

**HILLCREST HIGH SCHOOL**

**GRADE 11**

**ENGINEERING GRAPHICS AND DESIGN  
NOVEMBER EXAMINATION 2025  
PAPER 1**

MARKS : 180  
TIME : 3 HOURS

This question paper consists of 6 pages.

**INSTRUCTIONS AND INFORMATION**

1. The question paper consists of **FOUR** questions.
2. The drawing must be drawn to scale 1:1, unless otherwise stated.
3. The question must be answered on the answer sheet provided.
4. Careful time management is essential in order to complete the question.
5. Print your **NAME** on the answer sheet.
6. The answer must be drawn accurately and neatly.
7. Any details or dimensions not given must be assumed in good proportion.
8. **STAPLE** in order to hand in.

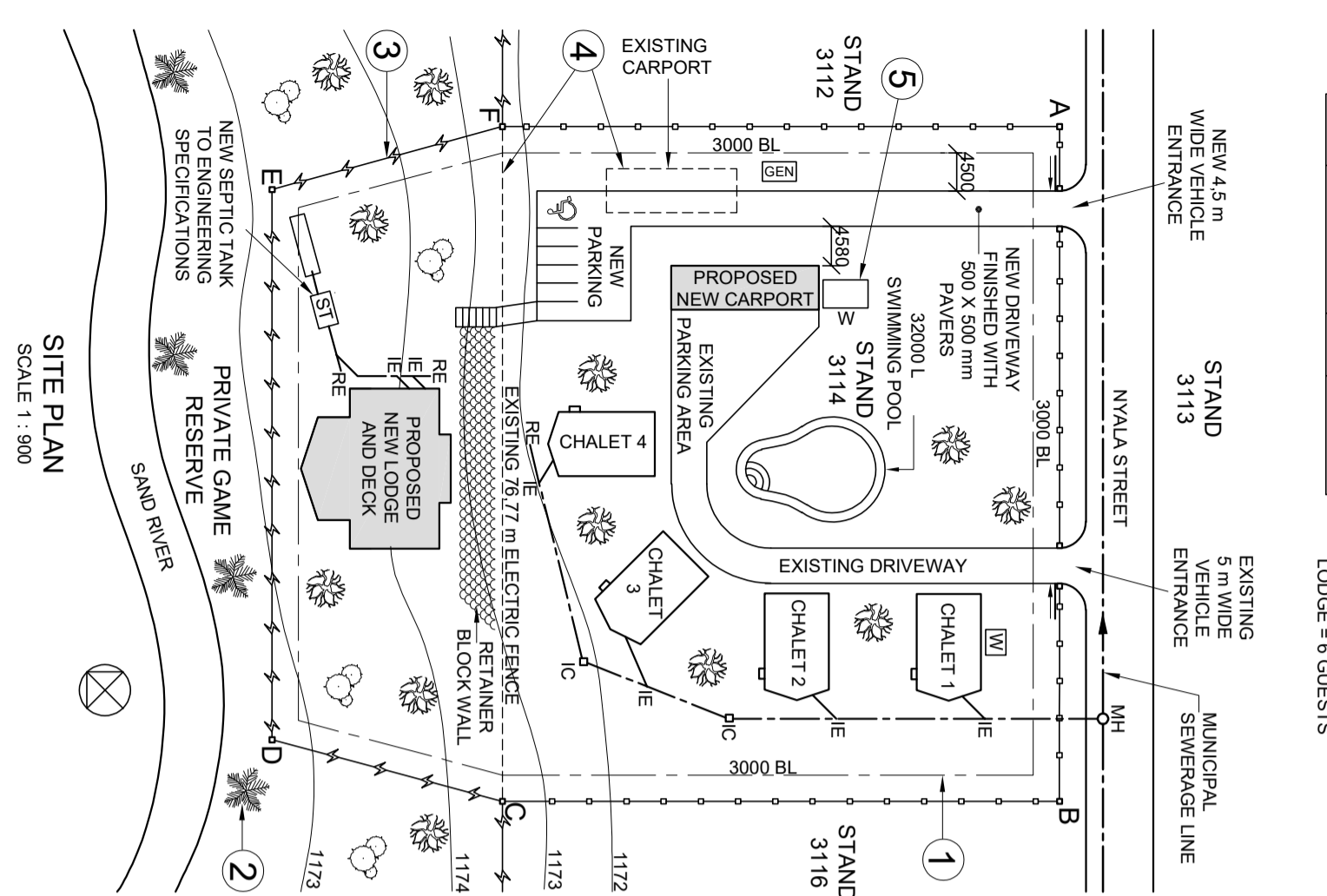
FOR OFFICIAL USE ONLY					
QUESTION	LEARNER MARK			MODERATED MARK	
ONE				30	
TWO				29	
THREE				36	
FOUR				85	
<b>TOTAL</b>				<b>180</b>	

