

## ESTIMATE TEST GEOTECHNICAL PARAMETERS Nr.1

## COHESIVE SOIL S

Undrained cohesion

Description	Nspt	Layer depth (m)	Correlation	Cu (Kg/cm?)
Layer (3) Clayey silt	8,34	5,10-5,80	Terzaghi-Peck	0,56
Layer (5) Clayey silt	9,56	9,40-10,10	Terzaghi-Peck	0,65
Layer (7) Silt	11,98	13,90-15,50	Terzaghi-Peck	0,81

Qc (CPT Cone resistance)

Description	Nspt	Layer depth (m)	Correlation	Qc (Kg/cm?)
Layer (3) Clayey silt	8,34	5,10-5,80	Robertson (1983)	16,68
Layer (5) Clayey silt	9,56	9,40-10,10	Robertson (1983)	19,12
Layer (7) Silt	11,98	13,90-15,50	Robertson (1983)	23,96

Oedometric module

Description	Nspt	Layer depth (m)	Correlation	Eed (Kg/cm?)
Layer (3) Clayey silt	8,34	5,10-5,80	Stroud e Butler (1975)	38,26
Layer (5) Clayey silt	9,56	9,40-10,10	Stroud e Butler (1975)	43,86
Layer (7) Silt	11,98	13,90-15,50	Stroud e Butler (1975)	54,96

Young's modulus

Description	Nspt	Layer depth (m)	Correlation	Ey (Kg/cm?)
Layer (3) Clayey silt	8,34	5,10-5,80	Apollonia	83,40
Layer (5) Clayey silt	9,56	9,40-10,10	Apollonia	95,60
Layer (7) Silt	11,98	13,90-15,50	Apollonia	119,80

AGI Classification (Assoc. It. Geolog.)

Description	Nspt	Layer depth (m)	Correlation	Classification
Layer (3) Clayey silt	8,34	5,10-5,80	A.G.I. (1977)	CONSISTENTE
Layer (5) Clayey silt	9,56	9,40-10,10	A.G.I. (1977)	CONSISTENTE
Layer (7) Silt	11,98	13,90-15,50	A.G.I. (1977)	CONSISTENTE

## Unit weight

Description	Nspt	Layer depth (m)	Correlation	Unit weight (t/m <sup>3</sup> )
Layer (3) Clayey silt	8,34	5,10-5,80	Meyerhof ed altri	1,91
Layer (5) Clayey silt	9,56	9,40-10,10	Meyerhof ed altri	1,95
Layer (7) Silt	11,98	13,90-15,50	Meyerhof ed altri	2,02

## Saturated unit weight

Description	Nspt	Layer depth (m)	Correlation	Saturated unit weight (t/m <sup>3</sup> )
Layer (3) Clayey silt	8,34	5,10-5,80	Meyerhof ed altri	2,10
Layer (5) Clayey silt	9,56	9,40-10,10	Meyerhof ed altri	2,14
Layer (7) Silt	11,98	13,90-15,50	Meyerhof ed altri	2,22

## Shear wave velocity

Description	Nspt	Layer depth (m)	Correlation	Shear wave velocity (m/s)
Layer (3) Clayey silt	8,34	5,10-5,80	Ohta & Goto (1978) Low plasticity clays and silty clays	136,96
Layer (5) Clayey silt	9,56	9,40-10,10	Ohta & Goto (1978) Low plasticity clays and silty clays	156,9
Layer (7) Silt	11,98	13,90-15,50	Ohta & Goto (1978) Low plasticity clays and silty clays	176,6

**COHESIONLESS SOIL S**

## Relative density

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Relative density (%)
Layer (1) Layer	21,28	0,00-2,50	21,28	Gibbs & Holtz 1957	60,08
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Gibbs & Holtz 1957	66,76
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Gibbs & Holtz 1957	55,83
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Gibbs & Holtz 1957	52

