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basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

CIVIL TECHNOLOGY: CIVIL SERVICES

MAY/JUNE 2025

MARKING GUIDELINES

MARKS: 200

These marking guidelines consist of 17 pages.



INSTRUCTIONS FOR MARKERS**1. Markers should:**

- Familiarise themselves with the question and answer before evaluating the responses of candidates.
- Always interpret the responses of the candidates within the context of the question.
- Consider any relevant and acceptable answer during pre-marking but should strictly adhere to the answers after finalisation of the marking guideline.
- There are TWO approaches to answering questions; these are (1) to describe and (2) to explain.
 1. If a candidate is required to explain e.g., a process in 4 steps, only the first 4 responses should be considered.
 2. However, if for example candidate is required to explain or describe a process, we need to consider that that candidates may write a long description, not necessarily well organised. In this case the marker needs to evaluate the complete statement to judge if the candidate explained the required outcome satisfactorily and allocate marks on merit.
- Mark what the candidate wrote and do not interpret or predict responses.
- Indicate the tick or cross right at the position where the mark needs to be awarded or where the candidate made the error.
- Accept the letter corresponding with the correct answer as well as the answer written in full in multiple-choice questions or similar questions.
- Accept incorrect spelling in answers unless the spelling changes the meaning of the answer.
- If a learner writes two or more answers separated by a slash (/) mark only the first response, unless the additional answer/s are different names for the same item e.g., Yale lock/Night latch. In this case, the answer for the response should be awarded and the slash (/) should NOT be considered as an additional answer.

2. For calculations:

- A mark is only awarded if the correct unit is written next to the answer. If the question states that the answer must be in a specific unit, a mark will ONLY be awarded if the answer has the correct unit as indicated in the question.
- Marks will only be allocated for the correct values if the candidates add instead of multiply. NO marks will be awarded for the calculations and the answer.
- Where an incorrect answer is correctly carried over, the marker must recalculate the values, using the incorrect answer from the first calculation. If correctly used, the candidate should receive the full marks for subsequent calculations.
- Alternative methods of calculations must be considered, provided that the correct answer is obtained.
- For the calculation of quantities marks will be awarded for the correct use of the dimension paper.

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3. When marking drawings:

- The member for which the mark should be awarded should be drawn correctly in the correct position to receive a mark.
- A member incorrectly drawn but wrongfully repeated in another position will be awarded the mark for the repeated incorrect member provided that the marking guideline provide for TWO or more marks for that member (positive marking).
- Marks can only be awarded for a label if the label is correctly indicating the correct member. Do not consider labels for members of which the labels were provided on the answer sheet.
- Scale drawings should always be marked using an appropriate mask.
- If the incorrect/wrong drawing was drawn, the candidate can be awarded for only what was provided for on the marking guideline.
- If a line diagram or an orthographic view instead of a pictorial drawing (isometric/oblique/perspective) is drawn, the first assessment criteria for each member will be marked wrong, but marks will be awarded for the subsequent members if TWO or more marks are awarded for the same member.
- If candidates draw/give more information than what is required, mark strictly according to the assessment criteria.

4. Incorrect numbering of questions:

- If a candidate numbered an incorrectly, but the answer is in the correct position according to the sequence of the questions in the question paper, circle then the incorrect numbering and mark the response.
- If questions were answered randomly not following the same sequence as in the question paper and the learner numbered incorrectly, the response should NOT be marked.

5. Duplication of responses and questions answered in the correct place:

- If a question is answered twice, mark the first response.
- If a question should be answered on an answer sheet and the candidate answered it on both the answer sheet and in the answer book, mark the response on the answer sheet and cancel the response in the answer book.
- If the question was answered in the answer book instead of on the answer sheet, mark the response in the answer book according to the assessment criteria on the marking guideline.



