



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P1

FEBRUARY/MARCH 2017

MEMORANDUM

MARKS: 100

This memorandum consists of 5 pages.

ANSWERS		
1	2015-10-12	1
2	J VAN WYK	1
3	NONE	1
4	50967	1
5	1 : 450	1
6	INSPECTION CHAMBER	1
7	RODDING EYE	1
8	MAN HOLE	1
9	5357	1
10	SLOPE OF SEWAGE LINE	1
11	ELECTRICAL METER/WATT METER/SUPPLY	1
12	RED	1
13	1 m	1
14	AGRICULTURAL LAND	1
15	EAST	2
16	30.4 m [calculation 1, answer 1, converted to metres 1]	3
17	1254.69 m ² [calculation 2, answer 1, converted to metres 1]	4
18	<i>See below</i>	3
19		4
TOTAL		30

ANSWER 16

Show ALL calculations

$$\begin{aligned}
 \text{PERIMETER} &= S + S + S + S + S + S \quad \checkmark 1 \\
 &= 8 + 4.8 + 5 + 2.4 + 3 + 7.2 \\
 &= 30.4 \text{ m} \quad \checkmark 1 \quad \checkmark 1
 \end{aligned}$$

ANSWER 17

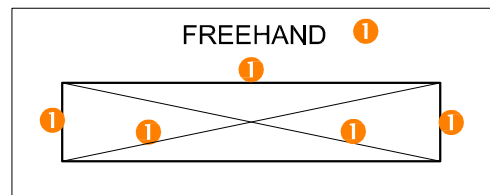
Show ALL calculations

$$\begin{aligned}
 \text{Area of } \Delta &= \frac{1}{2} b \times h \quad \checkmark 1 \\
 &= \frac{1}{2} (25.2) \times (44.4) \\
 &= 559.44\text{m}^2
 \end{aligned}$$

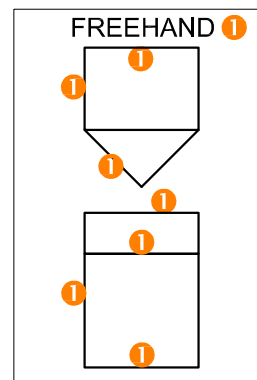
$$\begin{aligned}
 \text{Area of rectangle} &= l \times b \quad \checkmark 1 \\
 &= 25.2 \times 27.6 \\
 &= 695.52\text{m}^2
 \end{aligned}$$

