higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

ARCHITECTURAL GRAPHICS AND TECHNOLOGY

(First paper)

NQF LEVEL 4

(12050644)

22 November 2023 (X-paper)
9:00-13:00

REQUIREMENTS: A3 drawing paper

This question paper consists of 4 pages and 6 diagram sheets.

241Q1N2322

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
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ARCHITECTURAL GRAPHICS AND TECHNOLOGY
NQF LEVEL 4
PAPER 1
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers clearly and according to the numbering system used in this question paper.
4. All drawing work, including candidate information, must be done using an approved CAD software package, printed and titled correctly.
5. All drawing work must comply with the relevant SANS (SABS) recommended codes.
6. Brick sizes should be taken as 220 × 110 × 75 mm.
7. All the abbreviations and symbols must comply with the latest National Building Regulations and all relevant SANS (SABS) recommended codes.
8. A balanced layout is very important, and candidates will be penalised for poor planning.
9. Check carefully DIAGRAMS 1–6 provided, and cross-check written information in the questions outlined – some of the information is doubled up, this is intentional and is for ease of reference.
10. Drawing instruments may be used.

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QUESTION 1 STAIRCASES

As an architectural draughts person, you are required to draw to Scale 1:20 on an A3 sheet of paper, a sectional view of the timber staircase shown on DIAGRAM SHEETS 1 and 2. Show the entire flight of stairs in elevation.

The drawing must clearly show the following annotations and dimensions:

1.1	Risers	(2)
1.2	Treads	(2)
1.3	Balustrade	(2)
1.4	Accuracy	(4)
		[10]

QUESTION 2 FLOOR PLAN LAYOUTS

DIAGRAM SHEETS 1 and 2 show rough layout architectural conceptual sketches of 2 levels of a double-storey dwelling. DIAGRAM SHEET 4 shows a site plan with key site dimensions.

BRIEF SPECIFICATIONS:

- Roof pitch: Single pitch roof @ 9 degrees
- Roof cover IBR treated sheeting – colour grey.
- Level 1 floor to underside mezzanine level 2 400 mm level 1
- Level 2 floor to top of wall-plate height 1 800 mm on lower side level 2
- Level 1 is 185 mm above the NGL
- Roof rafter: 220 × 70 @ 800 mm c/c
- Concrete foundations: 700 mm × 230 mm
- External walls: 280 mm cavity wall
- Internal walls: 115 mm brick wall
- Concrete floor level 1:100 mm concrete on 250 cm polythene dpm lapped and sealed, on 50 mm blinding on 250 mm hardcore.
- Timber floor level 2: 150 mm rafters to engineer's detail.
- Fascia boards: 220 mm × 32 mm SA pine
- Windows and doors as per DIAGRAM SHEET 5

As an architectural draughtsperson, the architect or technologist you work for will require you to compile a finished set of working drawings of the 2 levels provided.

By using the information above and the rough sketches provided, you will need to complete a set of working drawings of the 2 levels for the architect to check.

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You can use your discretion for information not shown, you will discuss later with the architectural principal on these items in a later meeting. However key dimensions must be the same as DIAGRAMS 1 and 2

2.1 Trace Level 1 plan layout (20)

2.2 Trace Level 2 plan layout. (20)

Include the following:

- Include room names and floor finishes for levels 1 and 2.
- All dimensions level 1 and 2 – according to the recommended code of drawing practice.
- Symbols on all windows and doors as shown.
- Section lines and direction of section arrows AA.
- Suitable title and scale for both level 1 and level 2 plan layouts.
- Suitable North Point.
- Kitchen sink and stove.
- Staircase with the correct number of risers numbered for height.

[40]

QUESTION 3: SECTION A-A THROUGH DWELLING

Draw using a scale of 1:50 on an A3 sheet of paper, the section A-A through the dwelling. As shown on DIAGRAM SHEET 6 (attached) indicate the following specifications:

- The correct roof pitch, roof covering, rafters, and heights.
- Gutter and fascia
- Strip foundations
- Level 1 concrete slab, level 2 timber floor.
- Show all relevant section hatching **[20]**

QUESTION 4: ELEVATIONS

Draw using a scale of 1:100 on an A3 sheet of paper and 2 elevations.
DIAGRAM SHEET 3 will help give an overview of the style of the home being draughted.
Draw any 2 of the 4 elevations and indicate which you have drawn clearly.

