

WEATHERING AND ITS RELATION TO ENGINEERING PROPERTIES OF SANDSTONE IN ISTANBUL, TURKEY

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Weathered sandstones are common in many parts of Istanbul, and many engineering structures have been constructed or will be constructed on these rocks. Important changes occur in the primary characteristics of the sandstone due to weathering. Ordovician aged sandstones in Istanbul in the northwest of Turkey were selected to determine the effects of weathering on the engineering properties of this type of rock. The sampling was performed where a uniform weathering profile was accessible in a road cut. A variety of petrographical, mineralogical, and chemical analyses and the engineering tests were carried out on the sandstone. The data were then analysed statistically to determine the quantitative relationships between various properties. The results indicate that the character of weathering is physical rather than chemical. There is a large reduction of the material strength as weathering increases. The mineralogical composition of the cement, textural and microstructural features in the rocks is recognised as important on the material strength.