FINAL CONVERTED MARK	CHECKED BY
<u>100</u>	

NAME \_\_\_\_\_

GRADE 11 \_\_

LAND SURVEYOR'S CERTIFICATE OF THE CORNER HEIGHTS AND BOUNDARY LENGTHS OF STAND 3114		SYMBOL LEGEND:	
CORNER HEIGHTS IN METRES	BOUNDARY LENGTHS IN MILLIMETRES	CACTUS PLANT	
A	1171,8	WILLOW TREE	
B	1172,1	SHRUBBERY	
C	1173,9	FRENCH DRAIN	
D	1173,5	1,8 m PALLASADE FENCE	
E	1174,2	2 m HIGH ELECTRIC FENCE	
F	1172,3	ACCOMMODATION: CHALET = 4 GUESTS EACH LODGE = 6 GUESTS	



**SITE PLAN**  
SCALE 1 : 900

HHS

**NOTES:**  
Contractors must verify all dimensions and levels on site before commencing work. Architects to be immediately notified of any discrepancies.

ARCHITECT'S SIGNATURE: .....  
CLIENT'S SIGNATURE: .....

**ANSWER 20**

In the space below, draw, in neat freehand, the SANS 10143 graphical symbol for:  
(a) The front view of a BIDET  
(b) An electrical REGULATING SWITCH

(b) Electrical REGULATING SWITCH

REVISION	DATE	DESCRIPTION
2	22/11/2025	ADD WATER TANK
1	17/11/2025	MOVE FRENCH DRAIN

HSJ ARCHITECTS  
27 ORIBI DRIVE  
KRUGER HILL  
POLOKWANE  
4059  
www.safari-plus.co.za  
019 405 9777

PRINTED BY: .....  
DATE OF PRINT: 26/10/2025  
CHEETAH PRINTERS

**SITE PLAN**

PROJECT:  
PROPOSED NEW LODGE, DECK AND CARPORT FOR MR D BRITS, ON STAND 3114,  
7 NYALA STREET, TUGELA RIVER, LIMPOPO

PROJECT NUMBER: 40-1302  
DRAWING NUMBER: 0214-59

DATE: 29/09/2025  
DRAWN: STEVEN  
CHECKED: PALESA

REFERENCE CODE: FMJ-2614/L  
SCALE 1 : 900

**QUESTION 1: ANALYTICAL (CIVIL)**

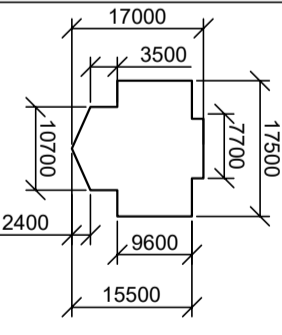
**Given:**  
The site plan of an existing resort with a proposed new lodge and deck, as well as a new carport, a title panel and a table of questions. The drawing is not prepared to the indicated scale.

**Instructions:**  
Complete the table below by neatly answering the questions, which all refer to the accompanying drawings, title panel and civil content.

QUESTIONS		ANSWERS	
1	What does the number 0214-59 refer to?		1
2	Who is the client?		1
3	Who printed the drawing?		1
4	In which town is the architectural firm situated?		1
5	What was the second revision?		1
6	How high is corner D above sea level in metres?		1
7	Name the feature at 1.		1
8	Name the natural feature at 2.		1
9	What is the height of the feature at 3 in millimetres?		1
10	What must happen to the features at 4?		1
11	Name the symbol at 5.		1
12	What is the finish on the new driveway?		1
13	What does the abbreviation B/C on floor plans stand for?		1
14	In what colour must new drain pipes be indicated on drainage installation drawings?		1
15	What is the shortest distance from the proposed new carport to the boundary line with STAND 3112 in metres?		2
16	With reference to the north point, in what direction does the sewerage flow in the municipal sewerage line?		2
17	What is the proposed total number of guests that would be accommodated at the resort?		2
18	In the space below (ANSWER 18), determine the total perimeter of the area ABCF in metres.		3
19	In the space below (ANSWER 19), determine the total area of the new lodge and deck in square metres.		3
20	In the space in the title panel (ANSWER 20), draw, in neat freehand, the SANS 10143 graphical symbol for: (a) the front view of BIDET, and (b) an electrical REGULATING SWITCH.		4
<b>TOTAL</b>		<b>30</b>	

ANSWER 18  
Show ALL calculations

ANSWER 19  
Show ALL calculations



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**QUESTION 2: INTERPENETRATION AND DEVELOPMENT**

**Given:**

- The incomplete front, top and left view, of a triangular prism that has been shaped to fit around a square prism.

