALE 1:125

FLOOR CONSTRUCTION
 150mm thick hardcore to eng's detail

PLUMBING NOTES

1. All plumbing works shall be carried out by plumber registered with JBA/Waste Work Department
2. The registered plumber shall inform the JBA/ Waste Work Department 7 days prior to commencement of work on site.
3. All concreted plumbing shall be inspected and approved by the JBA/ Waste Work Department
4. All water storage tank must be 300-gallon poly tank type, dimension 1200mm x 1200mm x 1300mm (H) in Black colour.
5. All scour and overflow pipe connected together and discharge to nearest drain.
6. All pipe to be laid in trenches shall be 500mm from ground level
7. All sanitary appliances shall be Standard White Colour Vitreous China unless otherwise stated and approved by Architect
8. All waste pipe shall be 50mm diameter UPVC
9. All soil pipe shall be 100mm diameter UPVC
10. Water tank support shall be 1.2m x 1.2m x 12mm thick plywood and 3 nos of 1.2m hard wood timber

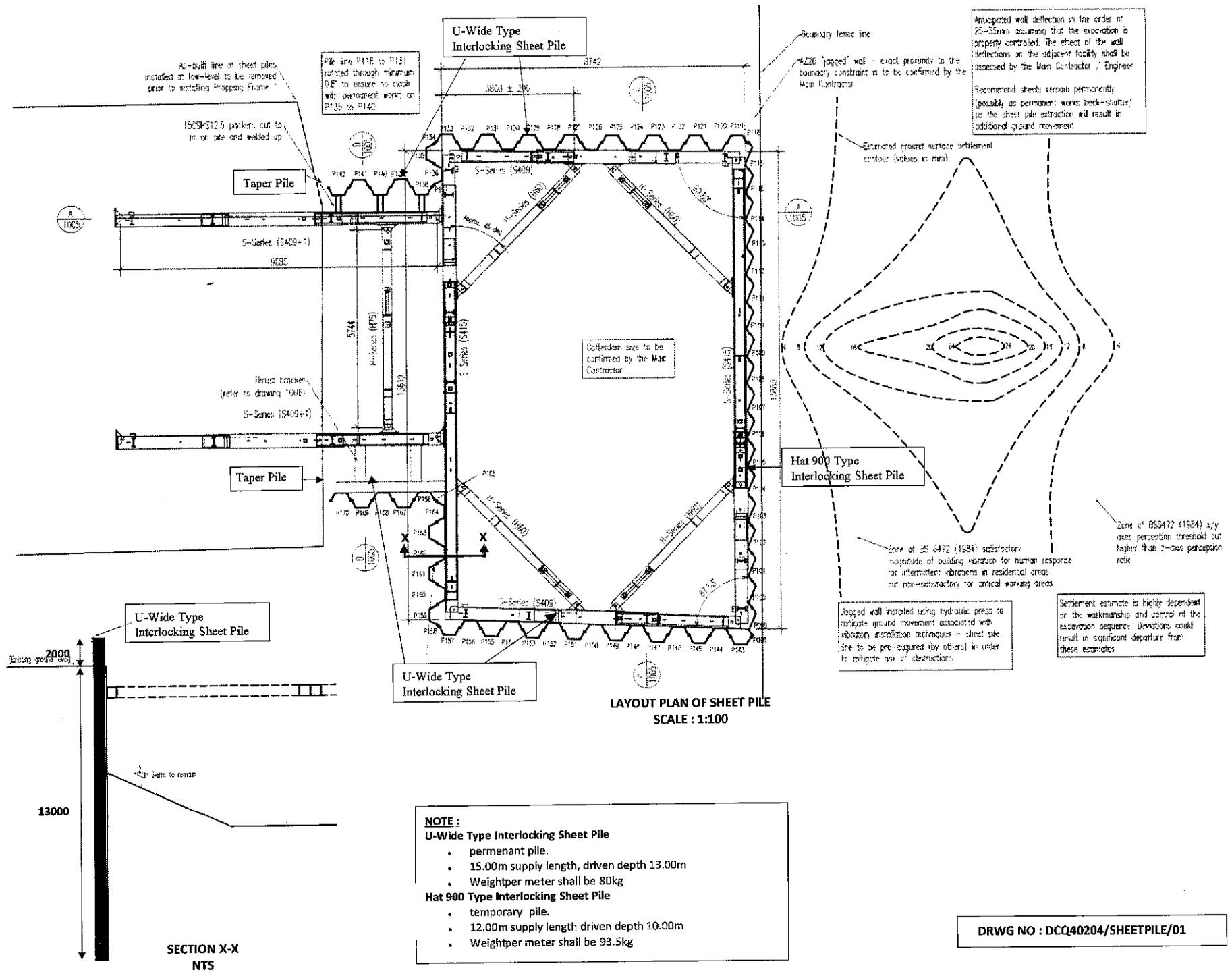


All 1200mm fluorescent light at bedroom shall be fixed with built in 1500mm x 300mm Decorative rectangular light box.

All downlight light at living and dining area shall be fixed with built in 300mm x 300mm decorative square light box.

BUILT IN LIGHTING ACCESSORIES

DRAWING NO:
DCQ40204/BS/04



As-built line of sheet piles installed at low-level to be removed prior to installing Trapping Frame

ISO58812.5 packers cut to fit on site and welded up

Pile nos P115 to P131 rotated through minimum 0.5° to ensure no clash with permanent works on P115 to P140

Anticipated wall deflection in the order of 25-30mm assuming that the excavation is properly controlled. The effect of the wall deflections on the adjacent facility shall be assessed by the Main Contractor / Engineer

Recommend sheets remain permanently (possibly as permanent works back-stutter) as the sheet pile extraction will result in additional ground movement.

Coffered size to be confirmed by the Main Contractor

Estimated ground surface settlement contour (values in mm)

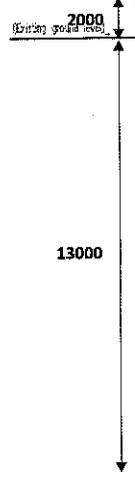
Hat 900 Type Interlocking Sheet Pile

Zone of BS 6472 (1984) satisfactory magnitude of building vibration for human response for intermittent vibrations in residential areas but non-satisfactory for critical working areas

Zone of BS6472 (1984) v/v over perception threshold but higher than 7-mass perception rate

Jagged wall installed using hydraulic press to mitigate ground movement associated with vibratory installation technique - sheet pile line to be pre-surveyed by other(s) in order to mitigate risk of obstructions

Settlement estimate is facility dependent on the workmanship and control of the excavation sequence. Deviations could result in significant departure from these estimates



SECTION X-X NTS

LAYOUT PLAN OF SHEET PILE SCALE : 1:100

DRWG NO : DCQ40204/SHEETPILE/01