EFFECT OF LIME AND WHEAT STRAW ON OPTIMUM MOISTURE CONTENT AND MAXIMUM DRY DENSITY OF CLAYEY SOILS

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Abstract

Compaction characteristics of soil are of significance for any of a civil engineering project. Adequate degree of compaction is necessary prior to the construction of a structure in or on the surface of earth. In many of these cases without adding stabilizing agents the required degree of compaction may not be achieved. The addition of soil stabilizing agents may also change the optimum moisture content (OMC) and maximum dry density (MDD) of the soil. Therefore, prior to compaction, it is necessary to determine the effect of soil stabilizing agents on the compaction parameters. In this paper the effects of lime and wheat straw were investigated on OMC and MDD. A series of test was conducted using various percentages of lime and wheat straw added into the clayey soil. After dry mixing of stabilizing agents with soil, the samples were tested through modified proctor compaction to determine the OMC and MDD. The test results suggest that by the increase in lime and wheat straw contents, there is increase in the optimum moisture content of the soil and decrease in the maximum dry density. For instance, the optimum moisture content increased from 16% to 24% by adding 10% of wheat straw and similarly, the optimum moisture content increased from 16% to 22% by adding 10% of lime in to the soil. On the other hand; the maximum dry density decreased by 18 kN/m3 to 15.5 kN/m3 and 18 kN/m3 to 12.8 kN/m3 by adding 10% of lime and wheat straw respectively.