QUESTION 1: OHSA, MATERIALS, TOOLS, EQUIPMENT AND JOINING (GENERIC)

- 1.1 1.1.1 Powder coating ✓ (1)
- 1.1.2 Annealing ✓ (1)
- 1.1.3 Paint ✓ (1)
- 1.1.4 Weekly ✓ (1)
- 1.1.5 Do not jump from one level to another on the scaffold. ✓ (1)
- 1.1.6 Steel ✓ (1)
- 1.1.7 2 ✓ (1)
- 1.1.8 A material safety data sheet ✓ (1)
- 1.1.9 Two thirds ✓ (1)
- 1.1.10 1 980 mm ✓ (1)
- 1.2 1.2.1 D ✓ (1)
- 1.2.2 To prevent/resist rotation of the bolt/screw. ✓ (1)
- 1.2.3 C; A; B ✓ (1)
- 1.2.4 Thickness/Diameter of Rawl bolt ✓ (1)
- 1.3 Advantages of galvanising:
- Add strength to the original, uncoated metal ✓
 - Galvanised metal is thicker than uncoated metal ✓
 - Galvanising nails and screws prevents staining
 - Galvanising protects the metal against rust/corrosion
 - Galvanising increases the durability of metal
- ANY TWO OF THE ABOVE** (2)
- 1.4 Natural elements:
- Moisture/Water ✓
 - Sunlight
 - Extreme cold
- ANY ONE OF THE ABOVE** (1)
- 1.5 The laser level is used to ensure that the marked positions are level for the shelf. ✓ (1)
- 1.6
- Tripod ✓
 - Telescopic staff ✓
 - Plumb bob
- ANY TWO OF THE ABOVE** (2)

[20]

QUESTION 2: GRAPHICS AS MEANS OF COMMUNICATION (GENERIC)

NO.	QUESTIONS	ANSWERS	MARKS
1.	What is the measurement of the dwelling facing Jacaranda Street?	17 080 mm/17,08 m ✓	1
2.	Identify number 1.	Building line ✓	1
3.	Identify number 2.	Sidewalk/Pavement ✓	1
4.	Identify number 3.	Municipal sewer line/Sewer line ✓	1
5.	Identify the number indicating the boundary line.	4/Four ✓	1
6.	Name the colour that must be used to indicate the new dwelling on the site plan.	Red ✓	1
7.	What is omitted at number 6 if the NGL is 300 mm lower than the FFL?	A step/concrete stoep/ramp at the door ✓	1
8.	What type of fencing is used for the boundary wall for plot number 15?	Prefabricated fencing ✓	1
9.	Name TWO materials that can be used for number 7.	• Wood ✓ • Aluminium ✓ • Galvanised metal • Steel • Metal • Nutec • Glass ANY TWO OF THE ABOVE	2
10.	What is wrong with number 8?	The arrow indicating the slope is in the wrong direction ✓	1
11.	Name THREE electrical installations omitted in the house.	• Lights/Ceiling lights/Fluorescent lights/Downlights/Wall mounted lights ✓ • Electrical wiring/Wiring ✓ • Light switch/Shaving socket outlet/Socket outlet ✓ ANY THREE OF THE ABOVE	3
12.	Which plot is on the eastern side of the new dwelling?	Plot number 13/Number 13 ✓	1



13.	Identify the elevation with no windows.	South elevation/South ✓	1
14.	How many rodding eyes are shown on the site plan?	2/Two ✓	1
15.	How many external doors are there on the plan for the house?	3/Three ✓	1
16.	Which street is on the western side of the new dwelling?	Jacaranda Street ✓	1
17.	How many 1 200 mm x 800 mm windows are in the building?	1/One ✓	1
18.	On what date was revision 1 completed?	16/06/2024 ✓	1
19.	Draw the symbol for a wall-mounted urinal.		2
20.	Draw the symbol for a double-pole one-way switch.		3
21.	Draw the symbol for a staircase.		3
22.	Deduce from the notes column the type of globes that will be used in the bedroom.	LED/2 x 6 W ✓	1
23.	In which town will the new dwelling be erected?	Phoenix ✓	1



24.	Calculate the total length of fencing that would be needed to fence plot number 15 . Give your answer in metres and show ALL your calculations.	$24\ 000\checkmark + 24\ 000\checkmark + 28\ 000\checkmark$ $+ 28\ 000\text{ mm}\checkmark$ $= 104\ 000\text{ mm}\checkmark$ $= 104\checkmark\text{ m}$ OR $24\text{ m} + 24\text{ m} + 28\text{ m} + 28\text{ m} = 104\text{ m}$	6
25.	The internal area of the open plan kitchen is $72,94\text{ m}^2$. Calculate the length of number 5 . Give your answer in mm.	$\underline{72,94}\text{ m}^2\checkmark$ $10,42\text{ m}\checkmark$ $= 7\text{ m}$ $= 7\ 000\checkmark\text{ mm}$ OR $\underline{72\ 940\ 000}\text{ mm}^2$ $10\ 420\text{ mm}$ $= 7\ 000\text{ mm}$	3
		TOTAL:	40

