

Calculation of Shaft Friction Component of a Single CFA Pile Bearing Capacity

| N° of geological soil element | Soil type | Thickness, m | γ_{cf} | N° of layer | Thickness of a layer, m h_i | Average layer's depth, m | Design value of layer's resistance, kPa, f_i | $\gamma_{cf} \times h_i \times f_i$, kPa·m | |
|---|-----------------------|--------------|----------------------------------|-------------|-------------------------------|--------------------------|--|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1 | Silt soil: silty sand | 2,40 | not recommended as a base ground | | | | | | |
| 2 | Peaty soil | 0,75 | not recommended as a base ground | | | | | | |
| 3 | Silty sand | 1,20 | 0,70 | 1 | 1,20 | 3,750 | 26,50 | 22,26 | |
| 2 | Peaty soil | 2,15 | not recommended as a base ground | | | | | | |
| 4a | Silty sand | 1,60 | 0,70 | 2 | 1,60 | 6,800 | 31,80 | 35,616 | |
| 4 | Silty loam | 6,80 | 0,70 | 3 | 2,00 | 9,100 | 2,50 | 3,5 | |
| | | | | 4 | 2,00 | 11,100 | 2,50 | 3,5 | |
| | | | | 5 | 1,80 | 13,000 | 2,50 | 3,15 | |
| | | | | 6 | 1,00 | 14,400 | 2,50 | 1,75 | |
| 5 | Sandy loam | 1,85 | 0,70 | 7 | 1,85 | 15,825 | 1,15 | 1,49 | |
| 6 | Loam | 4,70 | 0,70 | 8 | 2,00 | 17,750 | 3,50 | 4,90 | |
| | | | | 9 | 1,70 | 19,600 | 3,50 | 4,17 | |
| | | | | 10 | 1,00 | 20,950 | 3,50 | 2,45 | |
| 7 | Sandy loam | 4,10 | 0,70 | 11 | 2,00 | 22,450 | 10,00 | 14,00 | |
| | | | | 12 | 1,10 | 24,000 | 10,00 | 7,70 | |
| | | | | 13 | 1,00 | 25,050 | 10,00 | 7,00 | |
| 10 | Loam | 0,60 | 0,70 | 14 | 0,60 | 25,850 | 174,71 | 73,38 | |
| 11 | Silty clay | 1,85 | 0,60 | 15 | 1,85 | 27,075 | 316,50 | 351,32 | |
| $\Sigma(\gamma_{cf} \times h_i \times f_i) =$ | | | | | | | | 536,18 | |