# 1軸試験データの有効利用法-応力解放・乱れを含んだqu値の力学的解釈に基づく補正-

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# 1988 Fiscal Year Final Research Report Summary

## Utilization of unconfined compression strength --- Correction of stress reliese and disturbance in unconfined compression tests ---

Research Project

### Project/Area Number

62850092

### Research Category

Grant-in-Aid for Developmental Scientific Research

### Allocation Type

Single-year Grants

### Research Field

基礎・土質工学

### Research Institution

Kanazawa University

### Principal Investigator

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### Project Period (FY)

**1987 – 1988**

### Keywords

Unconfined compression strength / Undrained strength / Soft clay / Residual effective stress / Undisturbed sample / 円弧すべり法

### Research Abstract

Effective stress state of "undisturbed samples" collected from all over japan was investigated aiming at estimating the residual effective stress in the samples after experiencing sampling, trimming and being ready to be subjected to unconfined compression tests. The undrained strength mobilized along the slip circles was theoreticall derived. The average undrained strength along the slip circle being compared with the corrected unconfined compression strength indicated the appropriateness and the limitation of the usage of unconfined compression strength in the stability analysis of soft clay foundations. The

backanalysis of 24 case histories of actual failure of soft clay showed a reasonable agreement with the results obtained from the investigation on unconfined compression strength. the conclusions are as follows:
1. The effect of sample disturbance and stress release corresponds to within 0.1 in terms of the factor of safety.
2. The effect of loading rate in the field corresponds to about 0.2 in terms of the factor of safety. This indicates that the selection of construction method and construction sequence is more influencial to the stability of soft foundations rather than the degree of sample disturbance is.
3. The correction factor to be multiplied with the experimentally obtained unconfined compression strength in analysing the stability of soft clays is derived as a function of the plasticity index.

## Research Products (8 results)

All | Other

All | Publications (8 results)

[Publications] 松本江基: 第33回土質工学シンポジウム論文集-ウォーターフロント開発における土質工学上の諸問題-. 117-122 (1988)

[Publications] 太田秀樹: 土木学会論文集. 400/III-10. 45-54 (1988)

[Publications] 太田秀樹: サンプリングシンポジウム論文集. 35-40 (1989)

[Publications] Hideki Ohta: Proc.12th Int.Conf.on Soil Mechanics & Foundation Enarg. (1989)

[Publications] Koki,Matsumoto: "Analysis of behaviour of soft clay ground during excavation and embankment in a waterfront reclaimed land." Proc. 33rd Symposium on Soil Engineering --- Geotechnical Problems in Waterfront Development ---. 117-122 (1988)

[Publications] Hideki,Ohta: "Utilization of unconfined compressive strength in determing input parameters of elasto-viscoplastic finite element analysis" Proc. Japan Society of Civil Engineers. No.400, III-10. 45-54 (1988)

[Publications] Hideki,Ohta: "Residual effective stress in "undisturbed" samples" Proc. Sampling Symposium. 35-40 (1989)

[Publications] Hideki,Ohta: "Unconfined compression strength of soft aged clays" Proc. 12th Int. Conf. on Soil Mech. and Foundation Engrg. (1989)

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