

What is the N value of SPT? Explain the corrections to be applied to the observed value of N ?

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The N value of SPT (Standard Penetration Test) is a measure of the resistance of soil to penetration by a standard sampler driven by a standard weight dropped from a standard height. It is one of the most commonly used methods for geotechnical site investigations and is used to determine the soil's shear strength, density, and other engineering properties.

During an SPT test, a sampler is driven into the soil by a series of blows with a standard hammer. The number of blows required to drive the sampler a certain distance (usually 15 cm) is recorded as the N value. The N value is an empirical measure of the resistance of soil to penetration and is affected by several factors such as soil type, grain size, moisture content, and overburden pressure.

To obtain accurate results from an SPT test, several corrections need to be applied to the observed N value. The corrections include:

1. Borehole diameter correction: The N value is affected by the diameter of the borehole. A correction factor is applied to the observed N value to account for the size of the borehole.

2. Rod length correction: The N value is affected by the length of the rods used to drive the sampler. A correction factor is applied to the observed N value to account for the length of the rods.

3. Hammer efficiency correction: The energy delivered to the sampler during each blow is affected by the hammer efficiency. A correction factor is applied to the observed N value to account for the efficiency of the hammer.

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4. Overburden pressure correction: The N value is affected by the overburden pressure exerted on the soil. A correction factor is applied to the observed N value to account for the overburden pressure.

borehole can affect the N value. A correction factor is applied to the observed N value to account for the presence of drilling fluid.

By applying these corrections, the observed N value can be adjusted to account for various factors that affect the test results, and more accurate results can be obtained. It is important to apply these corrections to ensure that the N value is representative of the soil's actual resistance to penetration.

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