4.1 Draw elevation 1

4.2 Draw elevation 2

Indicate the following specifications:

- The correct pitch, roof covering, truss, and heights.
- Types of finishes
- Correct windows according to the schedule indicated.

[30]

TOTAL 100

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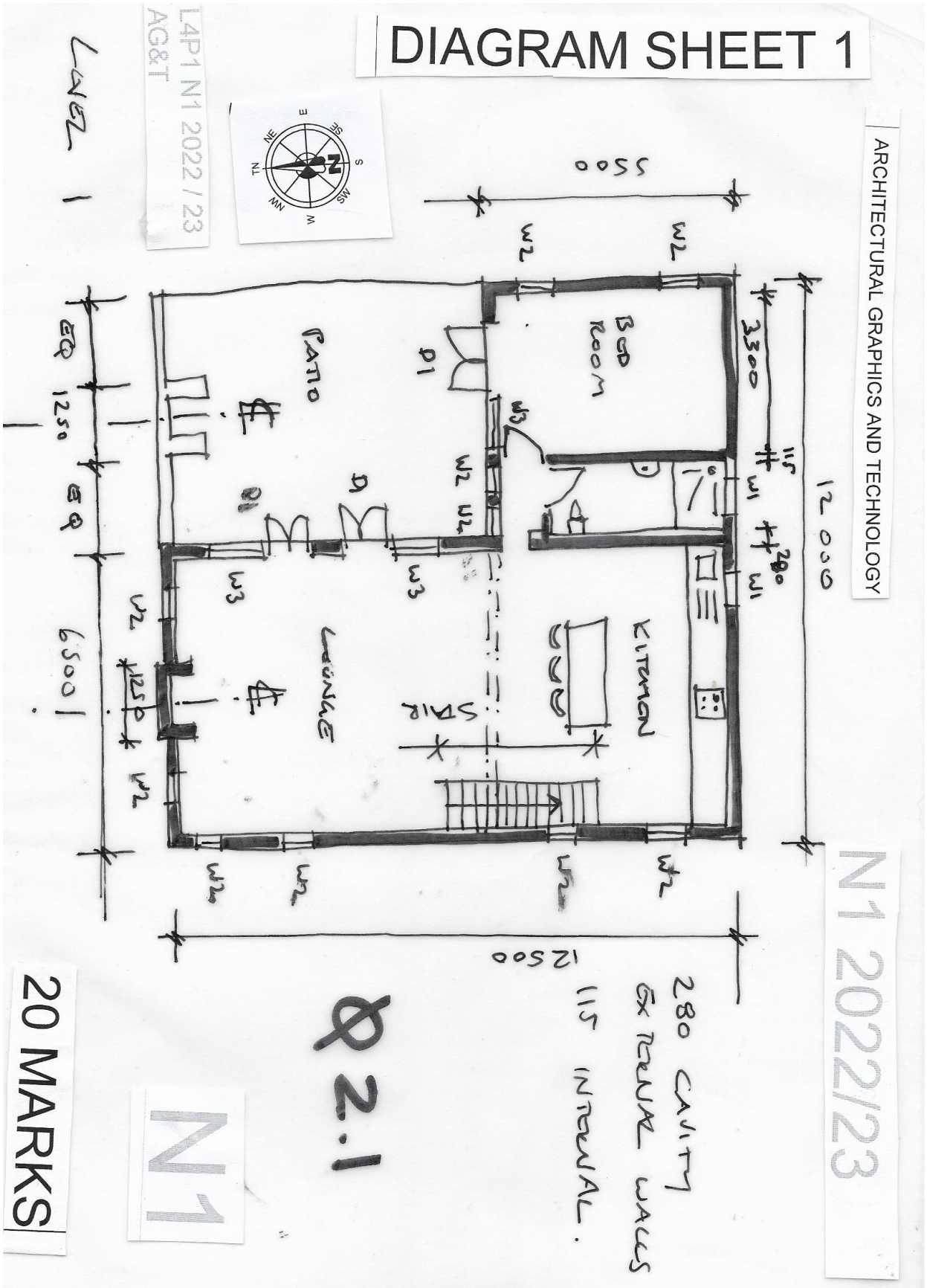
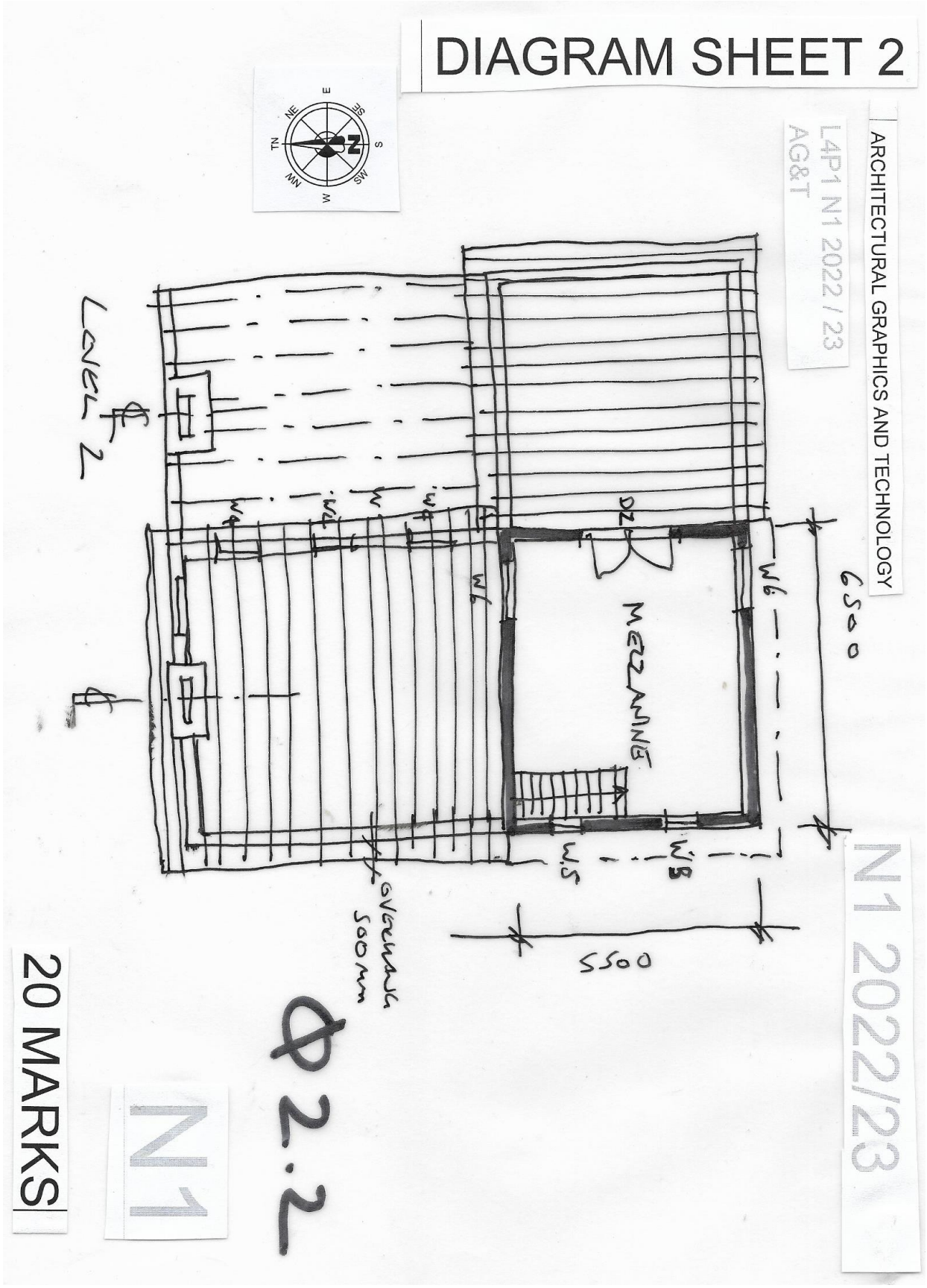


