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DIRECT SHEAR TEST ON FLY ASH- LIME SOIL MIXTURES

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***Abstract*— Direct shear test run on the mixture of fly ash-lime mixed with clay. During this test, the dosage of lime was changed from 5 to 15%. The shear stress at failure were slightly changed.**

Keywords— **Direct Shear, Kaolinite, Lime**

I. INTRODUCTION

Direct shear test is one of the basic geotechnical test shows the shear strength of the soil against different normal stress [1-14]. This test is also used for soil stabilization investigations [15-26]. Addition of different by products along with a cementitious agent is very common method to improve mechanical characteristics of the soil [27-35]. Fly ash is an abundant by-product material that widely remains and used in different industry [35-49]. This study aims to investigate effect of addition of fly-ash lime into kaolinite clay.

II. MATERIALS

Following materials were used in this study:

a) Flyash:

The major ingredients of fly ash are Sio_2 with approximately 50% of content of fly ash.

b) Lime

The Cao was the major ingredients of the employed lime.

c) Clay

Clay used in this study obtained from a local provider.

III. COMPACTION TESTING

Table 1 shows the compaction characteristics of the mixes.

Table 1 Compaction characteristics of mixes

Sample Id	Lime	OMC %	MDD
F-L5	5	30	1.27
F-L10	10	32	1.19
F-L15	15	37	1.14

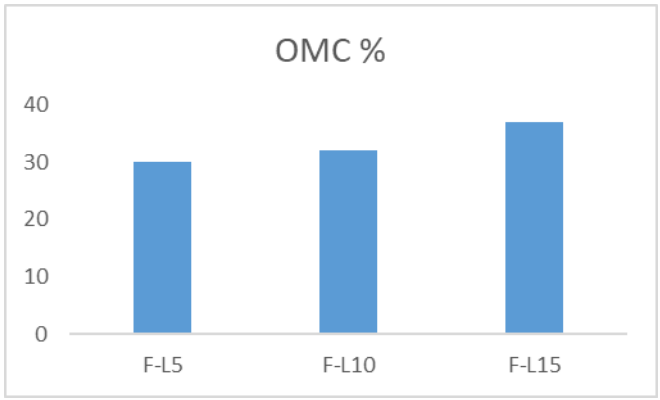

Fig. 1 Compaction characteristics of mixtures optimum moisture content (OMC).

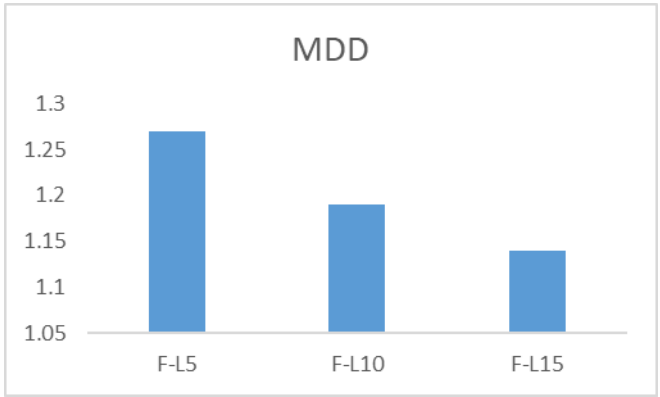

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Fig. 2 Compaction characteristics of mixtures maximum dry density (MDD).

IV. DIRECT SHEAR TEST

The direct shear test were run on the mixture of flyahs and lime. The lime percentage were changed from 5% to 15%. The normal stress were 100 kPa , 200 kPa and 300 kPa.

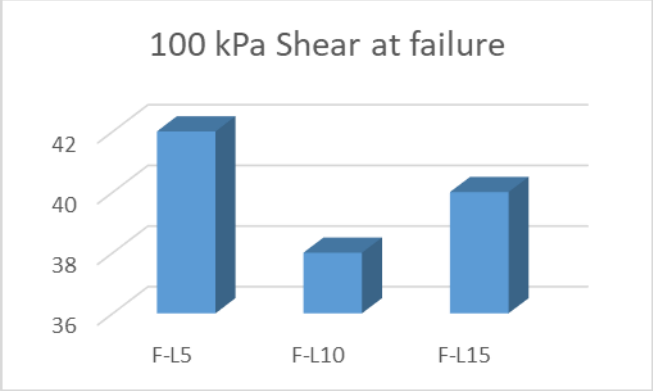

Fig. 3 Shear failure under 100 kPa normal stress.

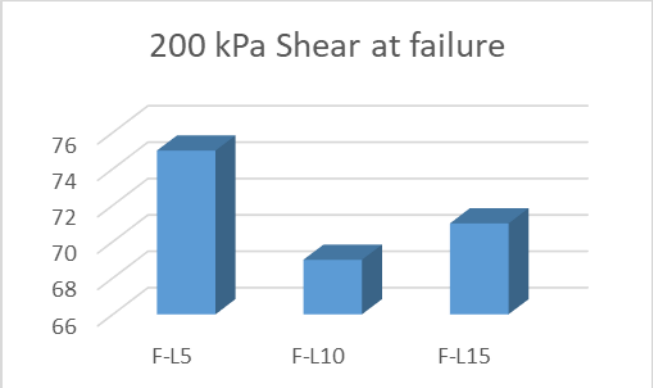

Fig. 4 Shear failure under 200 kPa normal stress.

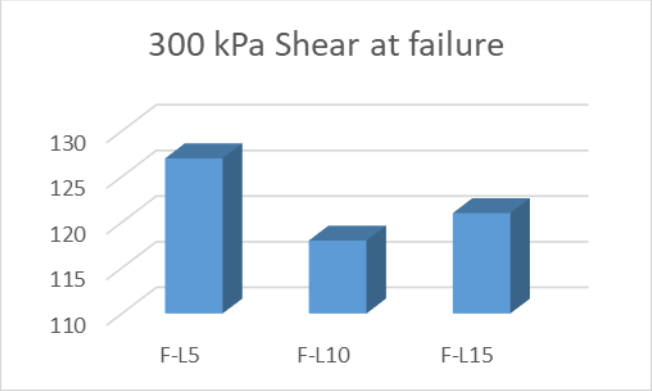

Fig. 5 Shear failure under 300 kPa normal stress.

V. CONCLUSION

The compaction results showed that increasing in lime decreases the MDD and increases OMC. The lime effect on shear stress up to 10% was decreasing and for 15% showed decreases.

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