Introduction

The Standard Penetration Test (SPT) is one of the oldest and most frequently used tests for geotechnical exploration. It is useful in a wide variety of soils, from weak clays and loose sands to very hard clays and dense sands. It provides a measure of the resistance of the soil to penetration through the blow count "N," and a disturbed but representative soil sample that can be used for classification and index tests.

The SPT has been used widely for preliminary exploration, and many useful correlations have been established between the blow count, N, and soil properties, foundation performance, and susceptibility to liquefaction. In recent years some engineers have developed various "corrections" for measured N-values to account for the effects of using different types of hammers, the effects of overburden pressure, and various other factors of less importance. While these corrections are desirable, their use has led to confusion regarding which correlations use corrected N-values and which use uncorrected N-values. The main purpose of this report is to remove that confusion.

The report presents what are considered to be the most useful and reliable correlations between SPT N-values and soil strength, soil compressibility, foundation bearing capacity, foundation settlement, and liquefaction potential. In each case it is made clear what corrections should be applied to the measured N-values.

The report also contains correlations between the Standard Penetration Test and the Becker Penetration Test, which is useful for soils that contain large gravel particles, where the SPT is unreliable.