

STUDY OF SEDIMENT FROM ONE SOIL THE PENETRATING SECTION PROJECT IN MASCARA ALGERIA

BELATARIS Bouabdellah¹, HAMADACHE Miloud² and MOULI Mohamed²

¹Laboratory of technical control, civil engineering in Relizane, Algeria

²Materials Laboratory, Department of Civil Engineering, National Polytechnic School Oran Algeria.

ABSTRACT

The study of sediment influences that is located in the river ground to the project of the penetrating sections situated in mascara algeria.

For this we have study all tests geotechnical soil to make the diagnosing these influences for obtaining the performance of the structural elements, there are situ test and others at the laboratory characterized the sampling of carrots and identify all soils quality in this area.

Keywords: Sediment, Penetrating, Soil, Carrots

INTRODUCTION

Sediment is a mineral or organic particles that are deposited by action of wind, water or glacial ice [1].

In this study we analyze the sediments located in the region of Mascara exactly in town of Hassine which is characterized by its flat topography to collapse and bowl alluvial sedimentation sandy clay, it is lined with reliefs made of different geological formations[2].

The experiences that we have made allowed us accurate knowledge about the characteristics of these sediments,

The tests which were performed on this sample are divided into two sections: test in laboratory and test in situ[3].

IN SITU TEST

We conducted a permeability test using the lefranc tes.t[3]

Lefranc Test

The results of absorption test are reproduced in semi logarithmic chart "Fig 1" there are two linear parts[4],[5]: the first correspond to the beginning of the test, it gives a coefficient of permeability $k=2.40 \cdot 10^{-7}$ m/s. the second corresponds to the end of the test, it gives a low coefficient of permeability $k=1.03 \cdot 10^{-8}$ m/s.

LABORATORY TEST

In laboratory we conducted several test such as atterberg limit[4],[5], determination of particle size

distribution by sedimentation, measuring of the methylene blue absorption capacity, the determination of the density of fine soils and direct shear.

The Results of the Laboratory Tests

The result of atterberg limit test "table I" show us a very plastic soil according to the chart of casagrande.[6]

The result of determination of particle size distribution by sedimentation "table II" show us that the soil shows us that the percentage of particle of clay is about 20 %, silt is about 80%.

The average result of measuring the methylene blue absorption capacity "table III" is 6.73 that mean the soil is clay.

The average result of density test "table IV" is 1.599 t/m^3 .

The result of direct shear "table V" is 0.936 bar for cohesion and the angle is 3.49° .

The average pressure of swelling is 2.753 bars.

Table I: Waterberg limit

Test	WL	WP	IP
01	66.66	29.69	36.97
02	67.44	29.89	37.55
03	66.31	28.88	37.43

Table II : measuring particle size [6],[7]

Sieve	%
0.09	100
0.06	83.15
0.045	73.22
0.033	62.11
0.022	50.11
0.013	38.95
0.008	30.15
0.005	20.44
0.003	14.79
0.001	7.48

Table III : methylene absorption test[8],[9]

Test	U
01	6.80
02	6.75
03	6.66

Table IV: density test

Test	γ_h	γ_d	Sr %
01	1.601	1.886	97.89
02	1.597	1.893	97.54
03	1.599	1.891	97.44

Table V: direct shear test[8],[9]

Test	C(bars)	ϕ
01	0.93	3.44
02	0.92	3.34
03	0.96	3.69

Table VI: swelling test

Test	Sp(bars)
01	2.59
02	2.71
03	2.96

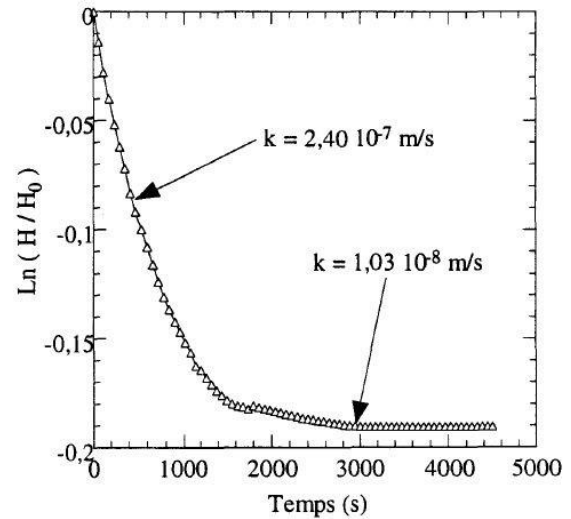


Fig. 1: Lefranc test.

CONCLUSIONS

We found that the analyzed soil had a strong tendency to swell because of its high swelling pressure index so a specific treatment must be performed to protect building against this phenomenon.

ACKNOWLEDGEMENTS

I would like to give a special thanks to Mr. HAMADACHE Miloud and Mr. MOULI Mohamed without whose guidance it would not have been possible to bring me this topic.

REFERENCES

- [1] Auzet A.V., Boiffin J., Ludwig, B., 1995. Concentred flow erosion in cultivated catchments: influence
- [2] Borselli L., Cassi P., Torri D., 2008. Prolegomena to sediment and flow connectivity in the landscape:
- [3] Daniel LEVACHER, Martin SANCHEZ, Zhibo DUAN, Cecil LEGUERN., (2008). physical and hydraulic properties of marine sediment to fill in reuse. Days Xth National Coastal Engineering. Civil engineering. 14-16 October 2008, Sophia Antipolis
- [4] Andrea et al. Utilization of Savannah harbor river sediment as the primary raw material in
- [5] M. Romero et al. Sintering behavior of ceramic bodies from contaminated marine sediment. Ceramic international .34(2008)1917-1924.
- [6] NF P94-051 Liquid limit to the cup
- [7] NF P94-051 Plastic limit roller
- [8] NF P94-052.1 Liquid limit the penetration cone
- [9] NF P94-060.1 Volume shrinkage limit