



HILLCREST HIGH SCHOOL

GRADE 11

**ENGINEERING GRAPHICS AND DESIGN
NOVEMBER EXAMINATIONS 2022
PAPER 1**

MARKS : 130
TIME : 2 ½ HOURS

INSTRUCTIONS AND INFORMATION

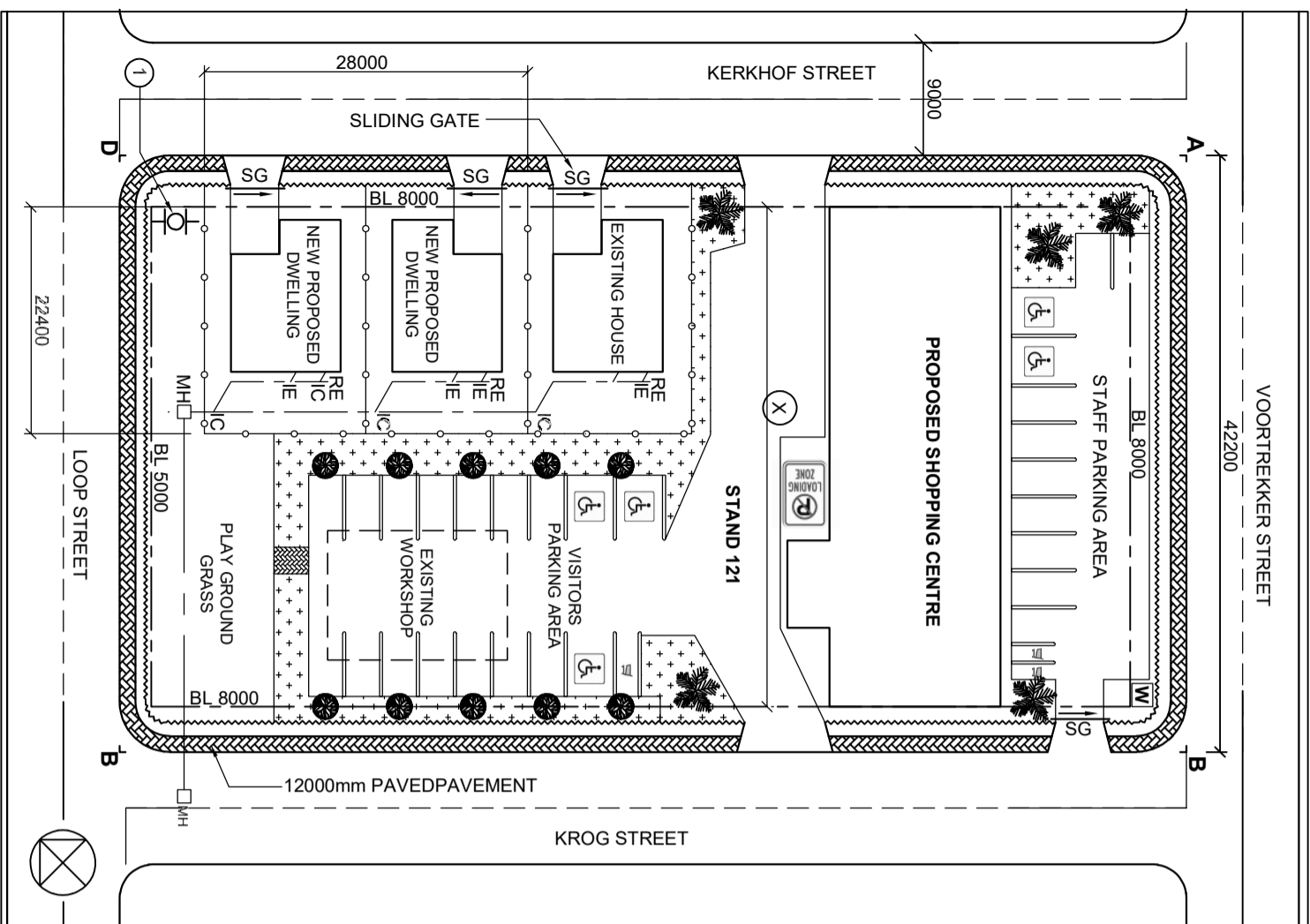
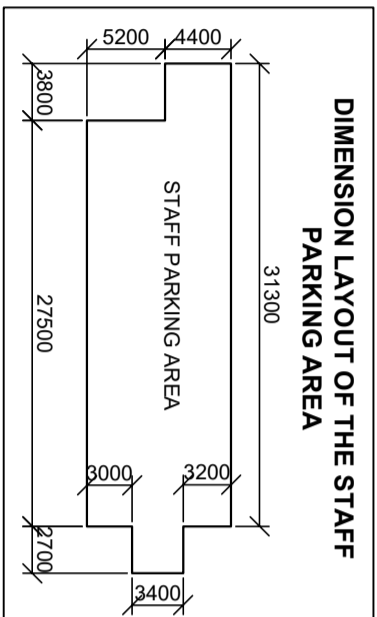
1. This question paper consists of **FOUR** questions and **SIX** pages.
2. Answer **ALL** the questions.
3. **ALL** drawings are in first-angle orthographic projection, unless otherwise stated.
4. **ALL** drawings must be prepared using pencil and instruments, unless otherwise stated.
5. **ALL** answers must be drawn accurately and neatly.
6. **ALL** the questions must be answered on the **QUESTION PAPER**, as instructed.
7. **ALL** the pages, irrespective of whether the question was attempted or not, must be re-stapled in numerical sequence in the **TOP LEFT-HAND CORNER ONLY**.
8. Time management is essential in order to complete all the questions.
9. Print your name in the block provided on every page.
10. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY				
QUESTION	LEARNERS MARK	MODERATED MARK		
ONE		25		
TWO		25		
THREE		21		
FOUR		59		
TOTAL	1	3	0	