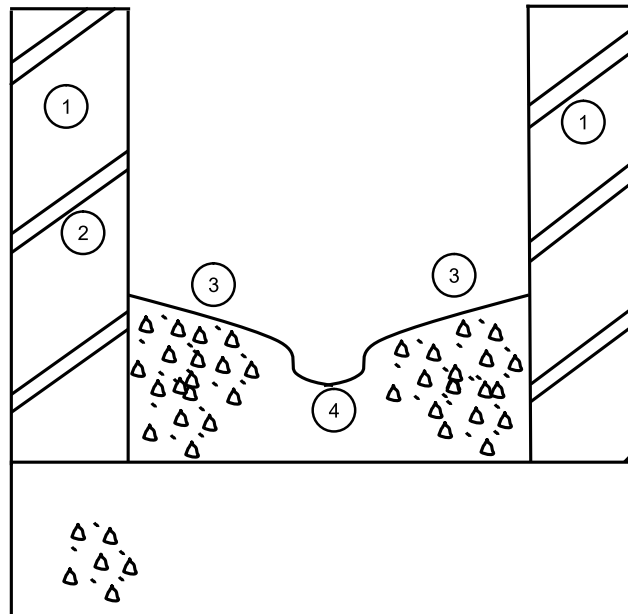


QUESTION 3: CONSTRUCTION ASSOCIATED WITH CIVIL SERVICES, OHSA AND QUANTITIES (SPECIFIC)

- 3.1 3.1.1 1:40 ✓ (1)
- 3.1.2 Spirit level ✓ (1)
- 3.1.3 Jetting ✓ (1)
- 3.1.4 English bond ✓ (1)
- 3.1.5 Poling board ✓ (1)
- 3.2 Red ✓
Orange
ANY ONE OF THE ABOVE (1)
- 3.3 To test for harmful/hazardous gases ✓ (1)
- 3.4 3.4.1 Concrete ring manhole/Precast concrete ring manhole ✓ (1)
- 3.4.2 Positions for manholes:
 - Close to a municipal connection ✓
 - A maximum of 2 m from a boundary line
 - On a straight drain line every 20 to 25 m
 - At all changes of direction
 - At changes of level and gradient
 - At junctions
 - Where two or more pipes join
 - Where pipes run underneath a building, on both sides**ANY ONE OF THE ABOVE** (1)
- 3.4.3 Accessories for a manhole:
 - Step irons ✓
 - Reducer slab
 - Cover slabs
 - Concrete lid**ANY ONE OF THE ABOVE** (1)
- 3.5 3.5.1 90° bend with inspection eye ✓ (1)
- 3.5.2 110 mm ✓ (1)
- 3.5.3 Ventilating pipe/Vent pipe/Vent valve ✓ (1)
- 3.5.4 PVC ✓ (1)
- 3.5.5 40 mm/50 mm ✓ (1)
- 3.5.6 Waste bend with inspection eye 90° ✓ (1)
- 3.5.7 2 ✓ (1)



3.6



NO.	ASSESSMENT CRITERIA	MARK
1	Walls	2
2	Hatching	1
3	Benching	2
4	Pipe channel	1
5	Concrete foundation	1
TOTAL:		7

(7)

3.7

①		①	
	CORNER (QUOIN) HALF-BRICK WALL ③		
①			
② ②			

NO.	ASSESSMENT CRITERIA	MARK
1	Stretcher course	3
2	Half-brick	2
3	Print title	1
TOTAL:		6

(6)
[30]

QUESTION 4: COLD AND HOT-WATER SUPPLY, TOOLS, EQUIPMENT AND MATERIALS (SPECIFIC)

