higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

QUANTITY SURVEYING N6

2 December 2022

This marking guideline consists of 10 pages.

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QUESTION 1

1.1
- Untidy site conditions.
- Removal of unruly elements.
- Removal of plant not in use.
- Safe storage of valuable materials delivered to site.
- Removal and replacement of rejected materials. (Any 3 × 1) (3)

1.2 Architect (1)

1.3
- Attendance
- Progress of work (main contractor)
- Progress of work (nominated sub-contractors)
- Variations
- Cost
- Delays (weather) (Any 5 × 1) (5)

1.4 1.4.1
- Check on-site conditions
- Check on progress of work (Main contractor and nominated sub-contractors)
- Check quality of materials
- Check on plant in use
- Check on execution of detailed work
- Sign dayworks sheets
- Attend site meetings (Any 5 × 1) (5)

1.4.2
- Attend site meetings
- Check on % of work completed (main and nominated sub-contractors)
- Check % of unfixed materials on site (main and nominated sub-contractors.)
- Variations executed to do cost valuation
- Check on dayworks executed and cost valuation

(2 × 5) (10)

1.5
- Site layout
- Plan views
- Elevations
- Sectional views
- Detailed views (5)

1.6 A variation order is a written instruction issued by the architect for changes to the original contract. (1)

[25]

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QUESTION 2

2.1 2.1.1 Dayworks
2.1.2 Preambles
2.1.3 Variations
2.1.4 Extras
2.1.5 Contingencies

(5 × 1) (5)

2.2
- Demolishing buildings or parts of a building
- Removing doors and windows and bricking up openings
- Cutting openings for door or window openings
- Taking down roofs, facias, etc.
- Preparing old brickwork for new brick connections
- Hacking off existing finishes
- Alterations to plumbing
- Removal of fencing and gates (Any 5 × 1) (5)

2.3 2.3.1 Squaring

2							
	0,40		25 Mpa reinf. Conc. in cols.		21,12		25 Mpa reinf. Conc. in bms.
	0,22				0,22		
2	3,05	0,54			0,35	1,63	
	0,22		3,150 + 0,400 = 3,550		3,56		2 x 7,000 = 14,000
	0,22		Less (0,350 +0,150)		0,22		2 x 4,000 = 8,000
2	3,05	0,30	= 3,050 m		0,35	0,27	22,000
	0,58						Less 4 x 0,220 0,880
	0,22					1,90	21,120 m
	3,05	0,78					
		1,62					4,000 – 2/0220 = 3,560 m
2			Frmwrk. To sides of cols.				
	1,24						
2	3,05	7,56	2/0,400+2/0,220=1,240 m		21,12		Frmwrk. to soffits of bms.
	0,88				0,22	4,65	
	3,05	5,37	4/0,220 = 0,880 m		3,56		
		12,93			0,22	0,78	
2			Ditto, but to L-shape cols.			5,43	&
	1,60						
	3,05	9,76					Ddt.
			4/ 0,400 = 1,600 m				
							Frmwrk. to soffits of slab a.b.
			25 Mpa reinf. Conc. in slab incl.s.o. & c. hor. top surf.				
	7,00						
	4,00						
	0,15	4,20	3,000 + 4,000 = 7,000 m		22,00		Formwork. to sides of bms.
					0,15	3,30	
					21,12		
					0,35	7,39	
			Frmwrk. to hor. soffits of slab		3,56		
	7,00				0,35	1,25	
	4,00	28,00	Exce.1,5 m n.e. 3,5 m high.				
						11,94	
			(1)				(2)

2.3.2 Abstracting

Reinforced Concrete Structure

Concrete

M³

25Mpa reinf. Conc. in cols.

1,62 1

3M³

M³

25Mpa reinf. Conc. in bms.

1,90 2

2M³

M³

25Mpa reinf. Conc. in slab incl. s.o.& c. hor. top surface.

4,20 1

4M³

Formwork

M²

Frmwrk. to sides of cols.

12,93 1

13M²

M²

Frmwrk. to L-shape cols.

9,76 1

10M²

M²

Frmwrk. to hor. soffits of slab

28,00 1 5,43 2

- 5,43 T

22,57

23M²

M²

Frmwrk. to sides of bms.

11,94 2

12M²

M²

Frmwrk. to soffits of bms.