FINAL CONVERTED MARK	CHECKED BY
100	

01

SYMBOL LEGEND	
1	13mm CRUSHED STONE
2	PAUSADE FENCING
3	BETA FENCING
4	INDIGENOUS TREE
5	PALM TREE



LAND SURVEYORS CERTIFICATE OF THE SIDE LENGTHS AND CORNER HEIGHTS OF STAND 121 SURVEYED ON 2021-11-16

LENGTHS IN MILLIMETRES	CORNER HEIGHTS IN METRES
AB = 42200	A = 243,5
BC = 93500	B = 345,1
CD = 42200	C = 345,8
AD = 93500	D = 341,9

NOTE:

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

ARCHITECT'S SIGNATURE
CLIENT'S SIGNATURE

ANSWER 17
In the space below, draw, in neat freehand, the front and top view of the SANS 10143 graphical symbol for a BATH.

REVISION	DATE	DESCRIPTION
2	2022-01-24	Add all street names
1	2022-01-19	Indicate disabled parking areas

MLANDWA ARCHITECTS
21 SEDIDI STREET
ALEXANDRIA
052 222 7999
mlandwa.architect@hotmail.com

PRINTED BY: **LUDDI PRINTERS** DATE OF PRINT: **2022-02-14**

DRAWING TITLE: **SITE PLAN**

PROJECT: **PROPOSED NEW DEVELOPMENT FOR MRS DLAYEDWA STAND 121, Cnr. VOORTREKKER & KROG STREET ALEXANDRIA**

PROJECT NUMBER: 02-2022	DRAWING NUMBER: DEL011-2021
DATE: 2021-11-21	DRAWN: R@NNIE
REFERENCE CODE: SITE-121A-22	DRAWING NO.: 1 OF 6

QUESTION ONE : CIVIL ANALYTICAL

GIVEN:
The site plan of a new development with new dwellings, shopping centre, parking areas, a title block and a table of questions. The drawing has not been prepared to the indicated scale.

INSTRUCTIONS:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawing. [25]

QUESTIONS	ANSWERS
1 Who is the architect of the development on STAND 121?	1
2 Who is the owner of the development?	1
3 What is the reference code?	1
4 What is the width of the pavement in metres?	1
5 The existing workshop is drawn with hidden detail lines. What does the hidden detail lines mean to the contractor?	1
6 Name the feature at 1.	1
7 How many sliding gates need to be installed?	1
8 What type of fence must be used between the new proposed dwellings?	1
9 In what colour should the new proposed dwellings be indicated on the site plan?	1
10 How many parking bays for disabled are there for the visitors?	1
11 How many inspection chambers must be installed at the new proposed dwellings?	1
12 Name the type of material that must be used as a ground cover under the trees, around the parking area.	1
13 The staff parking has access to which street?	1
14 With reference to the north point, on which side of the shopping centre is the staff parking area?	2
15 Determine the total length (indicated with an X) of the shopping centre, in meters.	2
16 In the space provided below, determine the total area of the staff parking area, in square metres.	4
17 In the space provided draw, in neat freehand, the front and top view of the SANS 10143 graphical symbol for a BATH.	4
TOTAL:	25