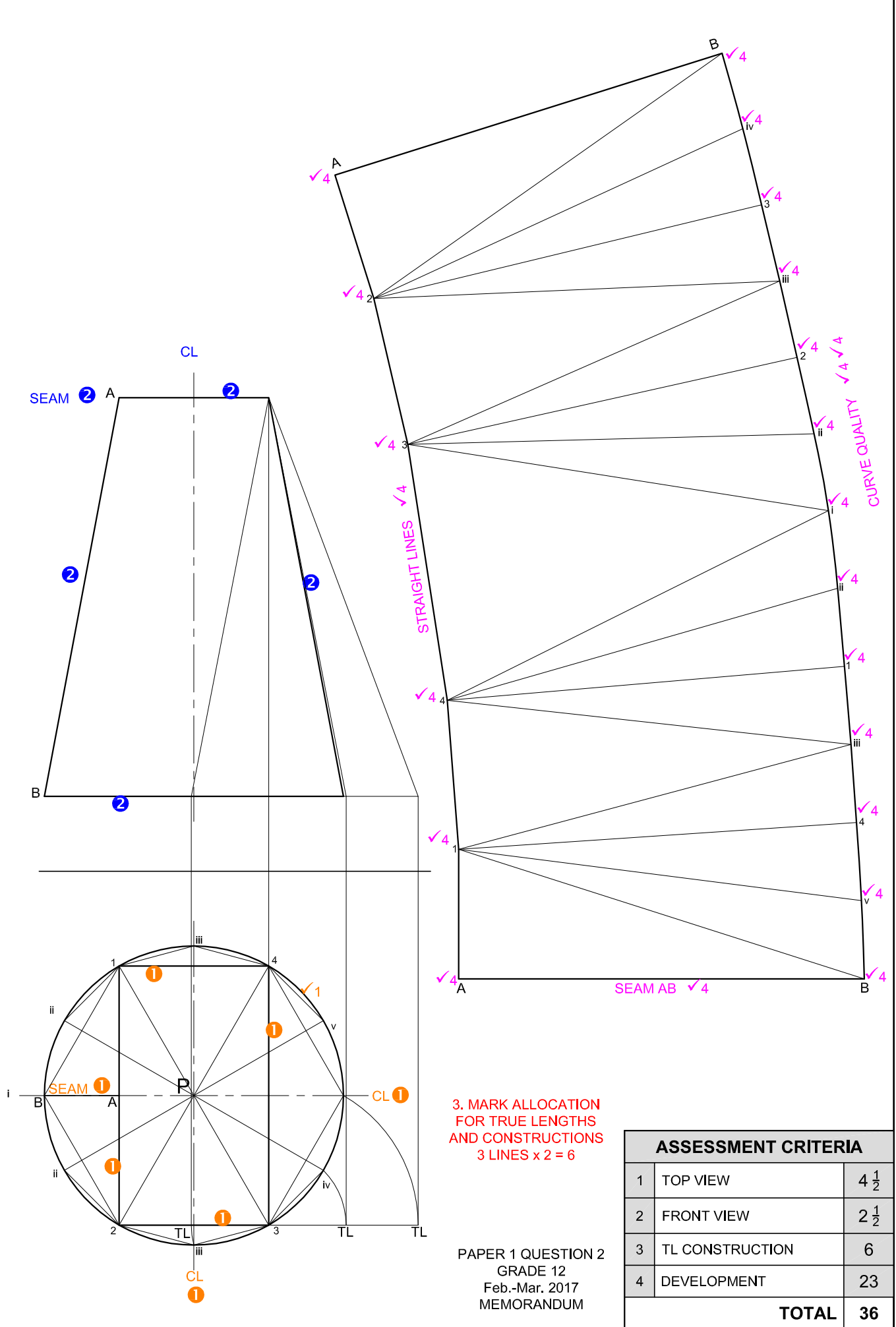
$$\begin{aligned}
 \text{Area of Stand 1932} &= 559.44 + 695.52 \\
 &= 1254.96\text{m}^2 \quad \checkmark 1 \quad \checkmark 1
 \end{aligned}$$

