- ASTM D 3148-02 - Standard Test Method for Elastic modulii of intact rock core specimen in uni-axial compression.
- Where conflicts exist, the most stringent specification should be applied.

INCREASING GRAIN SIZE OF PARTICULATE DEPOSITS

	0.002mm	0.06mm	2mm	60mm	
INCREASING LITHIFICATION	Carbonate MUD (carb. clay)	Carbonate SILT	Carbonate SAND	Carbonate GRAVEL	90
	Clayey Carbonate MUD (carbonate clay)	Siliceous Carbonate SILT	Siliceous Carbonate SAND	Siliceous Carbonate GRAVEL	50
	Calcareous CLAY	Calcareous Silica SILT	Calcareous Silica SAND	Calcareous Silica GRAVEL	10
	CLAY	Silica SILT	Silica SAND	Silica GRAVEL	
	CALCILUTITE(carb.mudstone)	CALCISILTITE(carb.siltstone)	CALCARENITE(carb.mudstone)	CALCIRUDITE(carb.congl. or breccia)	90
	Clayey CALCILUTITE	Siliceous CALCILUTITE	Siliceous CALCARENITE	Siliceous CALCIRUDITE	50
	Calcareous CLAYSTONE	Calcareous SILTSTONE	Calcareous SANDSTONE	Calcareous CONGOLOMERATE	10
	CLAYSTONE	SILTSTONE	SANDSTONE	CONGLOMERATE or BRECCIA	
	Fine grained LIMESTONE		Detrital LIMESTONE		90
	Fine grained Argilaceous LIMESTONE	Fine grained Siliceous LIMESTONE	Siliceous Detrital LIMESTONE	Conglomeratic LIMESTONE	50
	Calcareous CLAYSTONE	Calcareous SILTSTONE	Calcareous SANDSTONE	Calcareous CONGOLOMERATE	10
	CLAYSTONE	SILTSTONE	SANDSTONE	CONGLOMERATE or BRECCIA	
	CRYSTALLINE LIME STONE or MARBLE				50
	Conventional metamorphic nomenclature applies in this section				

TOTAL CARBONATE CONTENT

Approximate Uncontined Compressive Strenth	Very soft to hard (<36 to 300kn/m2)	Hard to moderately weak (0.3 to 12.5 MN/mn2)	moderately strong to strong (12.5 to 100MN/m2)	strong to extremenly strong (70 to > 240MN/m2)
Degree of induration	Non-indurated	Slightly indurated	Moderately indurated	Highly indurated

Table (1.8): Carbonate Classification System

1.2.19 Performing engineering analysis of field and laboratory findings.

1.2.20 The visual description of the geotechnical engineer at site for soil samples and procedures used for sampling, transportation and storage.

1.2.21 Method of sampling the undisturbed, Split Spoon (for SPT) for disturbed samples. Fig. (1.2).

1.2.22 Tabulation of quantities of field and laboratory work, presentation of field observations which were made by the supervising field personnel during

the subsurface explorations.

1.2.23 Presenting the ground or subsurface conditions and the geology of the site through the findings of the boreholes giving full details of the strata encountered on boreholes Logs having an accurate classification of the soils according to BS 5930:1999. The boreholes Logs must indicate the necessary figures that describing the relative density of the coarse grained-soils and the quality and the strength of rock such as:

- Standard Penetration Test (S.P.T) with cone or without. Fig. (1.2)
- Water content (W.C.) for cohesive soils.
- Liquid Limit (L.L.) for cohesive soils.
- Plastic Limit (P.L.) for cohesive soils.
- Unit weight of soil (ϒs) above and below the ground water table. Table (1.3).
- Sieve analysis of soils.
- Hydrometer analysis for soils having %fines greater than 10%.
- Free Swell (F.S.) for swelling soils.
- Rock Quality Designation (RQD) for rock soils. Table (1.4)
- Total and Solid Core Recovery (TCR & SCR) for rock soils. Fig. (1.3).
- Unconfined Compressive Strength (UCS) for rock soils. Table (1.6)
- Point load tests on rock samples.
- Pressure meter test. Fig (1.4)
- And other any specialized tests that may be specified in the project specification including:
  - Instrumented UCS tests to measure the small local modulus and Poisson's ratio. Table (1.7).
  - UU and CD tri-axial compression tests on soil and weak rock, including instrumented tests for local modulus determination. Table (1.7).
  - Consolidation tests on cohesive soils.
  - Collapse potential tests on upper sand within the upper zone of un-saturation.