higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

BUILDING AND STRUCTURAL SURVEYING N5

21 November 2023

This marking guideline consists of 4 pages.

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SECTION A

QUESTION 1

1.1 Back site and foresite✓✓
1.2 Level✓✓
1.3 Steel✓✓
1.4 150 mm✓✓
1.5 Three people✓✓

(5 × 2) **[10]**

QUESTION 2

2.1 True,✓ survey instruments are levelled on a tripod before taking measurements.✓

2.2 True,✓ any instrument used in conjunction with a tripod is known as an instrument.✓

2.3 True,✓ levelling instruments in survey practice are referred as dumpies on site.✓

2.4 False,✓ a tripod is used to level the instrument.✓

2.5 False,✓ an optical square is used in setting off right angles in buildings.✓

(5 × 2) **[10]**

QUESTION 3

3.1 A change point is both a fore sight and a back sight,✓ as readings are taken from two instrument positions✓ and when recording the readings they will appear on the same line.✓

3.2 Any reading that does not qualify as back sight or fore sight✓ is an intermediate sight and is usually taken between✓ the fore sight and the back sight.✓

3.3 Fore sight is the last reading✓ taken before the instrument✓ is moved.✓

3.4 Back sight is that first sight✓ taken after setting up✓ the levelling instrument anywhere.✓

3.5 A bench mark is a fixed point of known height✓ and it is usually a steel/copper pin solidly fixed in a position✓ where it is unlikely to be disturbed or destroyed.✓

(5 × 3) **[15]**

TOTAL SECTION A: 35

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SECTION B

QUESTION 4

4.1 From the site boundaries, measure and set out the proposes building increasing the area by ± 1 m.✓✓ Drive in two pegs (± 2 m long pegs) 1 m away from each corner in line with the building line in all four corners.✓✓ Because of the length of the pegs, a traveller of 1,5 m would be appropriate.✓✓ The formation level plus/minus the benchmark,✓✓ plus the length of the traveller will give the staff reading on all eight pegs' sight rails.✓✓ (10)

4.2
- Read the staff✓✓
- Book the reading✓✓
- Read the staff again✓✓
- Check the booking✓✓

Run a line of check levels on the same points and compare✓ the 'forward' elevations with the 'back' elevations.✓ (10)

4.3 Each side = $\sqrt{}$ 49 m^2✓
= 7 m✓
= 7 000 mm✓
= 7 000 mm/200✓
= 35 mm✓✓ (6)
[26]

QUESTION 5

5.1 Off-sets must be taken from the road reserve to the boundary of the site that is required✓✓ and a baseline parallel to the road drawn.✓✓ These offsets are taken from stipulated chainages on the site plan.✓✓ The remaining boundaries of the site are then measured, perpendicularly to the baseline✓✓ and the required site shape is then set out from the baseline.✓✓ (10)

5.2 (a) Gradients of landscapes can be estimated.✓✓
(b) The volume of excavation or hill can be estimated.✓✓ (4)

5.3 (a) Measure to the centre of the ranging rod✓✓
(b) View tape vertical over the peg✓✓
(c) Tape must be held on the correct peg✓✓
(d) Tape must be held on its correct zero mark✓✓
(e) Tape must be held horizontal✓✓ (5 × 2) (10)
[24]

QUESTION 6

POINT	BACK SIGHT	INTER SIGHT	FORE SIGHT	RISE	FALL	REDUCED LEVEL	REMARKS
A	2,300					34,723	TBM 34,723
B	2,545		2,332		0,032✓	34,691✓	
C	2,754		2,233	0,312✓		35,003✓	
D		2,264		0,490✓		35,493✓	
E	2,936		2,342		0,078✓	35,415✓	
F			2,342	0,594✓		36,009✓	TBM 36,002
	10,535		9,249	1,396	0,11	36,009	
	9,249			0,11		34,723	
	1,286✓✓			1,286✓✓		1,286✓	

[15]

TOTAL SECTION C: 65
GRAND TOTAL: 100

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