

INDEPENDENT FOOTINGS IN CLAY:

Enter the type of soil,1 for clay,2 for sand,3 for c-phi soil,4 for layered soil

1

Depth of water table (Dw)(m).....=1.80

Total number of boreholes in the site =2

 BH. X-cor. Y-cor.
 No. (m) (m)

 1 8.0 4.0

 2 7.0 14.0

Enter the soil data from BH No..... 1

Interval at which data is entered(m)....= 1.0

Depth of the soil(m)= 8.0

Number of depths with missing data...= 1

Choose Item 1 or 2 for soil property

1.Unconfined compressive strength, 2.SPT N-value

1

1.Cc is given, 2.determined from WL, 3.determined from e0

3

 Depth qu Cc e0 Unit wt.
 (m) (kN/m2) (kN/m3)

 0.00 50.0 0.31 1.3 16.6

 1.00 100.0 0.25 1.1 17.7

 2.00 167.5 0.19 0.9 18.1

 3.00 180.5 0.10 0.6 19.0

 4.00 120.2 0.16 0.8 17.0

 5.00 241.5 0.07 0.5 19.7

 6.00 300.0 0.04 0.4 20.0

 7.00 203.0 0.07 0.5 19.2

 8.00 ---- ---- ---- ----

Enter the soil data from BH No..... 2
Interval at which data is entered(m).....= 1.0
Depth of the soil(m)= 8.0
Number of depths with missing data....= 0
Choose Item 1 or 2 for soil property
1.Unconfined compressive strength, 2.SPT N-value
2
1.Cc is given, 2.determined from WL, 3.determined from e0
2

Depth (m)	N-value (field)	N-corr.	qu (kN/m2)	WL (%)	Cc	e0	Unit wt. (kN/m3)
0.00	3	6.00	60.0	35	0.22	1.4	15.0
1.00	7	11.33	113.3	30	0.18	1.2	16.4
2.00	10	13.94	139.4	26	0.14	1.1	17.8
3.00	16	20.96	209.6	20	0.09	0.9	19.3
4.00	14	17.46	174.6	22	0.11	1.0	18.2
5.00	20	23.71	237.1	18	0.07	0.8	19.9
6.00	25	28.31	283.1	17	0.06	0.7	20.0
7.00	18	19.62	196.2	20	0.09	0.8	19.0
8.00	27	28.32	283.2	17	0.06	0.7	20.1

No. of footings to be designed:
4

Ftg. No.	X-cor. (m)	Y-cor. (m)	Load (kN)	B/L ratio	Df (m)
1	5.0	5.0	560.0	1.0	1.9
2	12.0	5.0	700.0	0.8	2.0
3	5.0	10.0	400.0	1.0	1.8
4	12.0	10.0	500.0	1.0	2.0

PRIMARY DESIGN OF INDEPENDENT FOOTINGS:

Permissible settlement for spread footing(S_p)(mm)....= 75

Steps of iteration for spread footings(mm).....= 50

Ftg. No.	Nearest BH	B_i (m)	B (m)	L (m)	D (m) (assumed)	NLI (kN/m ²)	SBP (kN/m ²)	S (mm)	No. of Iter.	Gov. Para.
1	1	1.75	1.65	165	0.44	209	210	66	2	BC
2	1	1.90	1.70	2.15	0.48	195	201	66	4	BC
3	2	1.60	1.35	1.35	0.40	223	224	43	5	BC
4	2	1.75	1.50	1.50	0.44	226	235	46	5	BC

REDESIGN FOR DIFFERENTIAL SETTLEMENT:

Permissible diff.settlement for footings(dS_p).....= $C \times 0.0015$

Sl. No.	Ftg. pair	Dist. C(m)	dS_p (mm)	Orig. dS (mm)	Final dS (mm)	No. of Iter.
1	1-2	7.00	10	0	0	0
2	1-3	5.00	8	23	7	17
3	1-4	8.60	13	5	5	0
4	2-3	8.60	13	22	12	10
5	2-4	5.00	8	10	7	3
6	3-4	7.00	10	3	3	0

FINAL DESIGN OF INDEPENDENT FOOTINGS:

Ftg. No.	B (m)	L (m)	Df (m)	NLI (kN/m ²)	SBP (kN/m ²)	S (mm)
1	2.50	2.50	1.9	93	210	50
2	2.35	2.95	2.0	105	201	53
3	1.35	1.35	1.8	223	224	43
4	1.50	1.50	2.0	226	235	46

Sum area of footings(after revision)(m2)= 17.25
Plan area (m2).....= 35.00
Ratio(Sum area/Plan area).....= 49 %

RETAIN FOOTINGS
-Exit-











