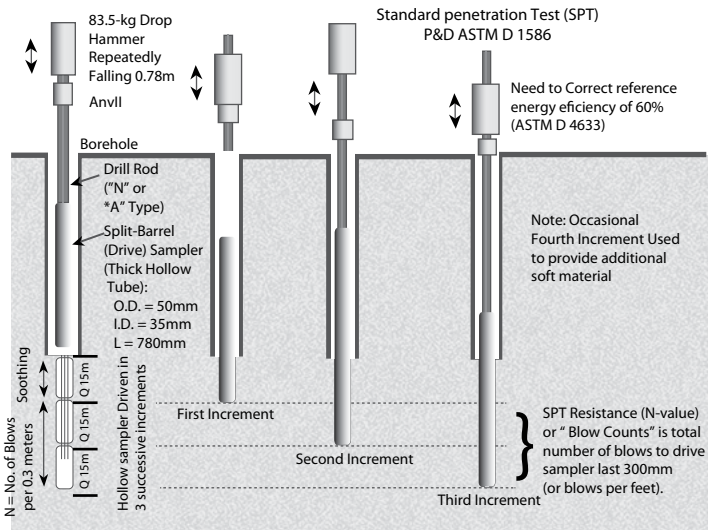


- 1.2.3 For pad and strip foundations, the depth of soundings or borings below the anticipated foundation level should normally be between 2.5 and 3 times the width of the foundation elements (minimum 8.0m depth for any borehole). Greater depths should usually be investigated in some of the exploration points to assess the settlement conditions and possible ground water problems subject to the specialist recommendation. For rafts, the depth of in-situ tests or borings should normally be equal to the foundation width.
- 1.2.4 Normally exploration should be undertaken below all deposits that may be unsuitable for foundations purposes, e.g. made ground and weak compressible soils, including weak strata overlain by a layer of higher bearing capacity. If rock is found, a penetration of at least 3.00 m in more than one borehole may be required to establish whether bedrock or a boulder has been encountered.
- 1.2.5 For piled foundations, the borings, penetration tests or other in-situ tests should normally be performed to explore the ground conditions to such depth that ensures the design certainty. The exploration depth below the pile toe level normally taken as 5 times the diameter of the pile shaft or 5.00 m whichever is greater. However, there will be cases when substantially deeper soundings or borings are needed subject to the specialist advice. It is also a requirement that the investigation depth shall be at least equal to the width of the rectangle circumscribing the group of piles forming the foundation measured downward from the pile toes level.
- 1.2.6 The greater the natural variability of the ground, the greater the extent of the ground investigation required to obtain an indication of the character of the ground to establish the overall geological structure. The lateral and vertical extent of the investigation should cover all ground that may be significantly affected by the new works or their construction. An intensive investigation can only reduce uncertainties.
- 1.2.7 Boreholes coordinates (x, y) as well as the levels referred to DMD to be presented on the site layout. The site layout should reflect the essential data such as the plot limits, legend, north direction, neighbouring structures, traffic, utilities, vegetation, hazardous chemicals ...etc as shown in Fig. (1.1).
- 1.2.8 Suitably qualified and experienced geotechnical engineer should normally be responsible for recording the information obtained from the borehole as it arises at field; this should include a measured record of strata, with simple soil and rock descriptions. The driller in charge of an individual drilling rig should be skilled in the practice of exploration of the ground by means of boreholes, simple sampling and testing, making groundwater observations in boreholes, and properly recording the in-

formation obtained. The boring log shall highlight and describe any fluid loss (mud loss) during drilling at any depth interval, and where ever open cavities were encountered, (as sudden drop of drilling rods, etc...) description of the depth interval and field observations shall be included. Boreholes should be carefully backfilled, concreted or grouted up. Trial excavations should be outside the proposed foundation areas.

- 1.2.9 Geological stratum or design borehole must clarify the thickness of each soil layer with the characteristic properties.
- 1.2.10 At the top of Sand stratum, and thereafter at 1 m intervals of depth, a standard penetration test should be carried out as per Fig. (1.2). For Rock layers, Continuous rotary core sampling should be used as shown in Fig. (1.3). Correlation between SPT Blows & Sand Relative Density is as per Table (1.1).



Schematic presentation of an standarf Penetration Test

Fig. (1.2): Procedures for Standard Penetration Test (SPT)