ANSWER 16

QUESTION TWO: INTERPENETRATION AND DEVELOPMENT

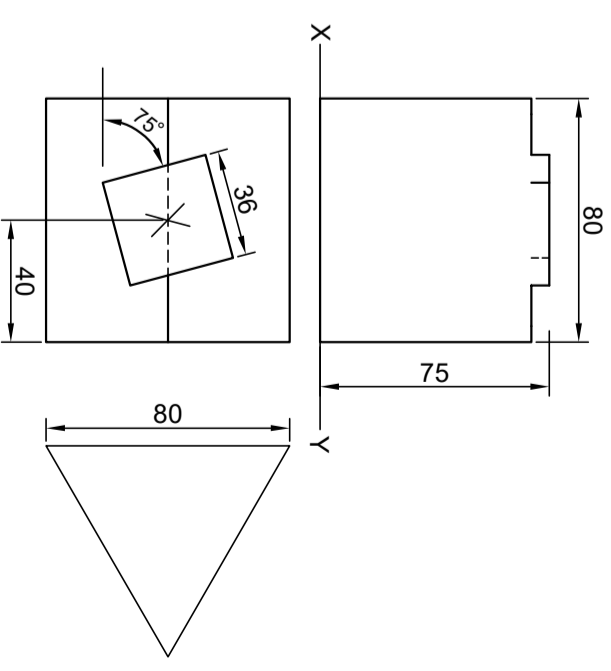
- Given:**
- The top view and incomplete front view of a right regular square prism that has been shaped to fit over an equilateral triangular prism. The axes of both solids lie in a common vertical plane.
 - The auxiliary view of the triangular prism

Instruction:

Draw to a scale 1:1, the following views of the TWO solids:

- The given top view
- The right view
- The complete front view, clearly showing the curve of interpenetration
- The development of the surface of the square prism.

- Planning is essential
 - Show ALL construction
 - Show ALL hidden detail
- [25]



ASSESSMENT CRITERIA				
	POSSIBLE	OBTAINED	SIGN	MODEARTE
1	TOP VIEW	4½		
2	RIGHT VIEW	4		
3	FRONT VIEW	10½		
4	DEVELOPMENT	6		
TOTAL		25		

ASSESSMENT CRITERIA			
	POSSIBLE OBTAINED	SIGN	MODEARTE
1	VPS + CONSTRUCTIONS	6	
2	WALLS	9	
3	WINDOW	3 $\frac{1}{2}$	
4	ROOF	2 $\frac{1}{2}$	
TOTAL		21	

QUESTION THREE : TWO POINT PERSPECTIVE

Given:

Three views of a building and the information needed to draw a two-point perspective drawing.

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

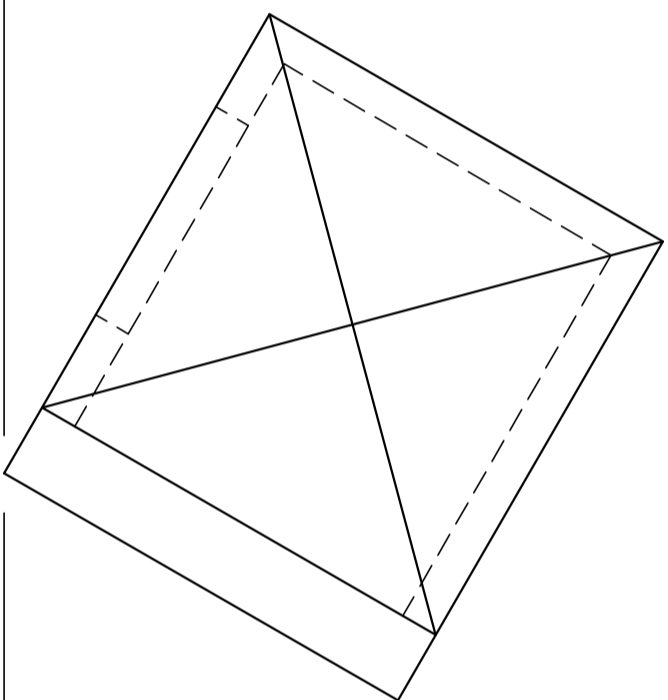
Instructions:

Complete the perspective drawing.