ANSWER 18



ANSWER 19

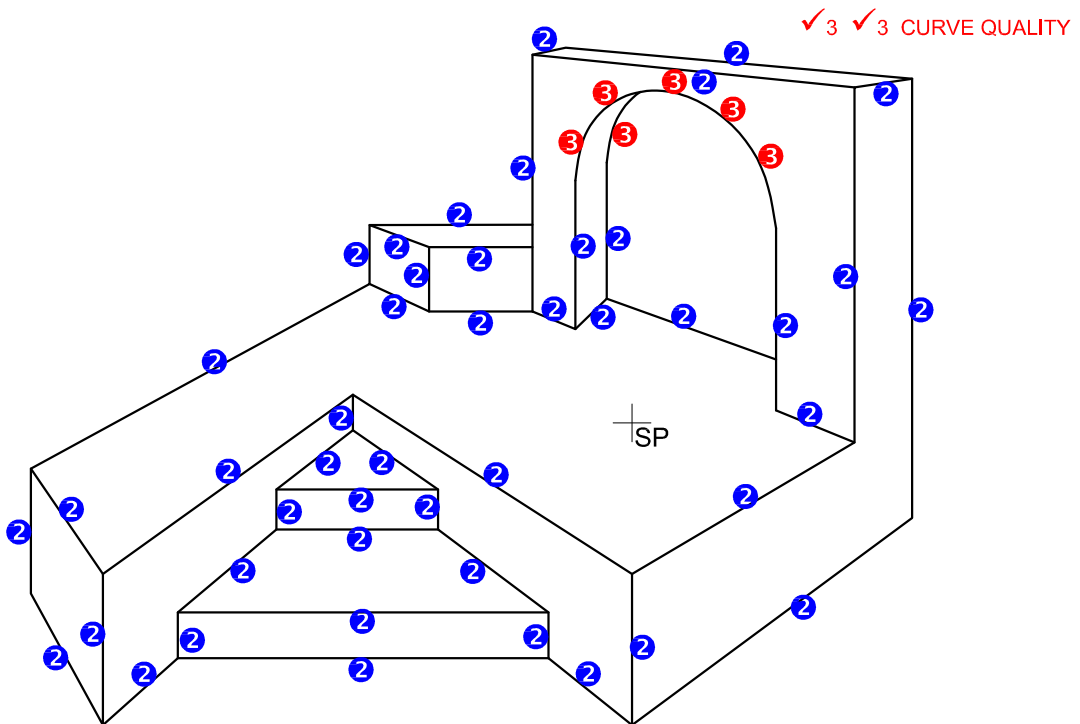
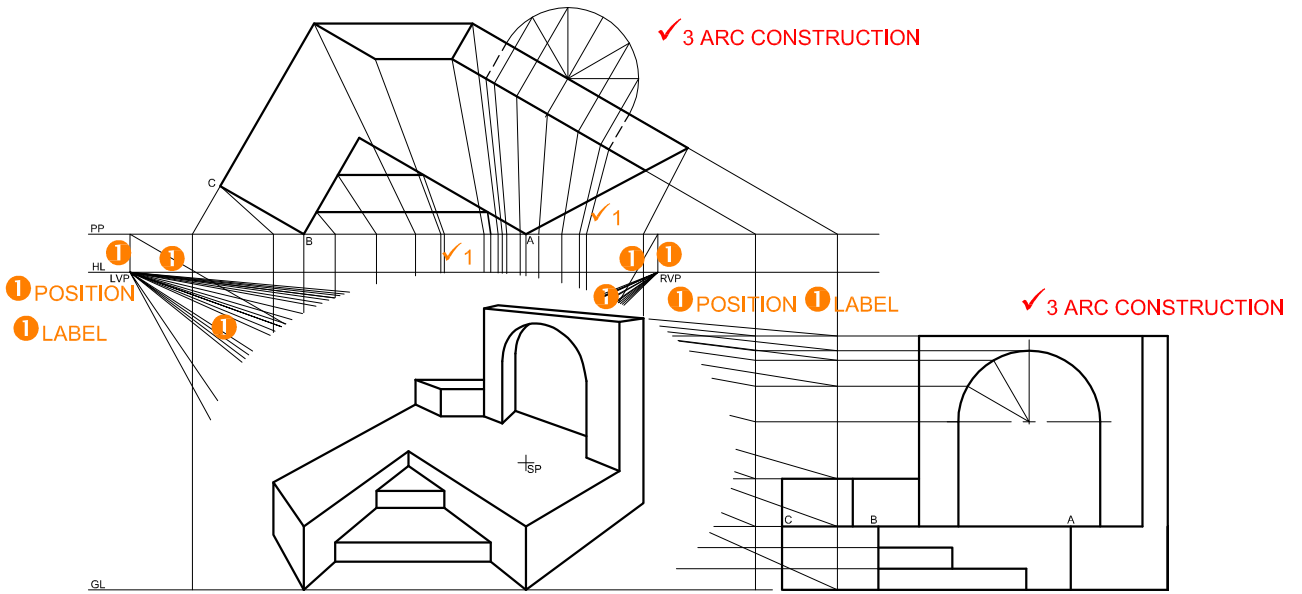