5,43 2

5M²

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2.3.3 Billing

	Reinforced Concrete Structure				
	Bill no 1				
	Concrete Formwork & Reinforcement				
	Concrete				
1	25 Mpa reinforced concrete in columns.	M^3	3		
2	Ditto, but in slab including striking off and cure horizontal surface.	M^3	4		
3	Ditto, but in beams.	M^3	2		
	Formwork				
4	Formwork to sides of columns.	M^2	13		
5	Ditto, but to L-shape columns.	M^2	10		
6	Ditto, but to soffits of slab.	M^2	23		
7	Ditto, but to soffits of beams.	M^2	5		
	Carried to summary			R	

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Working up mark allocation

Squaring		
Check side casts	0,5	
Square dimensions.	1	
Check final answers	0,5	(3)
Transfers to abstract.	0,5	
Check transfers	0,5	
Abstracting		
Section of work.	0,5	
Trade.	0,5	
Sub-divisions	1	
Units.	0,5	(5)
Page referencing.	1	
Reducing.	0,5	
Transfers to bill.	1	
Billing		
Section of work.	0,5	
Bill no.	1	
Trade.	0,5	
Sub-divisions	1	(7)
Item no.	0,5	
Descriptions. (no abbreviations)	1	
Units.	1	
Quantities. (correct column)	0,5	
Summary	1	

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QUESTION 3

3.1 Omissions

	5	✓	*Setting up plant at pile positions* ✓ *Pile B*	5	24,30	✓	✓ *25Mpa 610mm dia.pile. Pile B.* *24,000 + 0,300 = 24,300m*
5/6	24,00	✓	*16 mm Dia. h.s. reinf.* ✓ *Pile B.*				
5/6	10,00	✓	✓ *Aug. drill 450 – 710 mm dia. in firm grnd. n.e 10m. Pile B,*		5	✓	✓ *Add. conc. In enlarged bulb 610 – 970mm pile* *Pile B*
5	5,00	✓	*Ditto, but exce. 10 n.e.* ✓ *15 m.* *Pile ,B,*	5	0,61 0,61 24,00	✓	✓ *E.o. drilling for under-reaming for piles 450 – 770 mm dia. Pile B,.*
5	5,00	✓	*Ditto, but exce. 15 n.e. 20 m.* ✓ *Pile B*				
5	4,00	✓	*Ditto, but exce. 20 n.e. 25 m.* ✓ *Pile B* *24,000 – 20,000 = 4,000*				

(Any 13 × 1) (13)

3.2 Additions

	7	✓	*Setting up plant at pile positions ✓* *Pile B*	7 / 24,30	✓	*25Mpa 610mm dia.pile. ✓* *Pile B.* *24,000 + 0,300 = 24,300m*
7 / 6	24,00	✓	*16 mm Dia. h.s. reinf. ✓* *Pile B.*			
				7	✓	✓ *Add. conc. In enlarged bulb 610 – 970mm pile* *Pile B*
7 / 6	10,00	✓	*Aug. drill 450 – 710 mm ✓ dia. in firm grnd. n.e 10m.* *Pile B,*			
7	5,00	✓	*Ditto, but exce. 10 n.e. 15 m. ✓* *Pile ,B,*	7	✓	✓ *E.o. drilling for under-reaming for piles 450 – 770 mm dia. Pile B,.*
				0,61 0,61 24,00		
7	5,00	✓	*Ditto, but exce. 15 n.e. 20 m. ✓* *Pile B*			
5	4,00	✓	*Ditto, but exce. 20 n.e. 25 m. ✓* *Pile B* *24,000 – 20,000 = 4,000*			

(Any 12 × 1) (12)
[25]

QUESTION 4

4.1
- It is when dry sand interacts with atmospheric moisture.
- This forms a thin layer around each particle.
- This results in the increase of the volume of sand. (3)

4.2 No. of bricks in 1 m² half brick wall:

1000 ÷ 0,085 = 11,76✓
1000 ÷ 0,230 = 4,34✓

11,76 × 4,34 = 51 + 4 = 55 No.✓

1M² one brick wall = 55 × 2 = 110 ✓

✓ ✓
Number of bricks in wall = 10 × 3 × 110 = 3300 bricks.✓ (7)

4.3 Brick size = 220 × 110 × 75 mm

220 + 10 = 230 mm (length)
75 + 10 = 85 mm (height)

Square area of one brick to cover = 0,230 × 0,110 = 0,025✓
0,85 × 0,110 = 0,009 ✓
0,034 m² ✓

✓ ✓
Square area of mortar required for the wall = 3300 × 0,034 = 112 m²✓ (6)

4.4 Labour and material cost to build 10 m × 3 m brick wall:

Square area wall = 10 × 3 = 30 m²✓

30 × R322,00 =	R9 660,00✓
+ 30% profit	R2 898,00✓
	R12 558,00✓
+ 15% vat	R1 883,70✓
Total cost	R14,441,70✓

Square meter rate for this brick wall:

✓ ✓
R14 441,7 ÷ 30 = R481,39/m²✓ (9)

[25]

TOTAL: 100

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