## Shear resistance angle

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Angle of friction (°)
Layer (1) Layer	21,28	0,00-2,50	21,28	Sowers (1961)	33,96
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Sowers (1961)	35,6
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Sowers (1961)	33,07
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Sowers (1961)	32,35

## Young's modulus

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Young's modulus (Kg/cm <sup>2</sup> )
Layer (1) Layer	21,28	0,00-2,50	21,28	Bowles (1982) Sabbia Media	181,40
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Bowles (1982) Sabbia Media	210,80
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Bowles (1982) Sabbia Media	165,45
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Bowles (1982) Sabbia Media	152,75

## Oedometric module

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Oedometric module (Kg/cm <sup>2</sup> )
Layer (1) Layer	21,28	0,00-2,50	21,28	Begemann 1974 (Ghiaia con sabbia)	71,17
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Begemann 1974 (Ghiaia con sabbia)	83,25
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Begemann 1974 (Ghiaia con sabbia)	64,62
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Begemann 1974 (Ghiaia con sabbia)	59,40

## AGI Classification (Assoc. It. Geolog.)

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	AGI Classification (Assoc. It. Geolog.)
Layer (1) Layer	21,28	0,00-2,50	21,28	Classification A.G.I	MODERATELY THICKENED
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Classification A.G.I	MODERATELY THICKENED
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Classification A.G.I	MODERATELY THICKENED
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Classification A.G.I	MODERATELY THICKENED

## Unit weight

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Unit Weight (t/m <sup>3</sup> )
Layer (1) Layer	21,28	0,00-2,50	21,28	Meyerhof ed altri	2,02
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Meyerhof ed altri	2,11
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Meyerhof ed altri	1,95
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Meyerhof ed altri	1,89

## Saturated unit weight

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Saturated Gamma (t/m <sup>3</sup> )
Layer (1) Layer	21,28	0,00-2,50	21,28	Terzaghi-Peck 1948-1967	2,42
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Terzaghi-Peck 1948-1967	2,50
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Terzaghi-Peck 1948-1967	1,97
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Terzaghi-Peck 1948-1967	1,95

## Poisson's modulus

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Poisson
Layer (1) Layer	21,28	0,00-2,50	21,28	(A.G.I.)	0,31
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	(A.G.I.)	0,3
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	(A.G.I.)	0,32
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	(A.G.I.)	0,32

## Dynamic shear modulus

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	G (Kg/cm <sup>2</sup> )
Layer (1) Layer	21,28	0,00-2,50	21,28	Ohsaki (Sabbie pulite)	1151,35
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Ohsaki (Sabbie pulite)	1448,13
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Ohsaki (Sabbie pulite)	988,34
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Ohsaki (Sabbie pulite)	857,31

## Shear wave velocity

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Shear wave velocity (m/s)
Layer (1) Layer	21,28	0,00-2,50	21,28	Ohta & Goto (1978) Silts	121,22
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Ohta & Goto (1978) Silts	156,71
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Ohta & Goto (1978) Silts	166,98
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Ohta & Goto (1978) Silts	177,65

Coefficient of earth pressure at rest  $K_0 = \sigma_H / \sigma_V$ 

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	$K_0$
Layer (1) Layer	21,28	0,00-2,50	21,28	Navfac 1971-1982	4,27
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Navfac 1971-1982	5,20
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Navfac 1971-1982	3,71
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Navfac 1971-1982	3,23

## Qc (CPT Cone resistance)

Description	Nspt	Layer depth (m)	Nspt corrected for presence of water table	Correlation	Qc (Kg/cm <sup>2</sup> )
Layer (1) Layer	21,28	0,00-2,50	21,28	Robertson 1983	42,56
Layer (2) Sabbia limosa	27,16	2,50-5,10	27,16	Robertson 1983	54,32
Layer (4) Sabbia limosa	18,09	5,80-9,40	18,09	Robertson 1983	36,18
Layer (6) Sabbia limosa	15,55	10,10-13,90	15,55	Robertson 1983	31,10