3. MARK ALLOCATION FOR TRUE LENGTHS AND CONSTRUCTIONS
3 LINES x 2 = 6

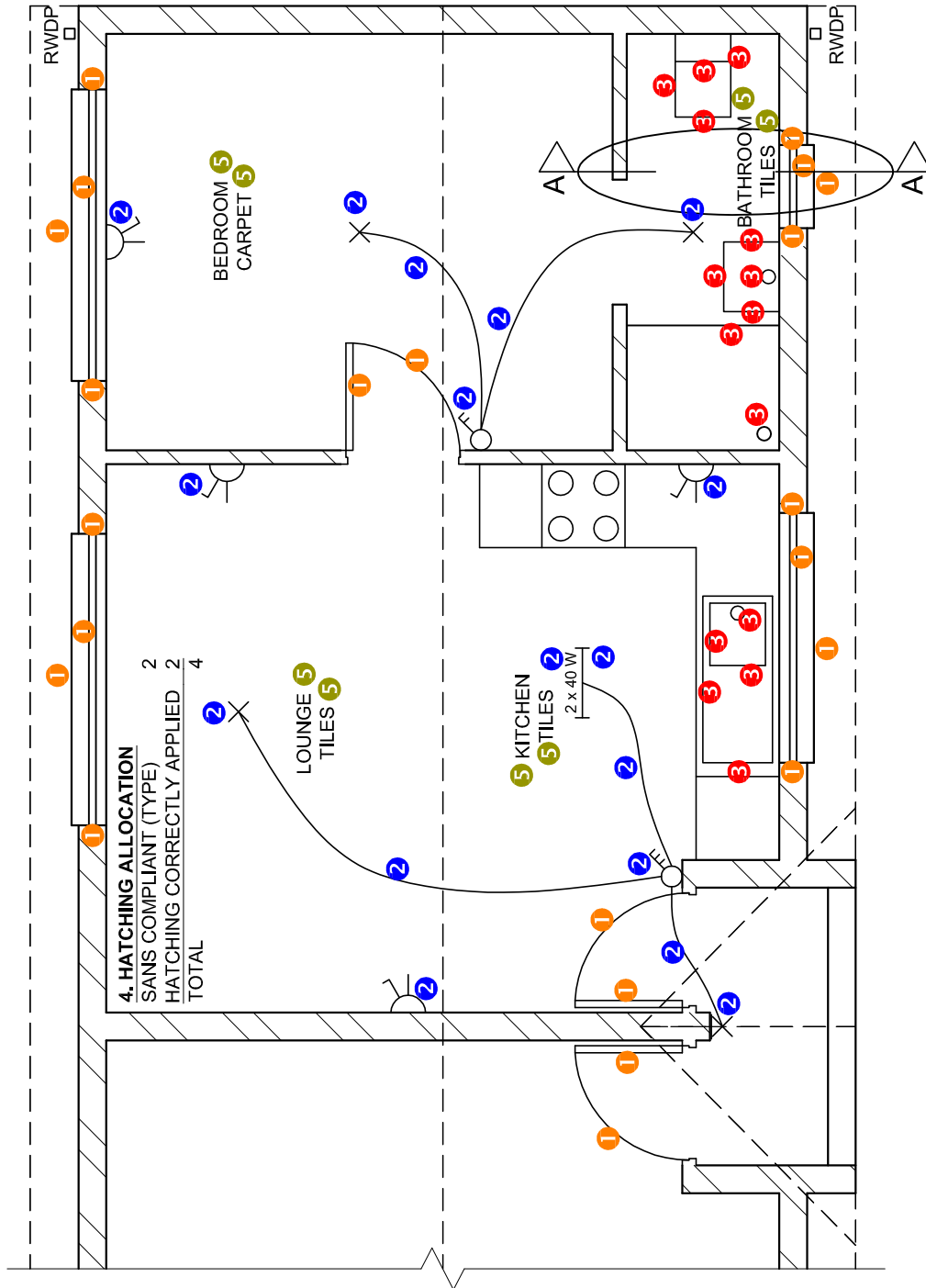
PAPER 1 QUESTION 2
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ASSESSMENT CRITERIA		
1	TOP VIEW	4 1/2
2	FRONT VIEW	2 1/2
3	TL CONSTRUCTION	6
4	DEVELOPMENT	23
TOTAL		36