**Instructions:**

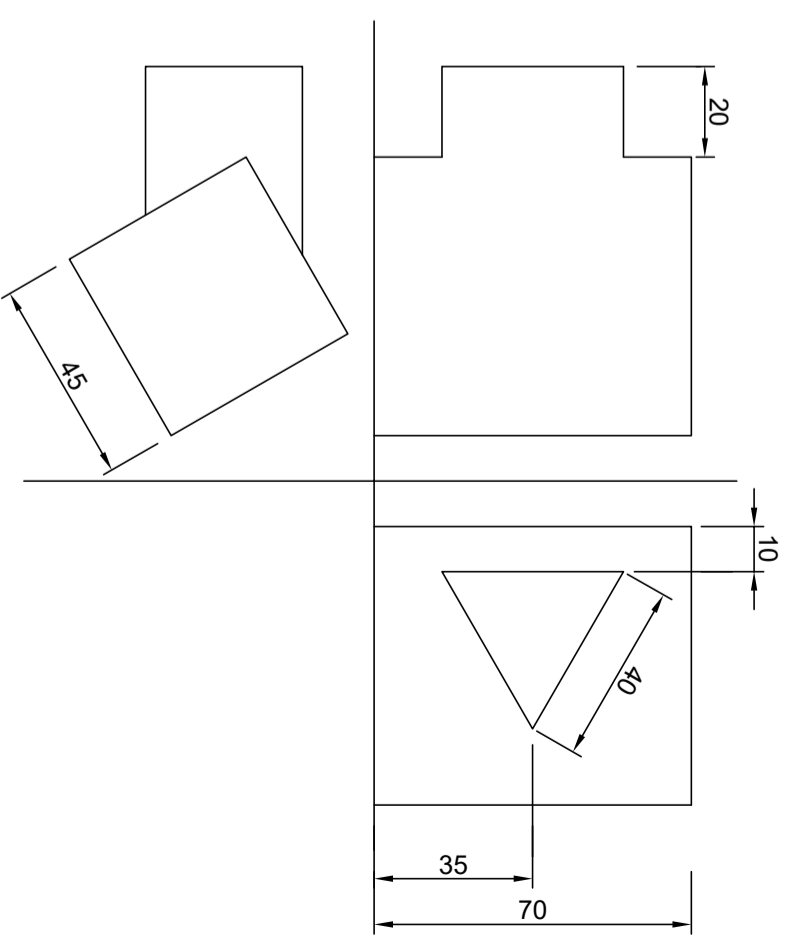
Complete, to scale 1 : 1, in first-angle orthographic projection, the following views:

- The complete **top** view.
- The complete **left** view.
- The complete **front** view, clearly showing the curve of interpenetration.
- The **development** of the triangular prism. Showing ALL fold lines.

**NOTE:**

- Show ALL hidden detail lines.

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ASSESSMENT CRITERIA		
1	TOP VIEW	4
2	LEFT VIEW	6 ½
3	FRONT VIEW	11 ½
4	DEVELOPMENT	7
TOTAL		29