DIAGRAM SHEET 1
ARCHITECTURAL GRAPHICS AND TECHNOLOGY
L4P1 N1 2022 / 23
AG&T
N1 2022/23
N1
20 MARKS
LEVEL 1
5500
12 000
12500
6500
3300
1250
EQ
BED ROOM
PATIO
KITCHEN
LOUNGE
STAIR
D1
W1
W2
W3
280 CAVITY
EXTERNAL WALLS
115 INTERNAL.
Ø 2.1

DIAGRAM SHEET 2

ARCHITECTURAL GRAPHICS AND TECHNOLOGY

L4P1 N1 2022 / 23
AG&T



Q 2.2

20 MARKS

N1

N1 2022/23

DIAGRAM SHEET 3

ARCHITECTURAL GRAPHICS AND TECHNOLOGY

L4P1 N1 2022 / 23
AG&T

Q2.1
Q2.2

N1

N1 2022/23

GENERAL NOTES:

Structural engineer to be appointed by owner to check and approve structural integrity of this design, advise on adverse site and / or soil conditions and inspect works periodically and issue of structural completion certificate.

All work to be in accordance with relevant national building regulations and performed by qualified and registered contractor to meet with all local municipal requirements. all dimensions to be checked on site by contractor prior to commencing site works.

Figured dimensions to be taken in preference to scaling drawings.

All relevant details,levels,dimensions to be checked on site before commencement of work.

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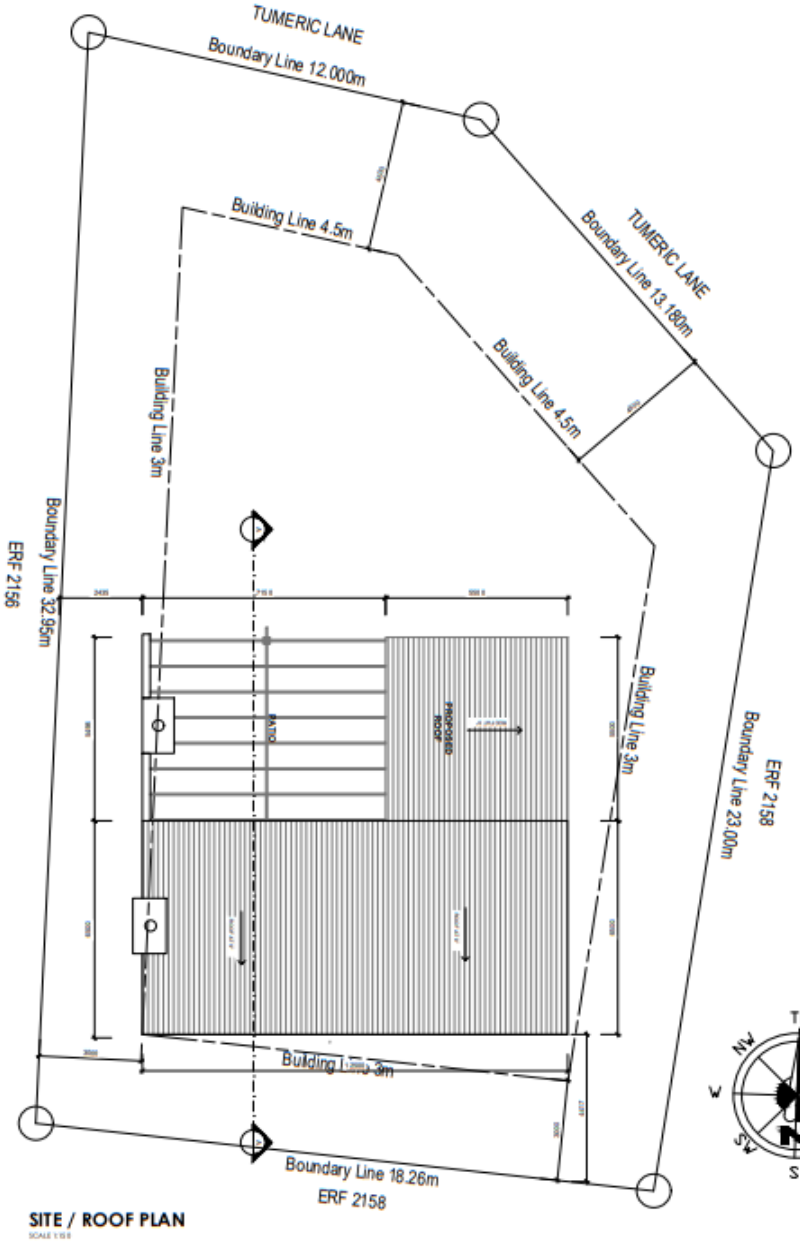
ARCHITECTURAL GRAPHICS AND TECHNOLOGY L4P1