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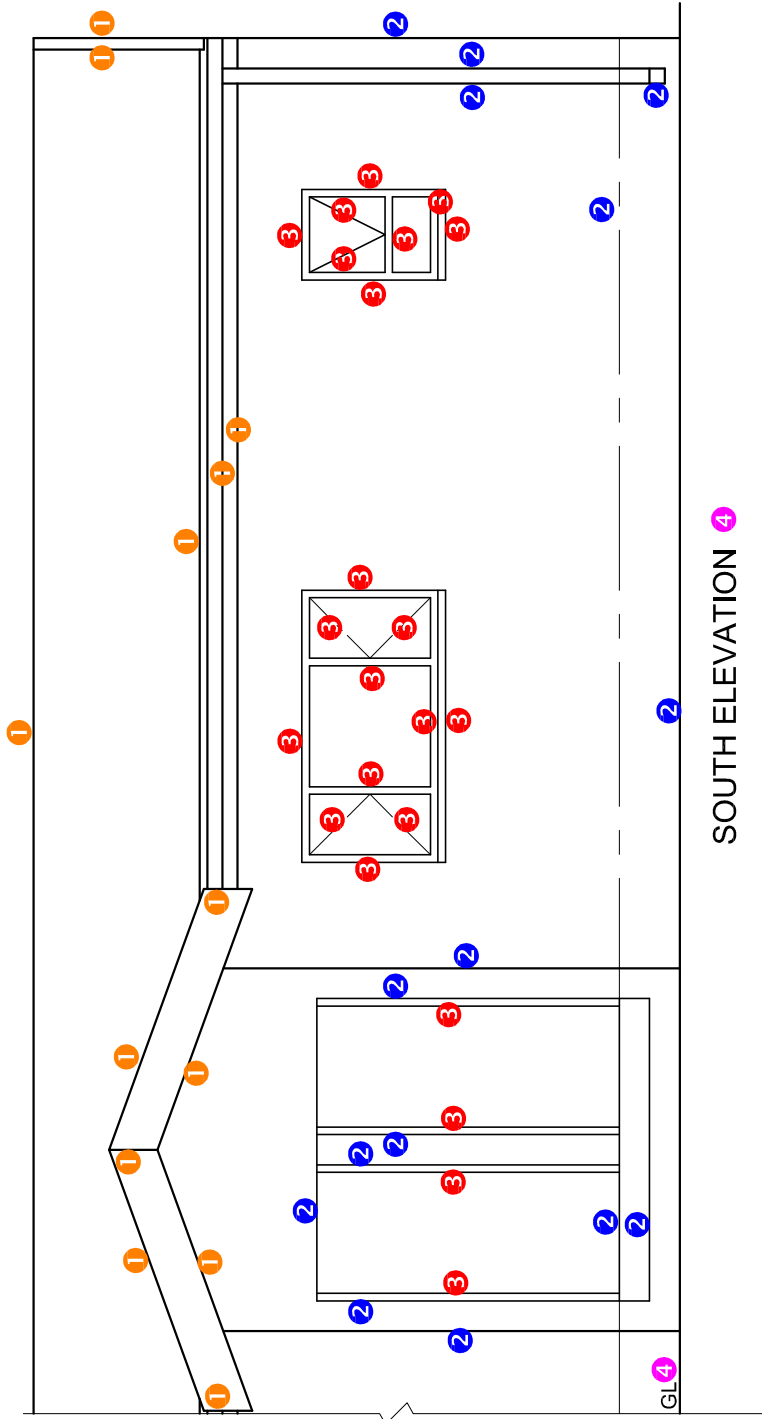
ASSESSMENT CRITERIA		
1	CONSTRUCTION + VPs	7
2	STEPS + FLOOR + WALLS	23
3	CIRCULAR ARC	7
TOTAL		37



