PIER / PILE GROUP
C - SOIL
END BEARING
Input
Data

This is for c-soil
Enter depth to firm soil(m): 3.0
Enter length of pier or pile(m): 14.0
Enter diameter of the pile(m): 0.3
Enter the file name in which you want to store the design: soil1
Enter net load(kN): 1000
Enter load transfer 1 - end bearing, 2 - skin friction, 3 - end bearing cum skin friction: 1
Enter steps of iteration on D(mm): 50
Enter number of C and Phi data with depth: 5
Enter depth of water table in firm soil(m): 5.0
Enter thickness of soil layer below base of the pier or pile group(m): 10.0
Enter permissible settlement of the pier or pile group(mm): 75
Soil Data:

Depth (m)	Cohesion (kN/m2)	e0	Cc	Unit weight (kN/m3)
14.0	73.0	1.2	0.08	18.5
16.0	72.0	1.1	0.07	17.5
18.0	71.0	1.15	0.085	16.9
20.0	71.5	1.2	0.07	17.6
22.0	72.0	1.35	0.08	18.0

Enter factor of safety for sbp: 3
End bearing:
Pier:
Load bearing analysis:
L(m)= 14.00; Initial trial D(m)= 2.40
Iteration No: 14; L(m)= 14.00; D(m)= 1.95

---Load bearing analysis is over---

End bearing:
Pier:
Settlement analysis:
L(m)= 14.00; Initial trial D(m)= 1.95
Iteration No: 1; L(m)= 14.00; D(m)= 1.95

--- Settlement analysis is over---

End bearing:
Pile group:
Load bearing analysis:
L(m) = 14.00; d(m)= 0.30; Initial trial: No= 10
Do you want to change the diameter of pile?
Enter 1 - for Yes, 2 - for No: 2
It is O.K., Press 'Enter' to continue
Iteration No: 1; L(m)= 14.00; d(m)= 0.30; No= 10

---Load bearing analysis is over---

End bearing:
Pile group:
Settlement analysis:
L(m)= 14.00; d(m)= 0.30; Initial trial: No= 10
Iteration No: 1; L(m)= 14.00; d(m)= 0.30; No= 10

---Settlement analysis is over---

Output
Design

Type of soil: c - soil
Net load(kN): 1000
Load transfer – by end bearing
Steps of iteration on D(mm): 50
Soil Data:

Depth (m)	Cohesion (kN/m2)	e0	Cc	Unit weight (kN/m3)
14.00	73.00	1.20	0.08	18.50
16.00	72.00	1.10	0.07	17.50
18.00	71.00	1.15	0.09	16.90
20.00	71.50	1.20	0.07	17.60
22.00	72.00	1.35	0.08	18.00

Thickness of weak soil at top(m): 3.00
Depth of water table in firm soil(m): 5.00
Thickness of soil layer below base of the pier or pile group(m): 10.00
Factor of safety for sbp: 3
Permissible settlement(mm): 75

Pier:

Length(m): 14.00
Diameter(m): 1.95
Volume(m3): 41.81

Pile group:

Length(m): 14.00
Diameter(m): 0.30
Number: 10
Volume(m3): 9.90

PIER / PILE GROUP
C - SOIL
SKIN FRICTION
Input
Data

This is for c-soil
Enter depth to firm soil(m): 3.0
Enter length of pier or pile(m): 18.0
Enter diameter of the pile(m): 0.3
Enter the file name in which you want to store the design: soil2
Enter net load(kN): 3000
Enter load transfer 1 - end bearing, 2 - skin friction, 3 - end bearing cum skin friction: 2
Enter steps of iteration on D(mm): 50
Enter number of C and Phi data with depth: 5
Enter depth of water table in firm soil(m): 5.0
Enter thickness of soil layer below base of the pier or pile group(m): 10.0
Enter permissible settlement of the pier or pile group(mm): 75
Soil Data:

