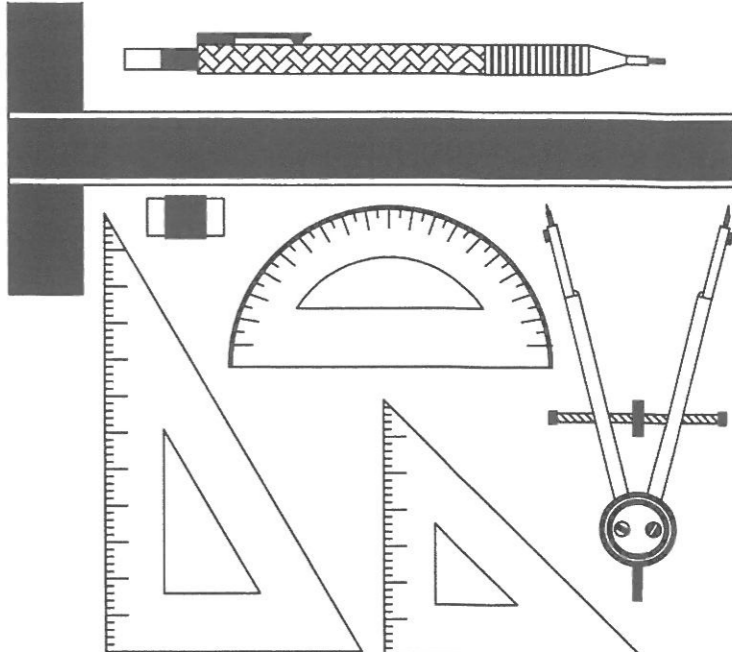




NATIONAL SENIOR CERTIFICATE EXAMINATION  
2017

ENGINEERING GRAPHICS AND DESIGN  
PAPER 1

MARKS: 200  
TIME: 3 HOURS



**PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY**

1. This question paper consists of **6 pages** including the cover page and **4 questions**.
2. **All** questions must be answered.
3. Unless specified otherwise, all questions are in **First-angle Orthographic Projection**.
4. Unless specified otherwise, all questions are to be completed to a **scale of 1:1**.
5. **All** answer sheets must be re-stapled in numerical order, even questions that are not attempted/blank.
6. All **construction work** must be shown.
7. Print your **examination number** neatly on each page.
8. Use only the **answer sheets** provided.
9. Your drawings should reflect **neatness** and **accuracy**.
10. All dimensions or detail not given may be **assumed** in **good proportion**.
11. Your drawings should comply with SANS 10143.

FOR OFFICIAL USE ONLY					
QUESTION	SECTION	MARK	MODERATED	MAXIMUM	CODE
1	CIVIL ANALYTICAL			20	
2	INTERPENETRATION & DEVELOPMENT			40	
3	TWO-POINT PERSPECTIVE			40	
4	CIVIL DRAWING			100	
SYMBOL	TOTAL			200	
				100	

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

EXAMINATION NUMBER

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# SMITH, ZULU & Co ARCHITECTS

"designing the future"

