1.3.6 SHALLOW FOUNDATIONS

- The foundation level should be in compliance with the architectural requirements.
- Net allowable bearing pressure to be determined considering shallow foundations at the foundation level using practical experience and the results obtained from the field standard penetrations tests, the empirical equations developed by Terzhagi-Peck/Merehof and modified by Bowles considering a proper FOS against shear failure of the soil.
- Using the calculated allowable bearing pressure value, the total settlement for isolated/strip footing and raft foundation shall be within 25mm & 50mm respectively. The differential settlements should be indicated.
- The proposed foundation recommendations must ensure that an adequate safety factor against likely uplift pressure established based on selected Design GW level is satisfactory to local authority and / or project requirements particularly when basement floor(s) exist.
- Modulus of sub-grade reaction ks (kN/m3) shall be indicated in the soil report when the raft foundation is recommended.
- The foundation ground must be proof rolled with vibratory compactor to confirm that any loose materials are compacted to not less than 95% of the maximum dry density obtained by performing modified Procktor test.
- The specialist should confirm in writing that the undesirable materials have been removed, the foundation ground has been inspected and the recommended bearing capacity corresponding to the foundation depth is properly achieved.

1.3.7 PILE FOUNDATIONS

- The soil report should propose the suitable type of pile to be used, the allowable working loads in compression and tension considering minimum factor of safety of 2.5. Piles spacing should be recommended in the piling recommendations Minimum 2.5 the pile diameter, Fig. (1.15). It should be noted that the minimum pile toe level should be at least at depth of two times the diameter of pile socketed in the hard strata in order to consider this strata in the design.
- The geotechnical report shall include an estimate of single pile

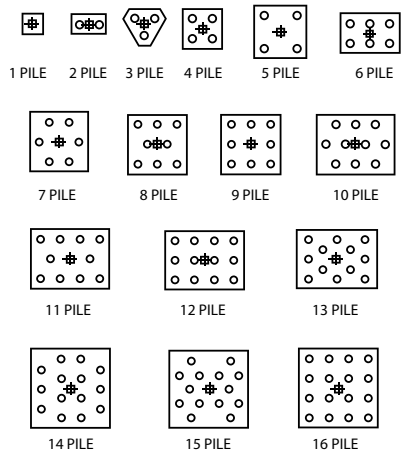

Fig. (1.15): Piles Distribution

vertical and lateral stiffness for the adopted pile cut off levels and penetration depths. Lateral stiffness shall be based on cyclic conditions. The assessment of pile group effects on vertical and lateral stiffness shall be performed by the foundation design Engineer.

- For bored cast-in-situ piles, settlements of the order of 1% of the pile diameter is normally required to mobilize full skin friction whereas full bearing is developed at much higher settlements (usually at 10% of pile diameter). Therefore, it is recommended that the pile capacity shall be based on full skin friction and partial end bearing.
- Where the borehole depth is not satisfactory for the design, additional boreholes should be carried out to the required depth to reconfirm the continuity of the strata.

1.3.8 FOUNDATION CONCRETE

Concrete mix design should consider strictly the chemical analysis data for both soil and water and to be in line with Trakhees Construction Materials Quality Control Guidelines.

1.3.9 LIQUIFACTION:

The likely liquefaction induced effects are:

- Settlement.