FLOOR PLAN
 SCALE 1 : 50

PAPER 1 QUESTION 4
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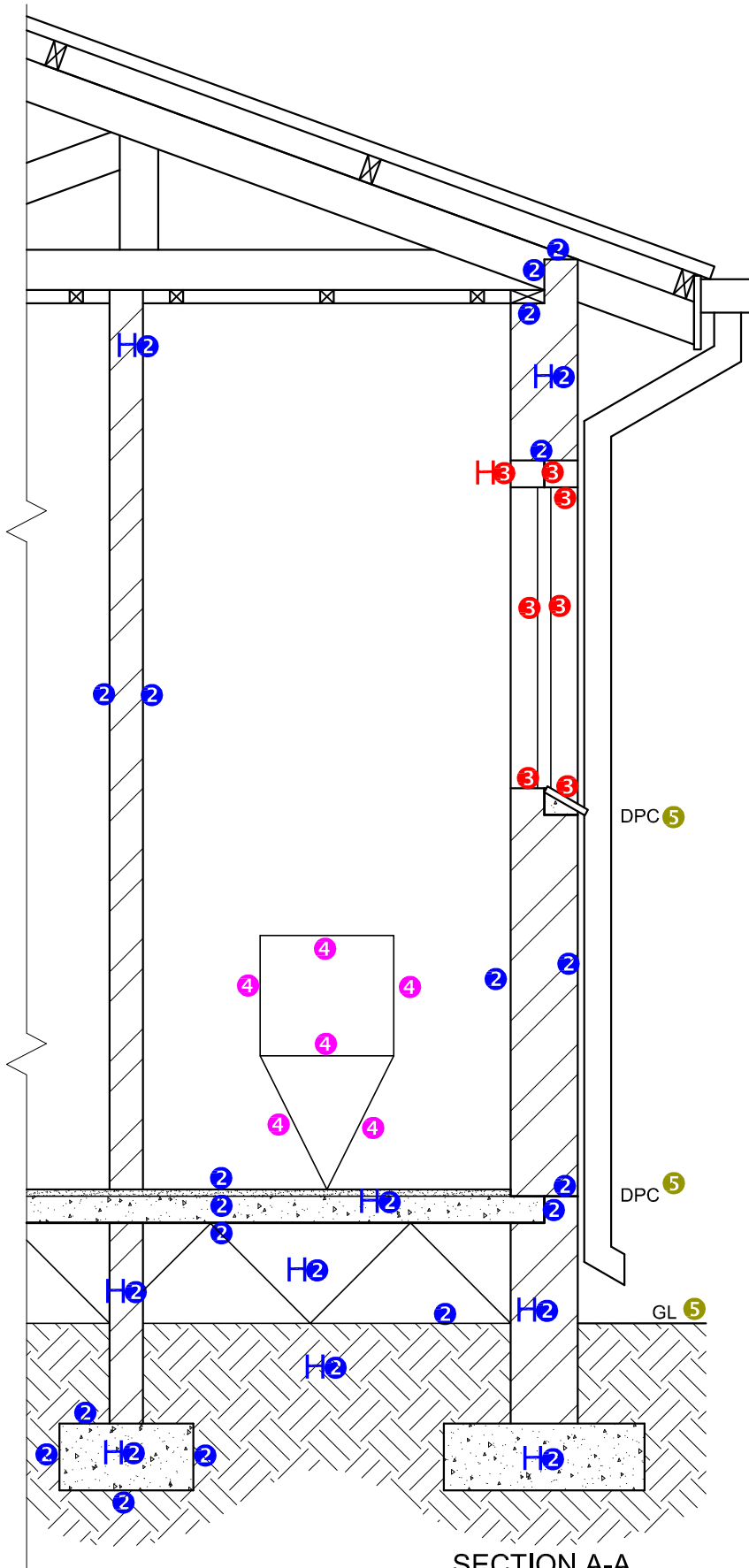
ASSESSMENT CRITERIA		
FLOOR PLAN		
1	DOORS + WINDOWS	11
2	ELECTRICAL	8 1/2
3	FIXTURES	7 1/2
4	HATCHING	4
5	LABELS	4
SUBTOTAL		35



SOUTH ELEVATION 4

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ASSESSMENT CRITERIA		
SOUTH ELEVATION		
1	ROOF	6 $\frac{1}{2}$
2	WALLS + RWDP + FFL + GULLEY	7 $\frac{1}{2}$
3	DOORS + WINDOWS	11 $\frac{1}{2}$
4	LABELS	1
SUBTOTAL		26 $\frac{1}{2}$



SECTION A-A
SCALE 1 : 20

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1. MARK ALLOCATION FOR SECTION OF ROOF

A. ROOF ANGLE	1
B. ROOF SHEET	1
C. PURLIN + SPACING	2
D. TRUSS	3
E. FASCIA BOARD	1
F. WALL PLATE	1
G. BRANDERING	1
H. CEILING BOARD	1
I. GUTTER + RWDP	3
TOTAL	14

ASSESSMENT CRITERIA		
DETAILED SECTION		
1	ROOF DETAIL	14
2	FOUNDATIONS + WALLS + SLAB	13 1/2
3	WINDOW + LINTELS	3 1/2
4	FIXTURE	3
5	LABELS	1 1/2
SUBTOTAL		35 1/2