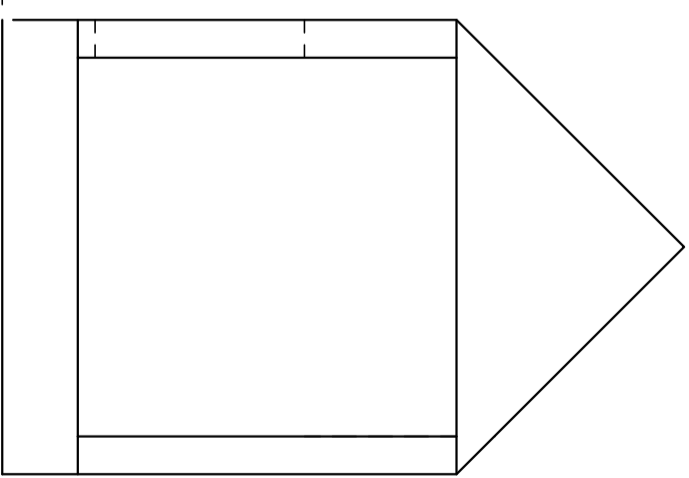
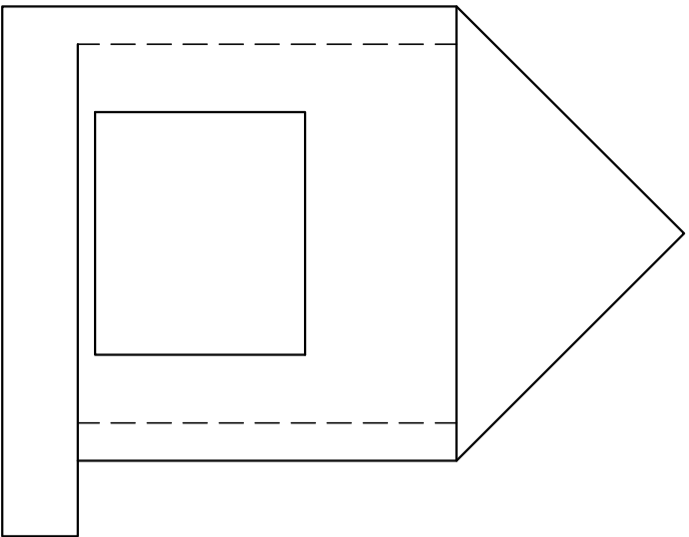
- Align the drawing sheet with the ground line (GL).
- Determine and label the vanishing points.
- Show ALL necessary construction.
- Show the wall thickness at the openings.
- NO hidden is required.

[21]

PP



HL



SP

GL

QUESTION FOUR: CIVIL DRAWING

Given:

- The incomplete west elevation of a new house, showing the walls, the window, door openings, the braai area, the roof and labels.
- The incomplete floor plan showing the walls, step, position of the doors, windows, fixtures and the electrical layout.
- The incomplete foundation, slab and wall detail
- Room designations as well as floor finishes.
- A door and window schedule
- A table of electrical symbols
- A table of sanitary fixtures
- The incomplete plan of the new house, drawn to scale 1 : 50, on page 6.
- The incomplete Foundation and a line break for the detailed section, drawn to a scale 1:20, on page 6.
- The complete West Elevation is drawn on page 6.

Instructions:

• Answer this question on page 6.

4.1. Use the given incomplete floor plan, to draw, in first-angle orthographic projection to scale 1:50, the **THE COMPLETE FLOOR PLAN**
Add the following features to the drawings:

- ALL doors and windows
- ALL sanitary fixtures as indicated by the abbreviations
- ALL electrical fittings as indicated by the numbers
- The complete roof line
- ALL hatching detail
- Label the room designations and floor finish.

4.2. Using the given foundation and break line, draw to scale 1:20, a **DETAILED SECTION** on cutting plane A-A of the area in the ellipse shown on the incomplete floor plan.