EXAM NQF LEVEL4

DIAGRAM SHEET 4



STRUCTURAL ENGINEER TO BE APPOINTED BY OWNER TO CHECK AND APPROVE STRUCTURAL INTEGRITY OF THIS DESIGN , ADVISE ON ADVERSE SITE AND / OR SOIL CONDITIONS AND INSPECT WORKS PERIODICALLY AND ISSUE OF STRUCTURAL COMPLETION CERTIFICATE

ALL WORK TO BE IN ACCORDANCE WITH RELEVANT NATIONAL BUILDING REGULATIONS AND PERFORMED BY QUALIFIED AND REGISTERED CONTRACTOR TO MEET WITH ALL LOCAL MUNICIPAL REQIREMENTS. ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO COMMENCING SITE WORKS

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALING DRAWINGS.

ALL RELEVANT DETAILS,LEVELS,DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCEMENT OF WORK.

SITE PLAN SCALE 1:200

N1

N1 2022/23

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N1

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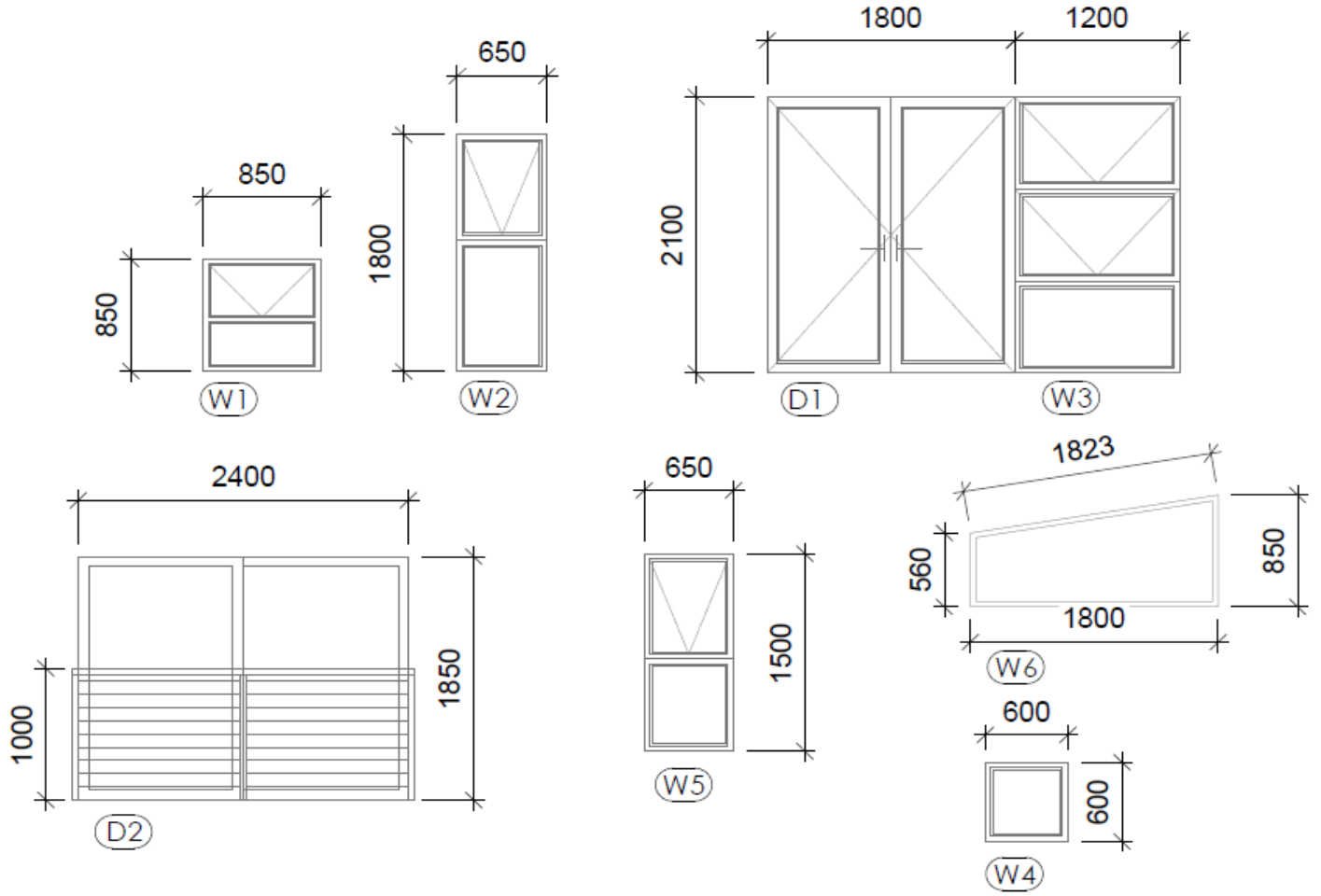
PAPER 1
L4P1 E1 2022 / 23