Depth (m)	Cohesion (kN/m2)	e0	Cc	Unit weight (kN/m3)
14.0	73.0	1.2	0.08	18.5
16.0	72.0	1.1	0.07	17.5
18.0	71.0	1.15	0.085	16.9
20.0	71.5	1.2	0.07	17.6
22.0	72.0	1.35	0.08	18.0

Enter factor of safety for skin friction: 3
Enter beta value: 0.45
Enter alpha value: 0.75
Skin friction:

Pier:
Load bearing analysis
L(m)= 18.00; D(m) required= 5.90

---Load bearing analysis is over---

Do you want to change the length of pier?
Enter 1 - Yes, 2 - No: 2
It is O.K.,press 'Enter' to continue
Skin friction:
Pier:
Settlement analysis:
L(m)= 18.00; Initial trial D(m)= 5.90
Iteration No: 1 ;L(m)= 18.00; D(m)= 5.90

---Settlement analysis is over---

Skin friction:
Pile group:
Load bearing analysis:
L(m)= 18.00; d(m)= 0.30; Initial trial: No= 11;
Do you want to change dimensions of the pile?
Enter 1 - Yes, 2 - No: 2
It is O.K., Press 'Enter' to continue
Iteration No: 1; L(m)= 18.00; d(m)= 0.30; No= 11
This does not satisfy load bearing
L(m)= 18.00; d(m)= 0.30; No= 11
Choose one from following:
1 - increase length of pile
2 - increase diameter of pile
3 - increase number of pile
Enter 1 or 2 or 3: 3
Iteration No: 2; L(m)= 18.00; d(m)= 0.30; No= 12

---Load bearing analysis is over---

Skin friction:
Pile group:
Settlement analysis:
L(m)= 18.00; d(m)= 0.30; Initial trial: No= 12
Iteration No: 1; L(m)= 18.00; d(m)= 0.30; No= 12

---Settlement analysis is over---

Output
Design

Type of soil: c - soil
Net load(kN): 3000
Load transfer – by skin friction
Steps of iteration on D(mm): 50
Soil Data:

Depth (m)	Cohesion (kN/m2)	e0	Cc	Unit weight (kN/m3)
14.00	73.00	1.20	0.08	18.50
16.00	72.00	1.10	0.07	17.50
18.00	71.00	1.15	0.09	16.90
20.00	71.50	1.20	0.07	17.60
22.00	72.00	1.35	0.08	18.00

Thickness of weak soil at top(m): 3.00
Depth of water table in firm soil(m): 5.00
Thickness of soil layer below base of the pier or pile group(m): 10.00
Factor of safety for skin friction: 3
Permissible settlement(mm): 75
Beta value: 0.45
Alpha value: 0.75

Pier:

Length(m): 18.00
Diameter(m): 5.90
Volume(m3): 492.12

Pile group:

Length(m): 18.00
Diameter(m): 0.30
Number: 12
Volume(m3): 15.27

PIER / PILE GROUP
C - SOIL
END BEARING-cum-SKIN FRICTION
Input
Data

This is for c-soil
Enter depth to firm soil(m): 3.0
Enter length of pier or pile(m): 18.0
Enter diameter of the pile(m): 0.4
Enter the file name in which you want to store the design: soil3
Enter net load(kN): 2500
Enter load transfer 1 - end bearing, 2 - skin friction, 3 - end bearing cum skin friction: 3
Enter steps of iteration on D(mm): 50
Enter number of C and Phi data with depth: 5
Enter depth of water table in firm soil(m): 5.0
Enter thickness of soil layer below base of the pier or pile group(m): 10.0
Enter permissible settlement of the pier or pile group(mm): 75
Soil Data:

Depth (m)	Cohesion (kN/m2)	e0	Cc	Unit weight (kN/m3)
11.0	72.0	1.2	0.08	18.5
13.0	73.0	1.2	0.09	18.2
15.0	69.0	0.9	0.1	18.0
17.0	73.0	1.3	0.08	17.8
19.0	72.0	1.2	0.07	18.0