- 4.1 4.1.1 C – Waste junction 135°/ Y-junction ✓
D - 110 mm soil pipe ✓
E - Rodding eye/Rodding eye lid ✓ (3)
- 4.1.2 From **A** to **B**. ✓ (1)
- 4.1.3 It allows the drain cleaning rods to effectively enter the drain-pipes. ✓ (1)
- 4.1.4 Rodding eye gives access:
• for unclogging of the drain ✓
• for inspection ✓ (2)
- 4.1.5 Advantages of using a rodding eye:
• It is less labour intensive ✓
• It is cost effective ✓
• It is aesthetically more appealing
• It is easily replaceable
ANY TWO OF THE ABOVE (2)
- 4.2 4.2.1 A – Gasket ✓
B – Flange ✓ (2)
- 4.2.2 The purpose of a gasket:
• It acts as a seal ✓ between two flanges. ✓
• It prevents water from leaking at the joint/connection.
ANY ONE OF THE ABOVE (2)
- 4.3 4.3.1 Drain cleaning rods with accessories/Drain cleaning rods ✓ (1)
- 4.3.2 Drain cleaning rods with accessories/Drain cleaning rods are used to unclog drain pipes ✓ (1)
- 4.3.3 Care of drain cleaning rods:
• Clean the rods after use ✓
• Wash the rods in a solution of hot water, washing liquid and Jeyes fluid/Disinfect the rods ✓
• Clean coil spring rods with a jetting machine
• Let the rods dry completely before storing
ANY TWO OF THE ABOVE (2)
- 4.4 4.4.1 Solar geyser ✓ (1)
- 4.4.2 Vacuum tube ✓ (1)
- 4.4.3 The tubes absorb the radiation from the sun, ✓ the solar energy is converted in to heat energy in the water inside the tubes. ✓ (2)



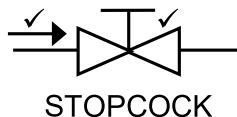
4.5 4.5.1 Element ✓ (1)

4.5.2 Electrical cover plate/cover plate ✓ (1)

4.5.3 Drip tray ✓ (1)

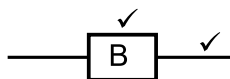
4.5.4 The thermostat regulates the water-temperature by switching the element on or off ✓ at a pre-set temperature ✓ (2)

4.6 4.6.1



(2)

4.6.2



BALANCING DEVICE (HOT_WATER CONTROL)

(2)

4.7 4.7.1 D ✓ (1)

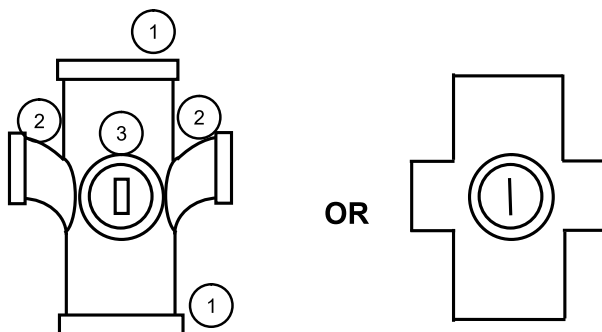
4.7.2 A ✓ (1)

4.7.3 B ✓ (1)

4.7.4 G ✓ (1)

4.7.5 H ✓ (1)

4.8



CROSS-JUNCTION 90° DOUBLE REDUCING WITH INSPECTION EYE

NO.	ASSESSMENT CRITERIA	MARK
1	Diameter 110 mm pipe	2
2	Diameter 50 mm 90° waste pipe connection	2
3	Inspection eye	1
TOTAL:		5

(5)
[40]

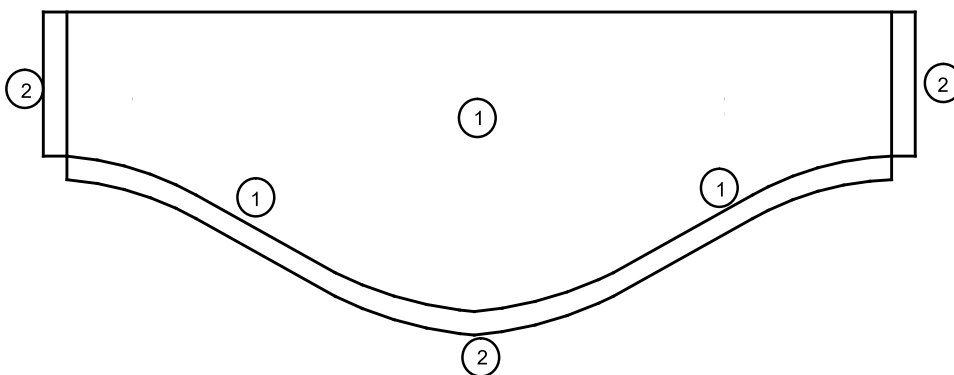


QUESTION 5: GRAPHICS AS MEANS OF COMMUNICATION, ROOF WORK AND STORM WATER (SPECIFIC)