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**QUESTION 3: PERSPECTIVE**

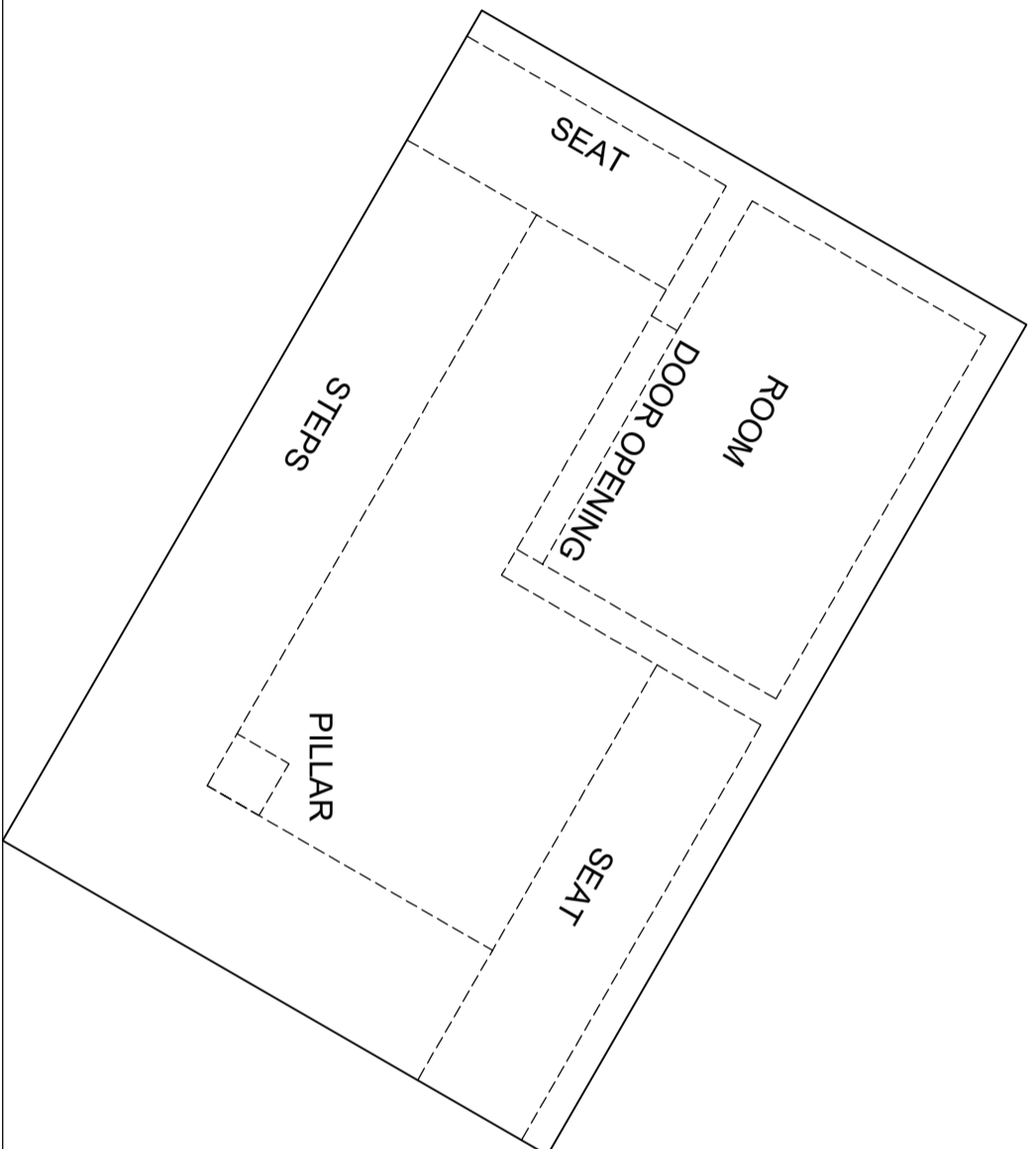
**Given:**  
Two views of an entrance to a library and the information needed to draw a two-point perspective drawing.

- PP - Picture plane
- HL - Horizon line
- GL - Ground line
- SP - Station point

**Instructions:**  
Complete the perspective drawing.

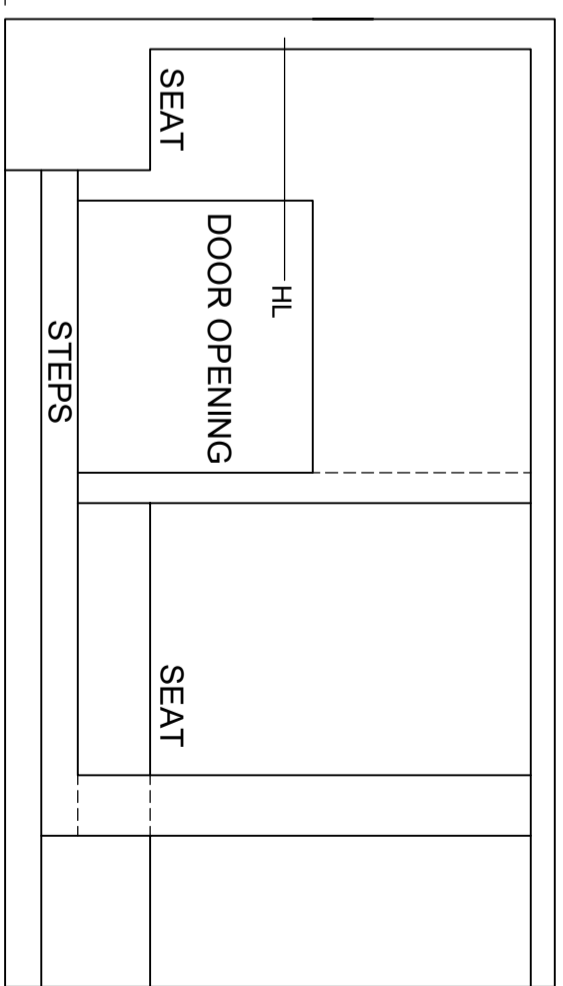
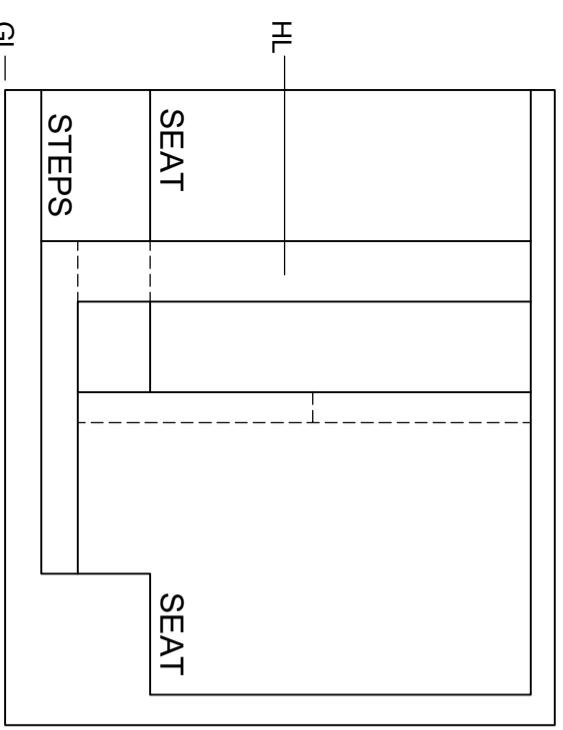
- NOTE:**
- Align the drawing sheet with the ground line.
  - Determine and label the vanishing points.
  - Show ALL necessary construction.
  - Show the wall thickness at the openings.
  - NO hidden detail is required.