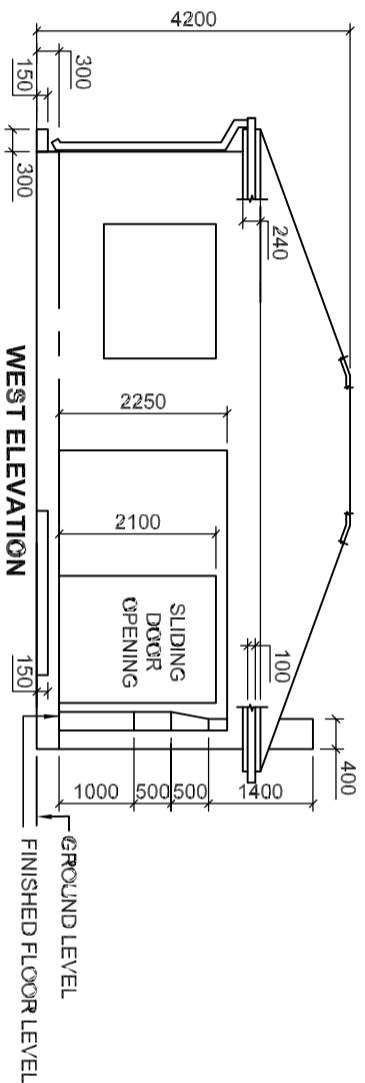
Show the following features on the drawing:

- The complete foundation, external wall, lintel and window detail.
- The shower to the north of cutting plane A-A
- ALL hatching detail. ONLY substructure hatching may be drawn in neat freehand.
- Label the ground level, finished floor level and damp proof course. (Use the correct abbreviations)

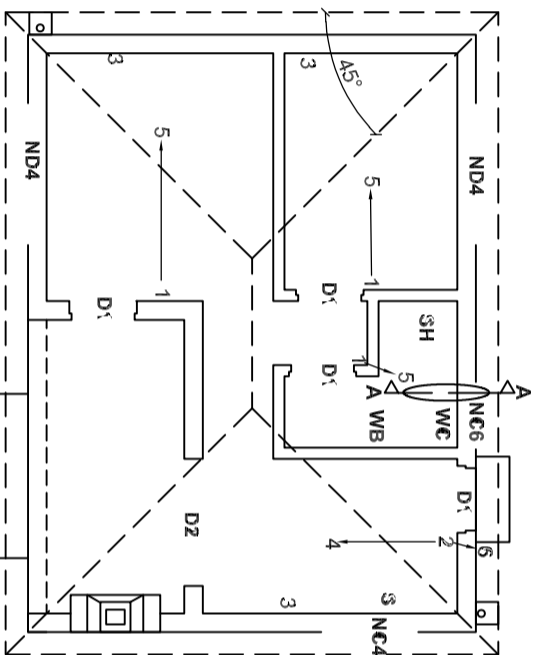
NOTE:

ALL drawings must comply with the **guidelines** and **graphic conventions** contained in the **SANS 10143**.

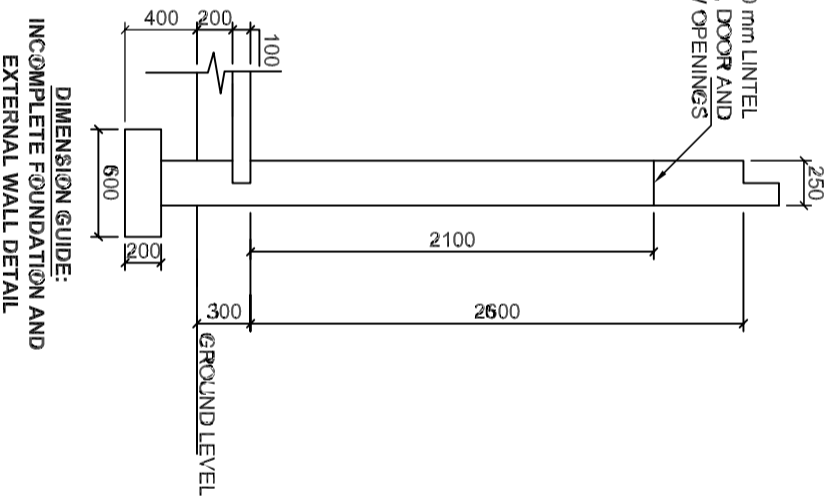
[59]