5.1 5.1.1 Flashing ✓ (1)

- 5.1.2 Materials used for flashing:
- Copper ✓
 - Galvanised sheet metal/Zink
 - Lead
 - Bitumastic patents/Bitumen
 - Rubber sealant
 - Aluminium
 - Waterproofing membrane
- ANY ONE OF THE ABOVE** (1)

5.2



NO.	ASSESSMENT CRITERIA	MARK
1	Development of cylindrical pipe	3
2	Seams	3
	TOTAL:	6

(6)

5.3 5.3.1 Material NOT to be directed into a storm water system:

- Sewage/Soil water/ Waste water ✓
- Dangerous chemicals

ANY ONE OF THE ABOVE (1)

5.3.2 Rainwater must be channelled away from buildings to prevent:

- Loss or damage to property/structure ✓
- Undercutting of foundations due to erosion or flooding
- Damage to walls due to moisture/Rising damp
- Rainwater penetrating walls

ANY ONE OF THE ABOVE (1)

5.4 Hand tool used to cut PVC gutters:

- Fine-tooth saw ✓
- Tenon saw
- Hacksaw

ANY ONE OF THE ABOVE (1)

5.5



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Please turn over

NO.	ASSESSMENT CRITERIA	MARK
1	Projection lines to apex	1
2	Determine true length	2
3	Projection lines and arcs from the pyramid	3
4	Development of base of pyramid	5
5	Development of top of pyramid	5
6	3 mm seams	2
7	Folding lines	1
	TOTAL:	19

(19)
[30]



QUESTION 6: SEWERAGE, SANITARY FITTINGS AND JOINING (SPECIFIC)

- 6.1 6.1.1 C ✓ (1)
- 6.1.2 B ✓ (1)
- 6.1.3 D ✓ (1)
- 6.1.4 C ✓ (1)
- 6.1.5 D ✓ (1)

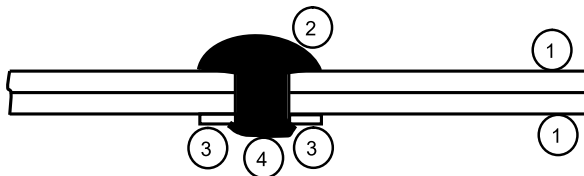
6.2 Methods to secure galvanised pipes to walls:

- Pipe flange ✓
- Pipe clamp ✓
- Steel hangers
- Perforated straps
- Holder bats

ANY TWO OF THE ABOVE

(2)

6.3



NO.	ASSESSMENT CRITERIA	MARK
1	Two plastic strips	2
2	Rivet head	1
3	Washer	2
4	Flange grip over washer	1
	TOTAL:	6

(6)

- 6.4 6.4.1 A – Hopper ✓
 C – Gully pot ✓

(2)

6.4.2 The gully is located:

- Outside a building ✓
- Near the kitchen sink/bathroom

ANY ONE OF THE ABOVE

(1)

6.4.3 Water seal/ Water/Water level ✓

(1)

6.5 Materials used to construct an inspection chamber:

- Bricks ✓
- Concrete ✓
- Mortar
- Plastic

ANY TWO OF THE ABOVE

(2)

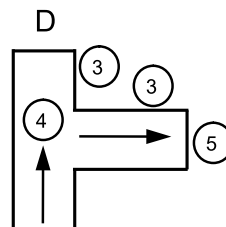
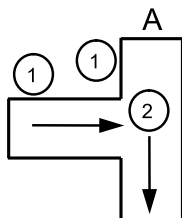


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6.6 750 mm ✓ (1)

6.7 6.7.1 B – settling chamber ✓
C – discharge chamber ✓ (2)