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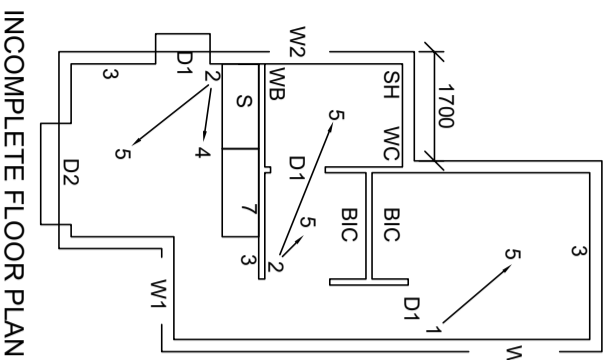
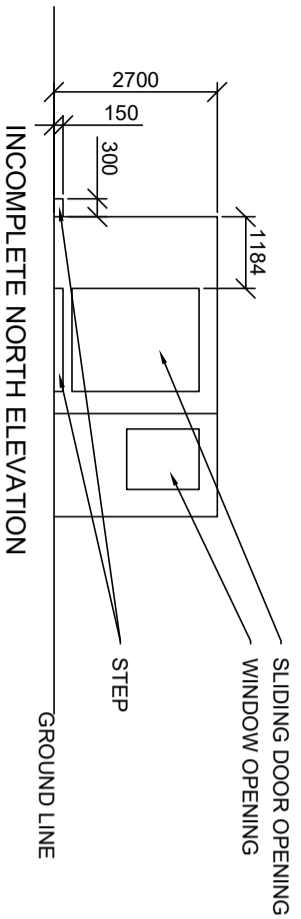
ASSESSMENT CRITERIA		
1	CONSTRUCTION + VP'S	6
2	STEPS	9 ½
3	WALLS	11
4	OPENINGS	4
5	ROOF	5 ½
TOTAL		36