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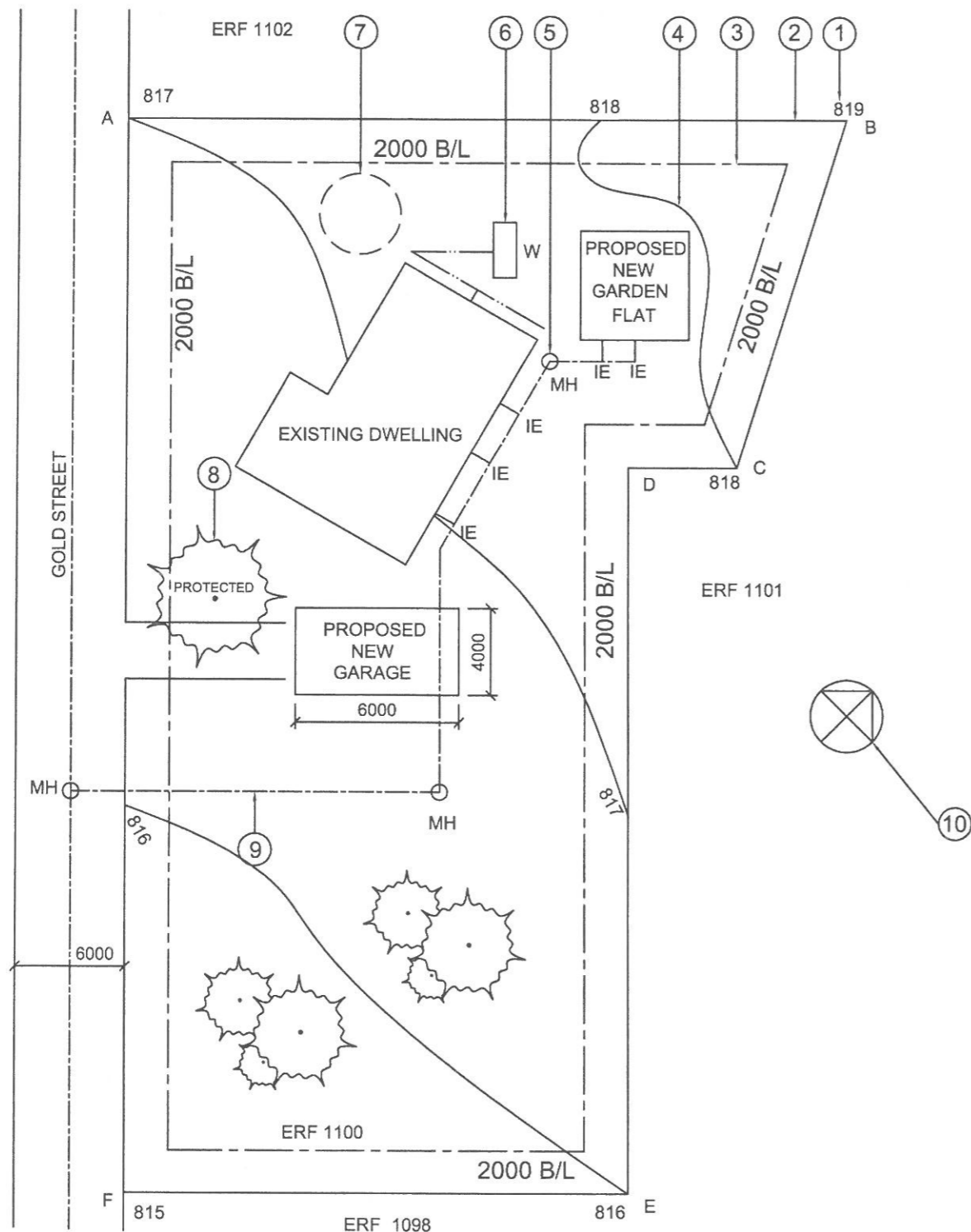
23 COPPER STREET  
GEORGE  
6529

PROPOSED ADDITION FOR A.B. VILLIERS  
GOLD STREET  
ERF 1100  
GEORGE SOUTH

DRAWN BY: PATRICK LOUW  
CHECKED BY: T.B. ZULU  
APPROVED BY: H.V. SMITH  
REFERENCE: 1002/VILLIERS

DATE: 12 FEBRUARY 2017  
*AB VILLIERS*  
SIGNED: MR A.B. VILLIERS

LAND SURVEYOR'S CERTIFICATE  
SIDE LENGTHS  
AB = 33000, BC = 16700  
CD = 5000, DE = 36000  
EF = 22000, FA = 42000



QUESTION 1

CIVIL ANALYTICAL

STUDY THE ADJACENT DRAWING AND INFORMATION AND ANSWER THE QUESTIONS THAT FOLLOW:

1.1 What type of civil drawing is shown?	1
1.2 What elevation faces the Gold Street?	1
1.3 Who checked the drawing?	1
1.4 In which town is the architect's office located?	1
1.5 On what erf number will the proposed additions be erected?	1
1.6 What is the feature at 1 called?	1
1.7 What is the feature at 2 called?	1
1.8 What is the feature at 3 called?	1
1.9 What is the feature at 4 called?	1
1.10 What is the feature at 5 called?	1
1.11 What is the feature at 6 called?	1
1.12 What is the feature at 7 called?	1
1.13 What is the feature at 8 called?	1
1.14 What is the feature at 9 called?	1
1.15 Which direction would you face when reversing out of the garage?	1
1.16 How many metres would Mr Villiers walk if he walked the boundary?	1
1.17 By how many metres is the highest corner above the lowest?	1
1.18 What is the closest Mr Villiers is allowed to build to Gold Street?	1

1.19 In the space below, determine the area of the proposed new garage in m<sup>2</sup>

Answer:

20 MARKS

EXAMINATION NUMBER

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ANSWER SHEET 1

**QUESTION 2**

**INTERPENETRATION & DEVELOPMENT**

The figure below shows the INCOMPLETE Front View and the Top View of an **EQUILATERAL TRIANGULAR DUCT** penetrated by an **CIRCULAR PIPE** drawn in First-angle Orthographic Projection. The auxiliary view of the circular pipe is also shown in the Top View.