Enter factor of safety for sbp: 3
Enter factor of safety for skin friction: 3
Enter beta value: 0.45
Enter alpha value: 0.75
End bearing-cum-skin friction:
Pier:
Load bearing analysis:
L(m)= 18.00; Initial trial D(m)= 2.60
Do you want to change the length of pier?
Enter 1 - Yes, 2 - No: 2
It is O.K., Press 'Enter' to continue
Iteration No: 1; L(m)= 18.00; D(m)= 2.60
This does not satisfy load bearing
Choose one of the following:
1 - increase length of pier

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2 - increase diameter of pier
Enter 1 or 2: 2
Iteration No: 7; L(m)= 18.00; D(m)= 2.90

---Load bearing analysis is over---

End bearing-cum-skin friction:
Pier:
Settlement analysis:
L(m)= 18.00; Initial trial D(m)= 2.90
Iteration No: 1;L(m)= 18.00; D(m)= 2.90

---Settlement analysis is over---

End bearing-cum-friction analysis:
Pile group:
Load bearing analysis:
L(m)= 18.00; d(m)= 0.40; Initial trial: No= 6
Do you want to change dimensions of the pile?
Enter 1 - Yes, 2 - No: 2
It is O.K., Press ' Enter' to continue
Iteration No: 1; L(m)= 18.00; d(m)= 0.40; No= 6
This does not satisfy load bearing
L(m)= 18.00; d(m)= 0.40; No= 6
Choose one from following:
1 - increase length of pile
2 - increase diameter of pile
3 - increase number of pile
Enter 1 or 2 or 3: 3
Iteration No: 15; L(m)= 18.00; d(m)= 0.40; No= 20

---Load bearing analysis is over---

End bearing-cum-skin friction:
Pile group:
Settlement analysis:
L(m)= 18.00; d(m)= 0.40; Initial trial: No= 20
Iteration No: 1; L(m)= 18.00; d(m)= 0.40; No= 20

---Settlement analysis is over---

Output
Design

Type of soil: c-soil
Net load(kN): 2500
Load transfer - by end bearing-cum-skin friction
Steps of iteration on D(mm): 50

Soil Data:

Depth (m)	Cohesion (kN/m2)	e0	Cc	Unit weight (kN/m3)
11.00	72.00	1.20	0.08	18.50
13.00	73.00	1.20	0.09	18.20
15.00	69.00	0.90	0.10	18.00
17.00	73.00	1.30	0.08	17.80
19.00	72.00	1.20	0.07	18.00

Thickness of weak soil at top(m): 3.00
Depth of water table in firm soil(m): 5.00
Thickness of soil layer below base of the pier or pile group(m): 10.00
Factor of safety for sbp: 3
Factor of safety for skin friction: 3
Permissible settlement(mm): 75
Beta value: 0.45
Alpha value: 0.75

Pier:

Length(m): 18.00
Diameter(m): 2.90
Volume(m3): 118.89

Pile group:

Length(m): 18.00
Diameter(m): 0.40
Number: 20
Volume(m3): 45.24

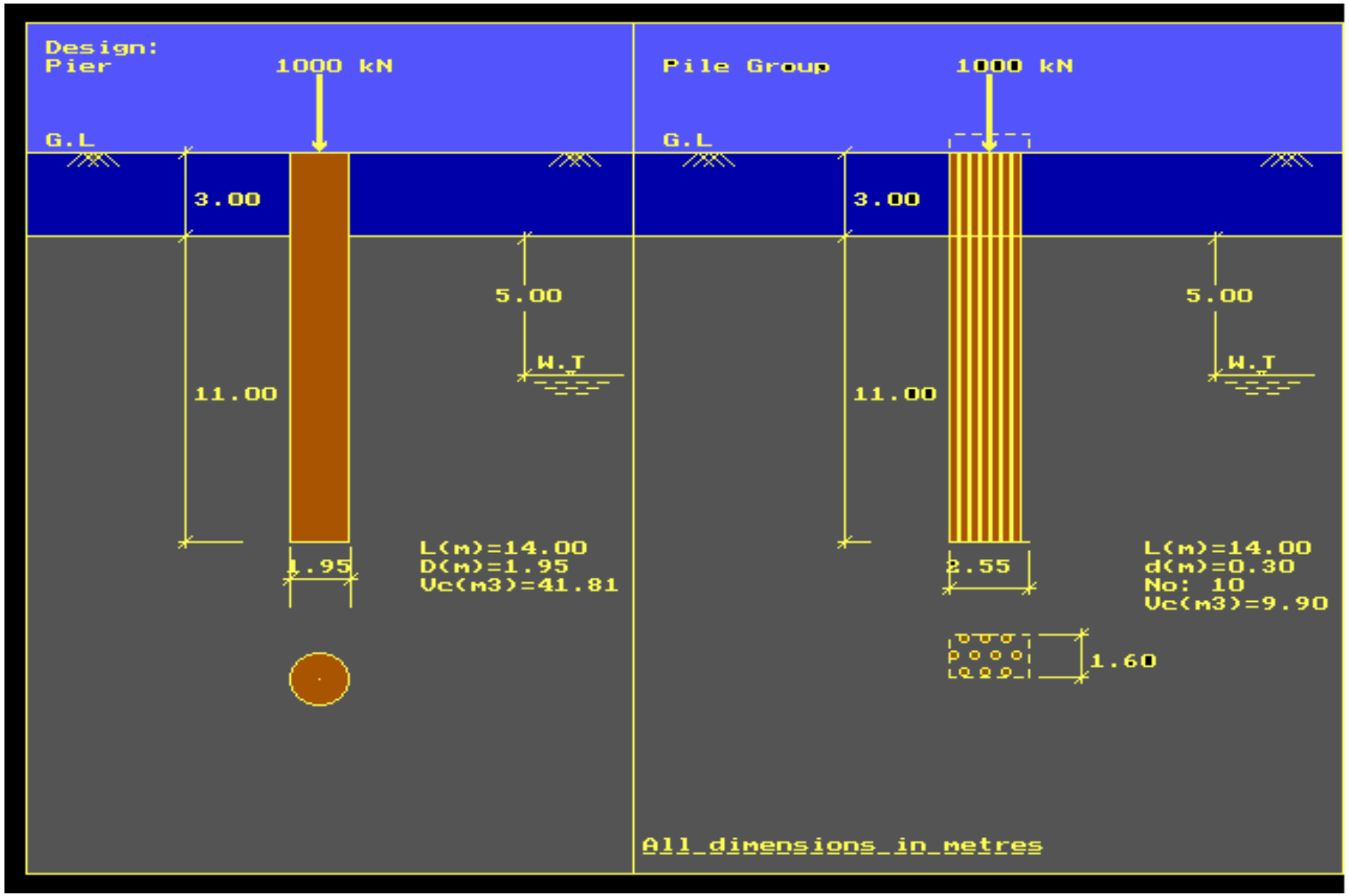
Design:
Pier
1000 kN
G.L
3.00
11.00
5.00
W.T
L(m)=14.00
D(m)=1.95
Vc(m3)=41.81
1.95
Pile Group
1000 kN
G.L
3.00
11.00
5.00
W.T
2.55
L(m)=14.00
d(m)=0.30
No: 10
Vc(m3)=9.90
1.60
All_dimensions_in_metres