FLOOR PLAN SCALE 1 : 50

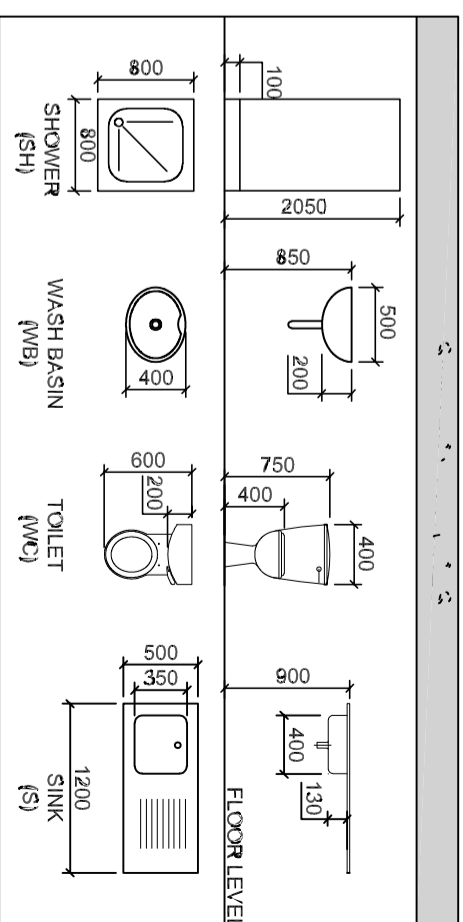
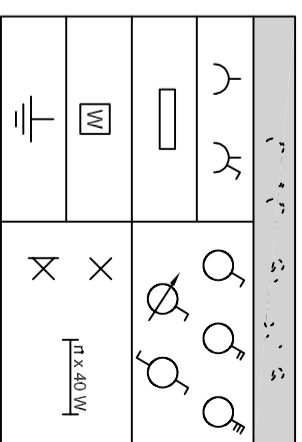
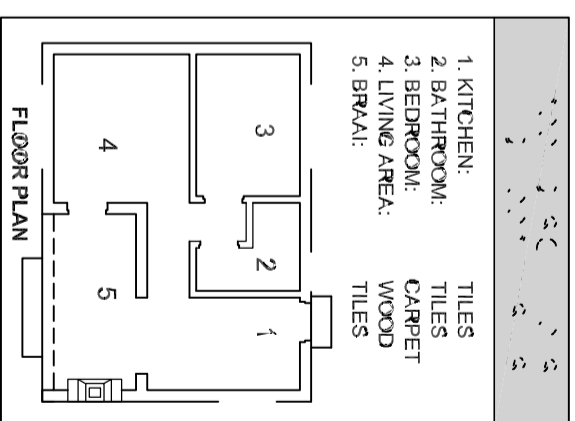
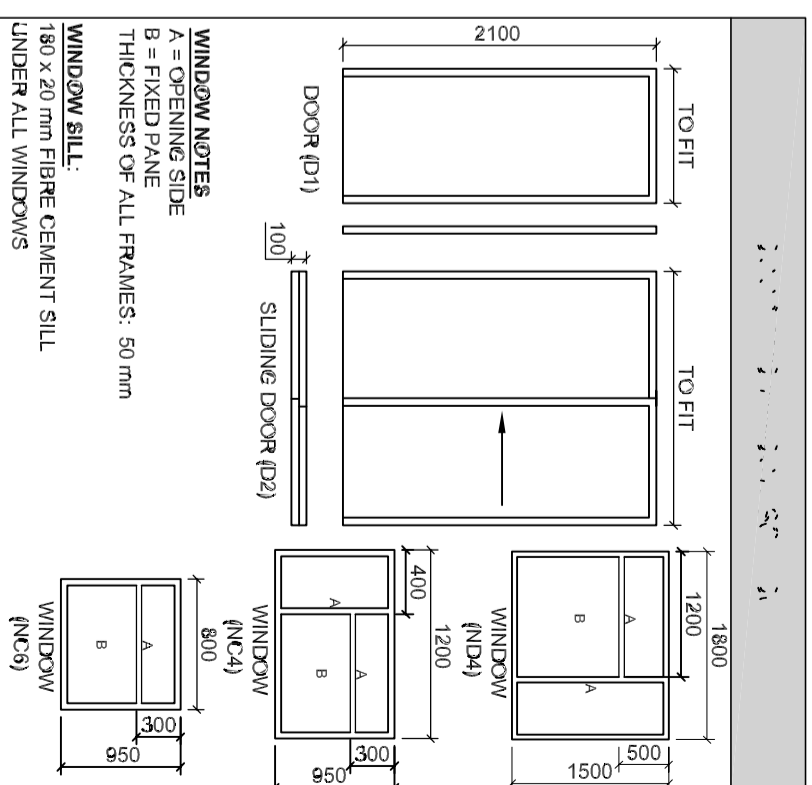