PP \_\_\_\_\_

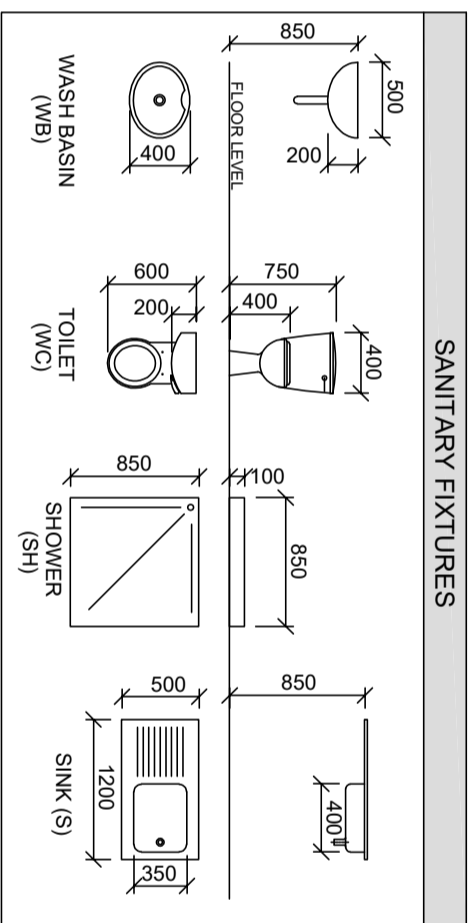
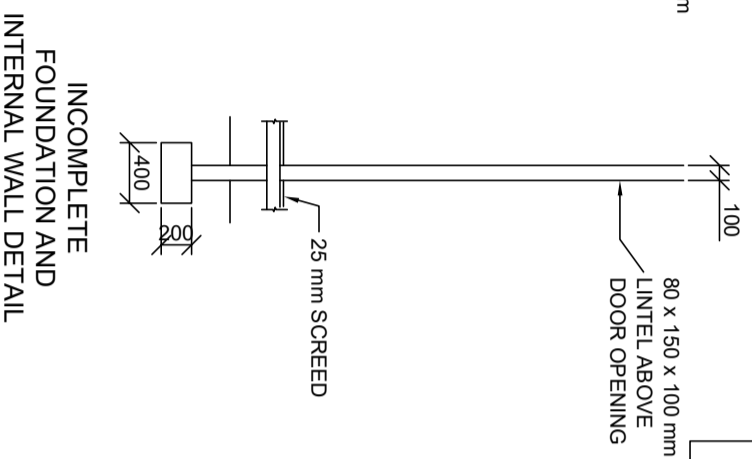
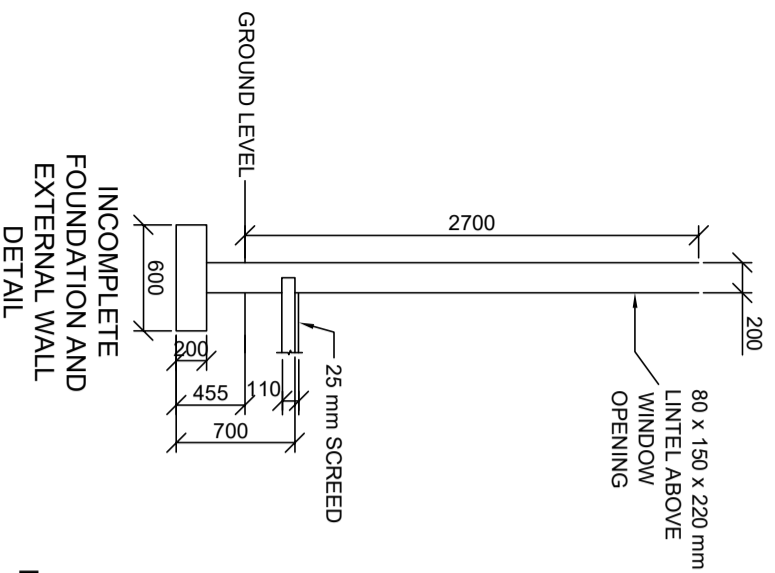


SP †

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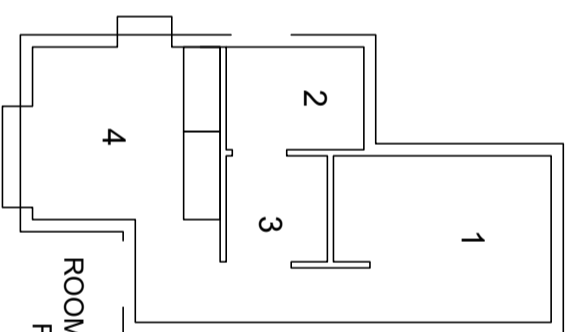
- FEATURES**
- D1 DOOR
  - D2 SLIDING DOOR
  - W1 WINDOW
  - W2 WINDOW
  - W3 WINDOW
- FIXTURES**
- WC TOILET
  - WB WASH BASIN
  - SH SHOWER
  - S SINK
  - BIC BUILT IN CUPBOARD