WINDOW AND DOOR SCHEDULE SCALE 1:50

DIAGRAM SHEET 5

EXAM NQF LEVEL4

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DIAGRAM SHEET 6

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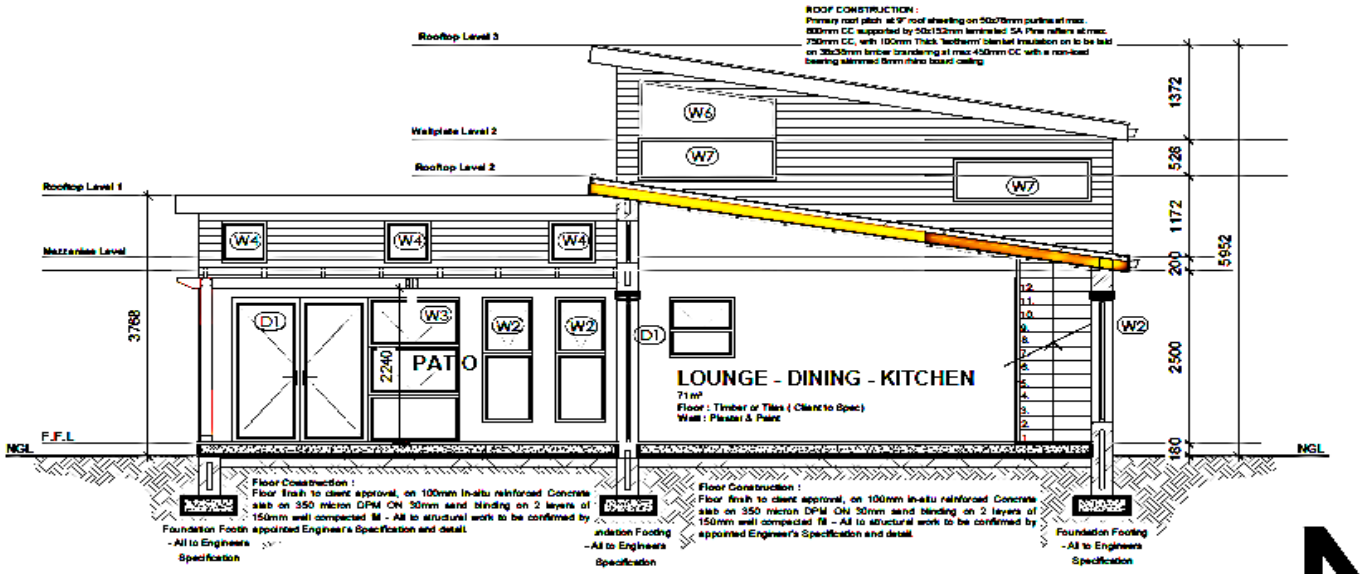
ARCHITECTURAL GRAPHICS AND TECHNOLOGY
PAPER 1
ROUGH SECTION DIAGRAM NTS



SECTION A-A

SCALE 1:50

N1

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PAPER 1
EXAM NQF LEVEL4

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