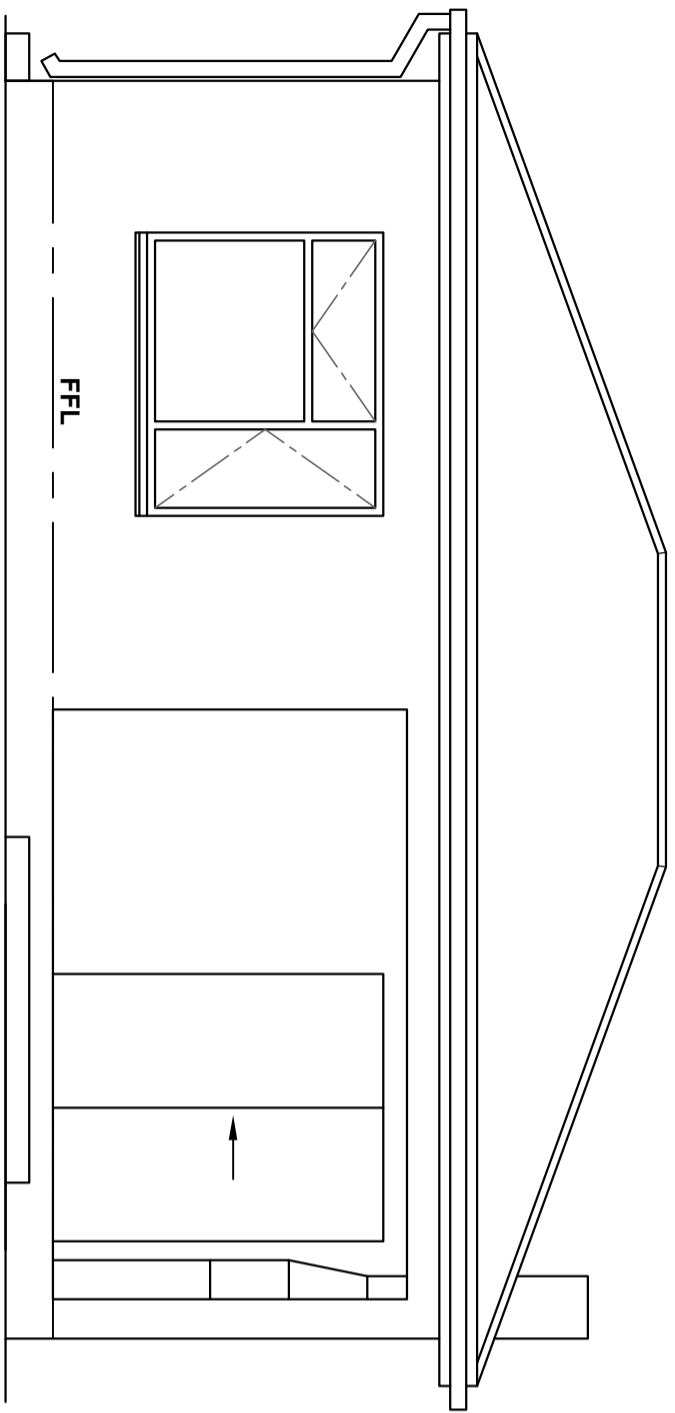
1 X 250 x 100 mm LINTEL ABOVE ALL ARCH, DOOR AND WINDOW OPENINGS