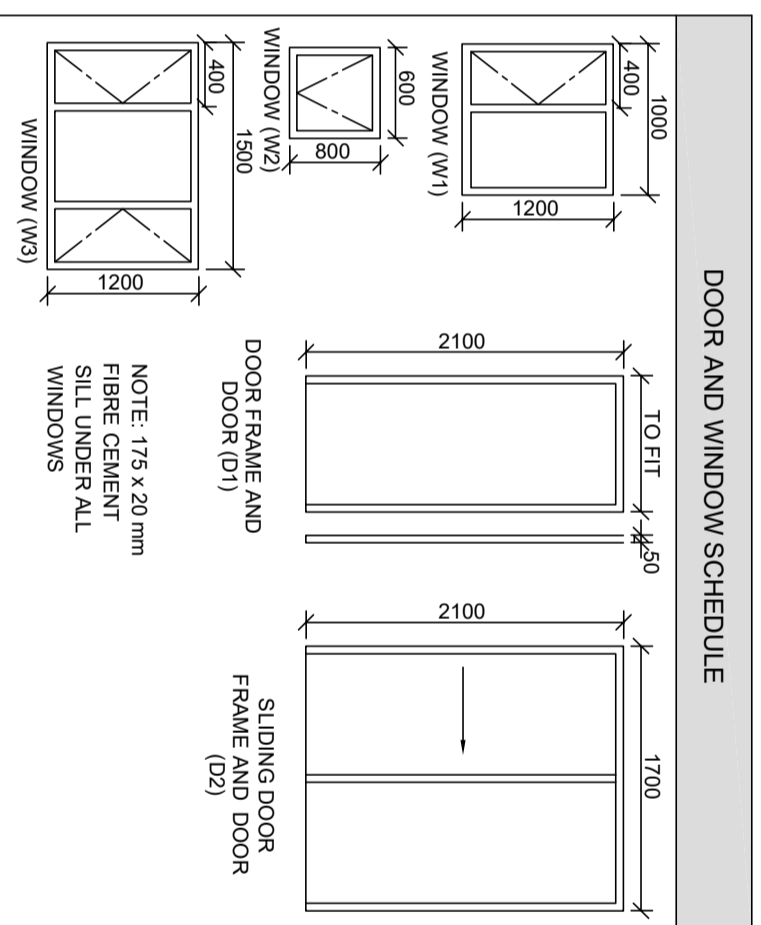
- ELECTRICAL FITTINGS**
1. ONE-WAY SWITCH - SINGLE POLE
  2. ONE-WAY SWITCH - DOUBLE POLE
  3. SWITCHED SOCKET OUTLET
  4. FLUORESCENT LIGHT 1 x 40 W
  5. CEILING LIGHT
  6. WALL-MOUNTED LIGHT
  7. DISTRIBUTION BOARD

**NOTE:**  
THE ARROWS ON THE FLOOR PLAN SHOW THE LIGHT CONNECTION TO THE SWITCH.

ELECTRICAL SYMBOLS	



- ROOM DESIGNATIONS AND FLOOR FINISHES**
- 1 BEDROOM: CARPET
  - 2 BATHROOM: TILES
  - 3 PASSAGE: TILES
  - 4 OPEN PLAN: TILES



**NOTE:** 175 x 20 mm FIBRE CEMENT SILL UNDER ALL WINDOWS

**QUESTION 4: CIVIL DRAWING**

**Given:**

- The incomplete north elevation of a proposed new flat, showing the walls, window, steps and door opening.
- The incomplete floor plan showing the walls, position of the doors, windows, built in cupboards and sanitary fixtures.
- The incomplete foundation and wall detail.
- Room designations and floor finishes.
- A door and window schedule.
- A table of sanitary fixtures.
- The floor plan of the new flat, drawn to a scale 1 : 50 and the starting point for the sectional view drawn to scale 1 : 20 on page 6.

**Instructions:**

Answer this question on page 6.

- 4.1. Using the given incomplete floor plan, on page 6, drawn first-angle orthographic, and to scale 1 : 50, the following views of the flat:
  - 4.1.1. **THE COMPLETE FLOOR PLAN**

Add the following:

- ALL doors, windows and steps.
- ALL fixtures as indicated by the abbreviations on page 5.
- ALL hatching detail.
- ALL electrical detail.

4.1.2. **THE NORTH ELEVATION**

Show the following features on the drawing:

- The outside walls, windows, steps and door detail.
- The finished floor level.

4.2. In the space provided on page 6, draw, to scale 1 : 20, a **DETAILED SECTION** according to cutting plane A-A of the area in the ellipse shown on the floor plan.

Show the following features on this view:

- The complete foundation, external wall, and window detail.
- ALL hatching detail. ONLY the substructure hatching may be drawn in neat freehand.
- The lintels above the door and window.
- The complete foundation, internal wall and door detail.
- All visible sanitary fixtures.

Label the following:

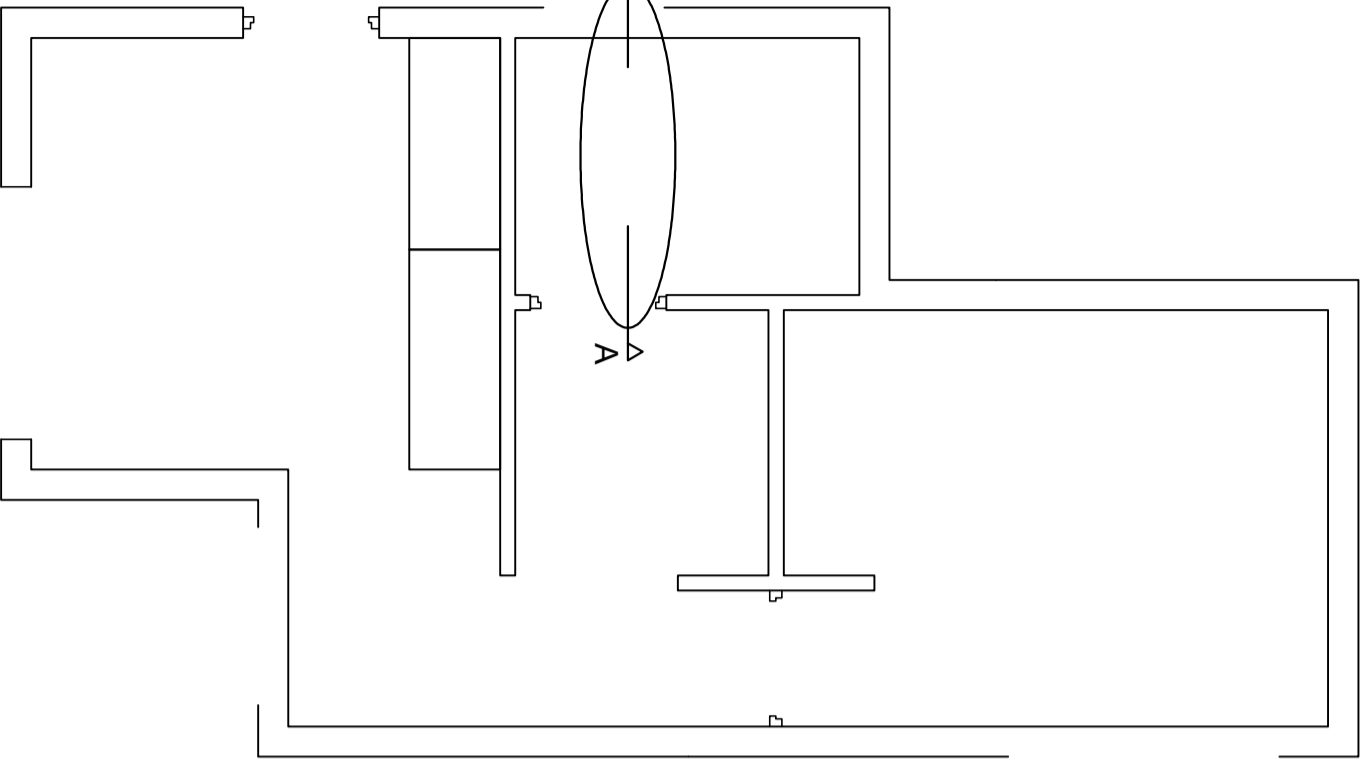
- The north elevation including the scale.
- The room designations and floor finishes.
- Using the correct abbreviations, label the following features in the correct view: natural ground level, finished floor level, and damp proof course.

**NOTE:**

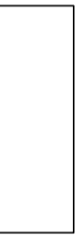
- ALL drawings must comply with the guidelines and graphical symbols contained on the SANS 10143.

[85]

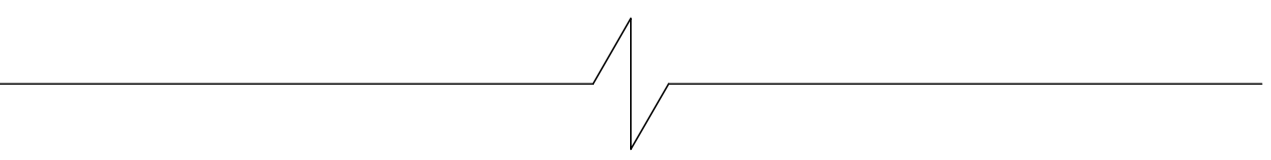
OFFICIAL USE	
1	INCORRECT OVERALL SCALE
2	INCORRECT POSITIONING OF VIEWS
3	NON-ALIGNMENT OF VIEWS
TOTAL PENALTIES (-)	



FLOOR PLAN  
SCALE 1 : 50



STARTING POINT FOR  
DETAILED SECTION  
(EXTERNAL WALL  
FOUNDATION)



SECTION A-A  
SCALE 1 : 20

ASSESSMENT CRITERIA		
FLOOR PLAN		
1	DOORS + WINDOWS + STEPS	15
2	FIXTURES	8 1/2
3	HATCHING	4
4	ELECTRICAL	9
5	LABELS	4
SUBTOTAL		40 1/2
NORTH ELEVATION		
1	WALLS + STEPS	5 1/2
2	SLIDING DOOR	3
3	WINDOW	4
4	LABELS	2
SUBTOTAL		14 1/2
DETAILED SECTION		
1	FOUNDATIONS + WALLS + SLAB + LINTELS	11
2	DOOR + WINDOW	5
3	HATCHING	8
4	LABELS	2
5	FIXTURES	4
SUBTOTAL		30
TOTAL		85
PENALTIES (-)		
FINAL TOTAL		

NAME \_\_\_\_\_

GRADE 11 \_\_\_\_\_