6.7.2



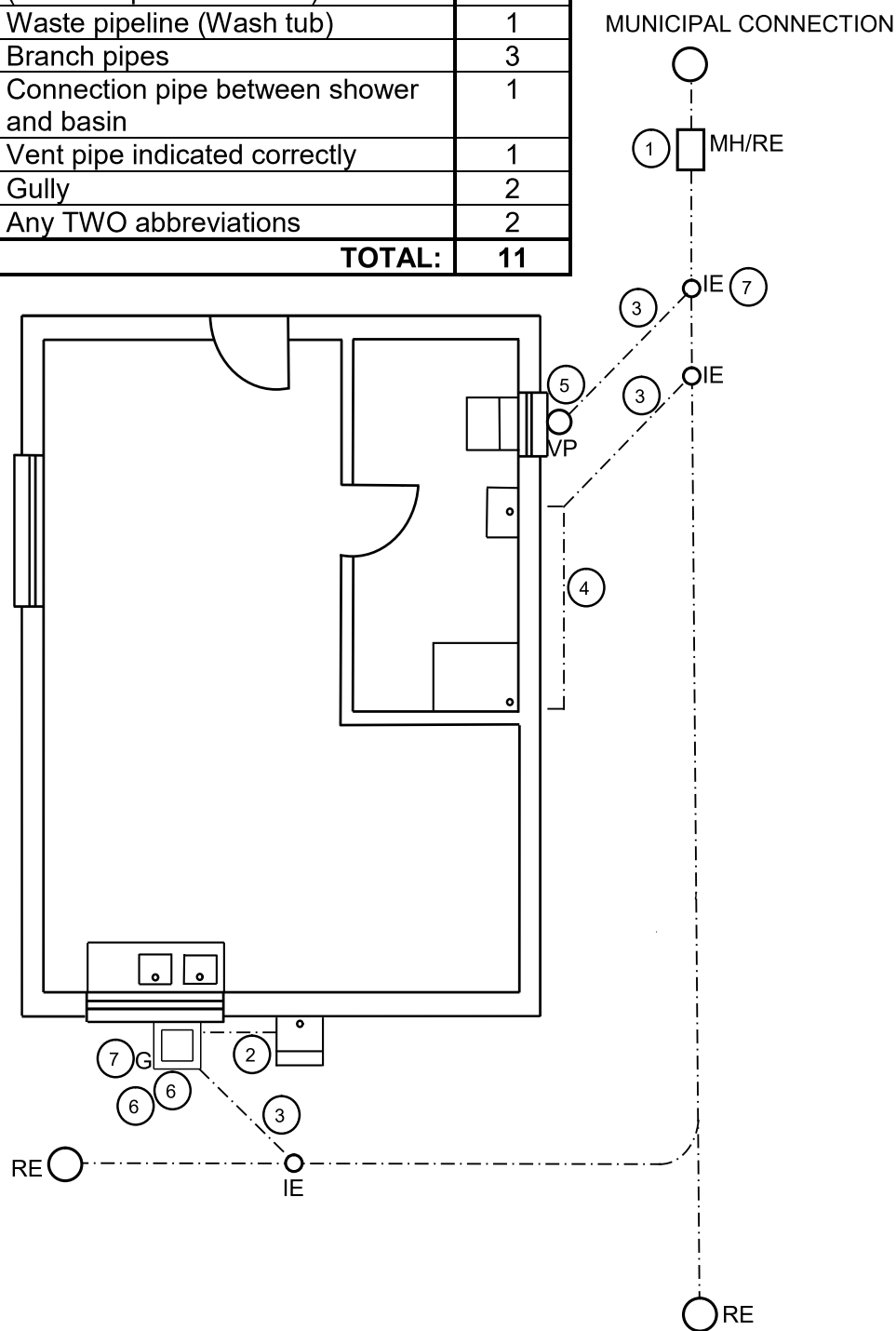
NO.	ASSESSMENT CRITERIA	MARK
1	T – junction inlet	2
2	Directions of flow	1
3	T – junction outlet	2
4	Directions of flow	1
5	Outlet lower than inlet	1
TOTAL:		7

(7)



6.8

NO.	ASSESSMENT CRITERIA	MARK
1	Manhole/Rodding eye (At municipal connection)	1
2	Waste pipeline (Wash tub)	1
3	Branch pipes	3
4	Connection pipe between shower and basin	1
5	Vent pipe indicated correctly	1
6	Gully	2
7	Any TWO abbreviations	2
TOTAL:		11

(11)
[40]