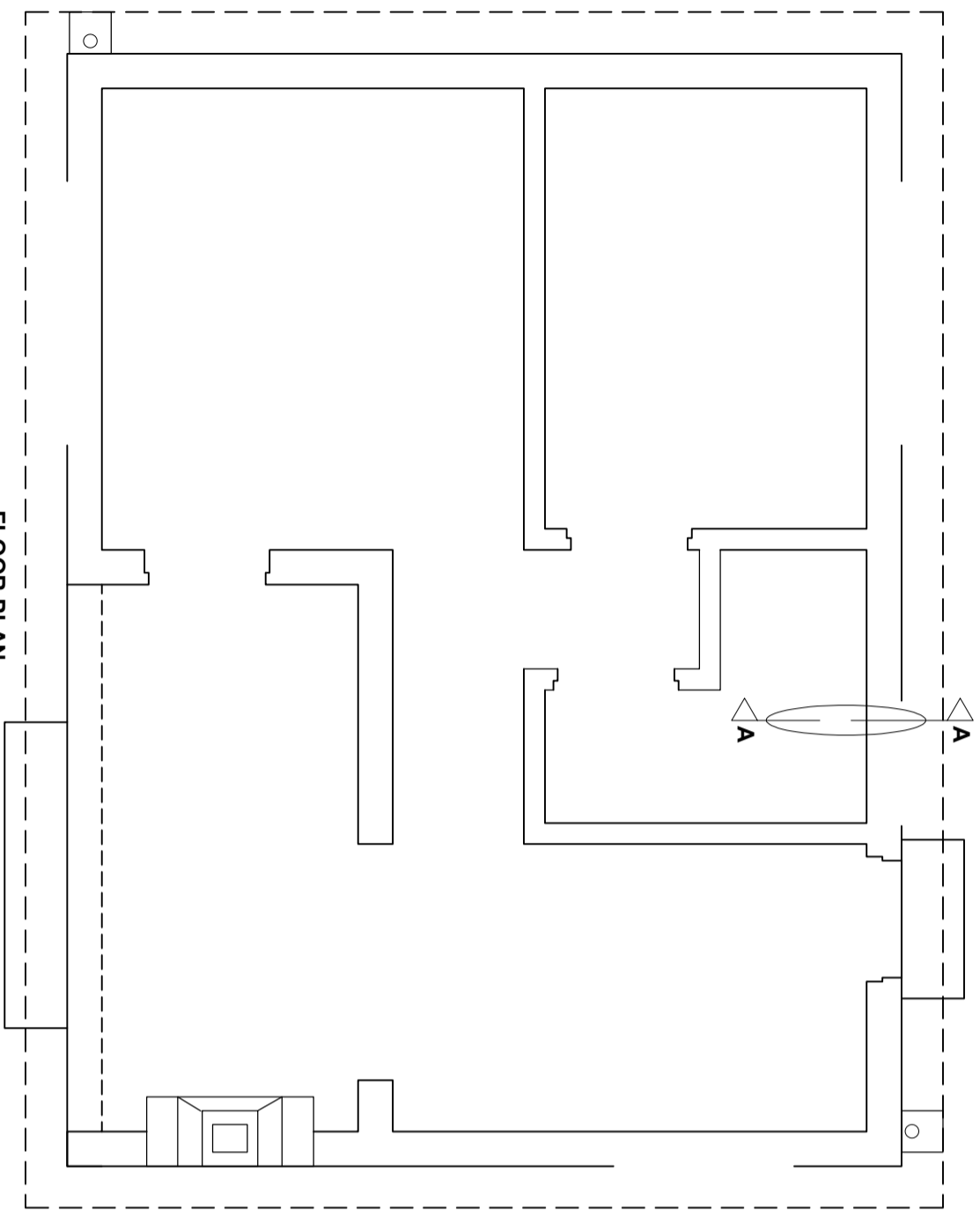
- FEATURES**
 D1 + D2 DOORS
 NC4 + NC6 + ND4 WINDOWS
- FIXTURES**
 WC TOILET
 WB WASH BASIN
 B BATH
 S SINK
 SH SHOWER
- ELECTRICAL FITTINGS**
 1. ONE-WAY SWITCH - SINGLE-POLE
 2. ONE-WAY SWITCH - DOUBLE-POLE
 3. SWITCHED SOCKET OUTLET
 4. FLUORESCENT LIGHT 1 x 40 W
 5. CEILING LIGHT
 6. WALL-MOUNTED LIGHT

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





WEST ELEVATION



FLOOR PLAN
SCALE 1 : 50



DETAILED SECTION A-A
SCALE 1 : 20

ASSESSMENT CRITERIA			
FLOOR PLAN			
1	LABELS	14	
2	ELECTRICAL + ROOF LINES	11	
3	FIXTURES	7	
4	HATCHING	3	
5	LABELS	5	
SUBTOTAL		40	
SECTIONAL ELEVATION			
1	FOUNDATION + WALLS + FLOOR	6½	
2	WINDOW + SHOWER	5	
3	HATCHING	6	
4	LABELS	1½	
SUBTOTAL		19	
TOTAL		59	