Fig.5.1

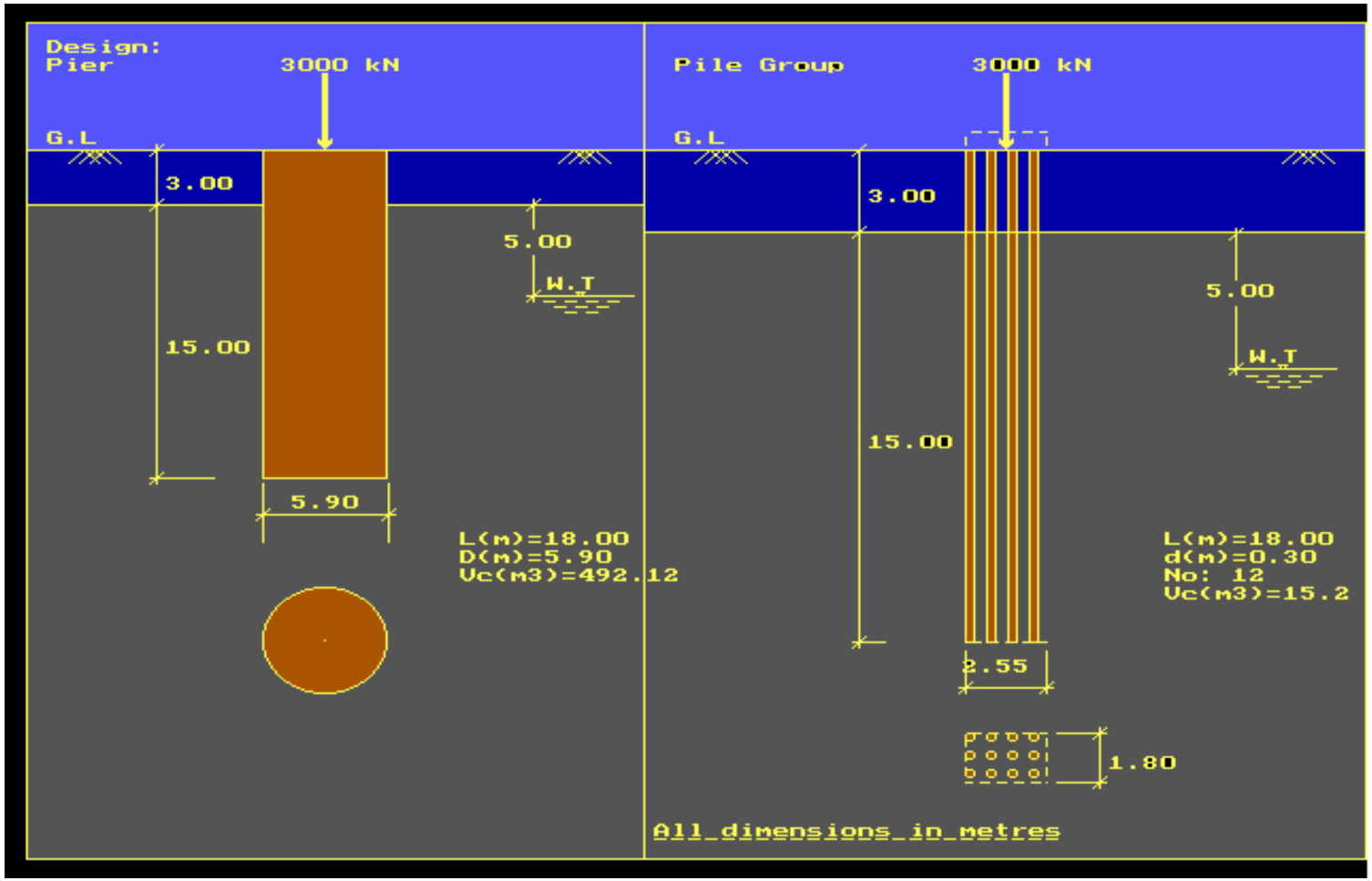
Design:
Pier
3000 kN
G.L
3.00
15.00
5.00
W.T
5.90
L(m)=18.00
D(m)=5.90
Vc(m3)=492.12
Pile Group
3000 kN
G.L
3.00
15.00
5.00
W.T
2.55
1.80
L(m)=18.00
d(m)=0.30
No: 12
Vc(m3)=15.2
All_dimensions_in_metres