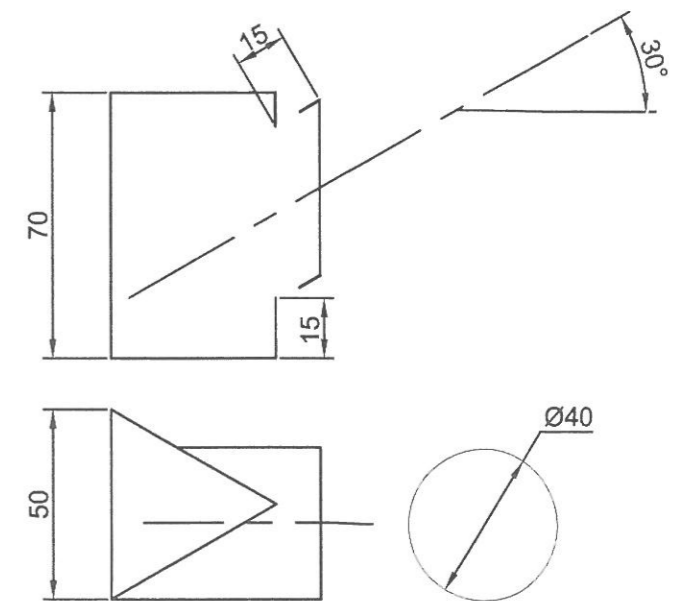
*Draw the following:*

- 2.1 the complete FRONT view clearly showing the curve of interpenetration. Show all hidden detail.
- 2.2 the complete TOP view.
- 2.3 the development of the two surfaces of the triangular duct that are being penetrated, clearly showing the curve of interpenetration. Show all construction.

**ASSESSMENT CRITERIA**

You will be assessed on your ability to do the following:

- |   |    |
|---|----|
| • draw the given views                  | 5  |
| • complete the front view               | 17 |
| • show necessary construction           | 3  |
| • develop and label the triangular duct | 15 |



GIV	5	
FV	17	
CON	3	
DEV	15	

**40 MARKS**

EXAMINATION NUMBER

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ANSWER SHEET 2

**QUESTION 3**

**TWO-POINT PERSPECTIVE**

The figure shows the three views of an outside entertainment area, which includes a braai. Draw a neat two-point perspective view of this area.

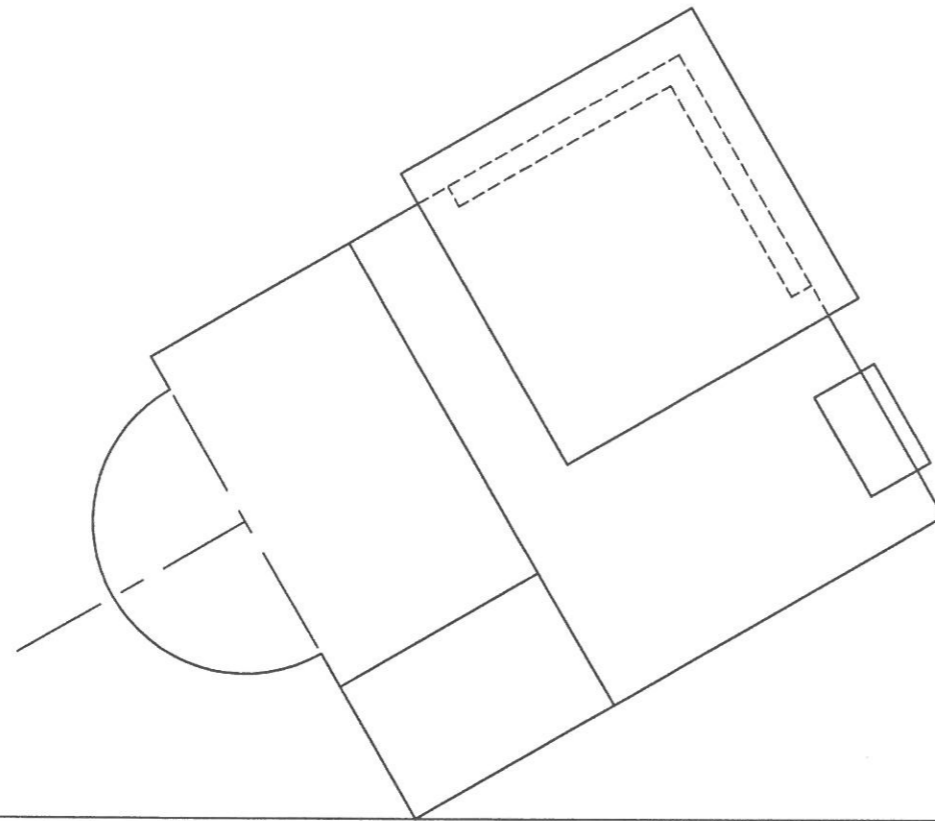
- PP - Picture Plane
- HL - Horizon Line
- GL - Ground Line
- SP - Station Point

Neatly label the vanishing points RVP and LVP. NO HIDDEN DETAIL IS REQUIRED.

**ASSESSMENT CRITERIA**

You will be assessed on your ability to do the following:

- determine and label the vanishing points 2
- determine the two-point perspective view 38



PP

PP

HL

HL



GL

GL

PTS	19	
PTS	8	
Con	2	
Arc	9	
VPS	2	

40 MARKS

EXAMINATION NUMBER

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ANSWER SHEET 3