Fig.5.2

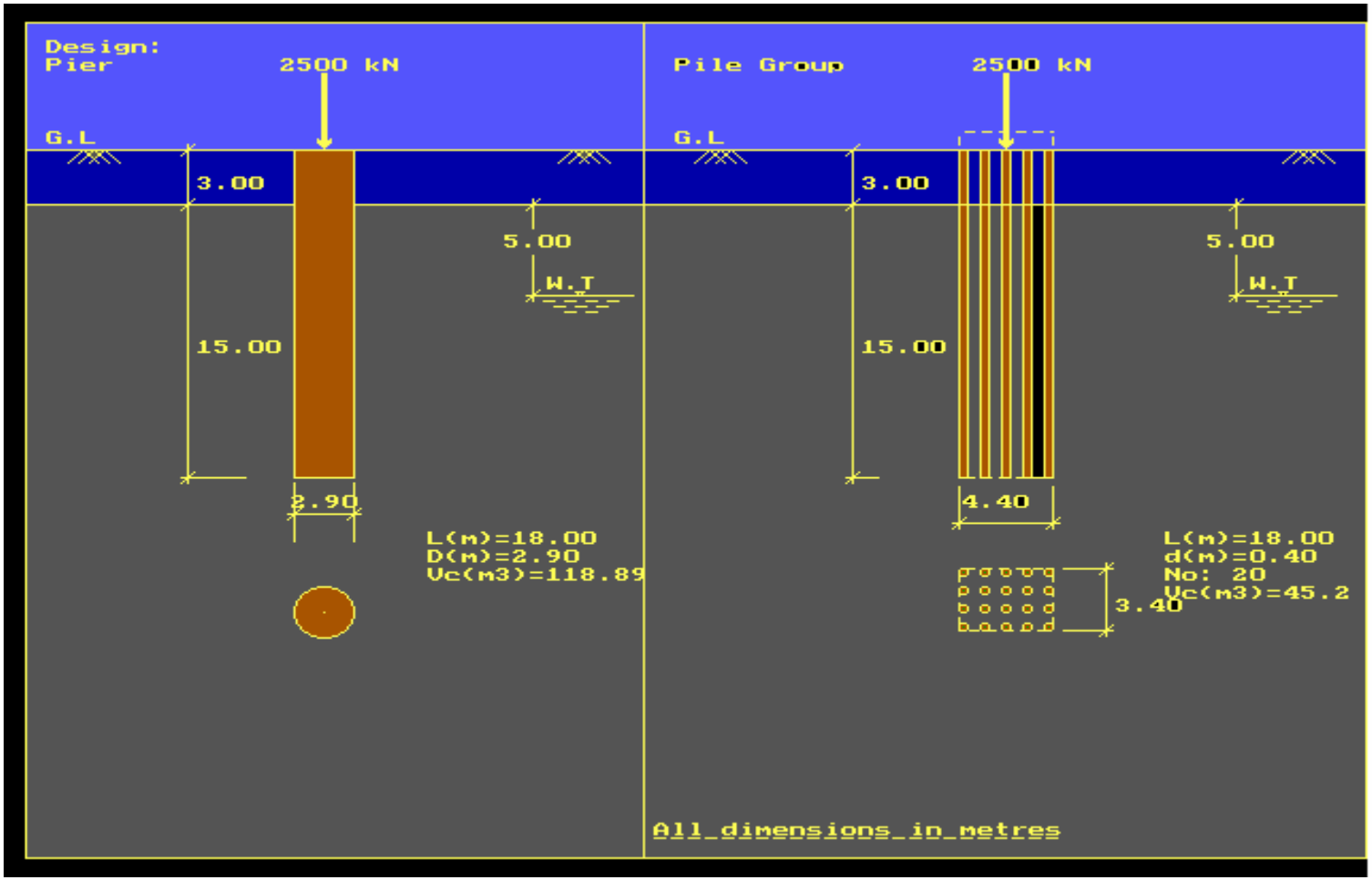
Design:
Pier
2500 kN
G.L
3.00
5.00
W.T
15.00
2.90
L(m)=18.00
D(m)=2.90
Vc(m3)=118.89
Pile Group
2500 kN
G.L
3.00
5.00
W.T
15.00
4.40
3.40
L(m)=18.00
d(m)=0.40
No: 20
Vc(m3)=45.2
All_dimensions_in_metres

Fig.5.3