

CONCLUSIONS AND RECOMMEDATIONS

6.1 CONCLUSIONS

1. It was concluded that nylon grid reinforcement of 0.12 ton tensile strength with three strands and soil strength parameters i.e. $c = 300$ psf and $\phi = 18^\circ$ is suitable material for earth reinforcement.
2. Nylon is found to be extensible polymeric material during the tensile strength and elongation tests, therefore, clamping and pulling arrangements would be required.
3. During pullout tests, the displacement in the nylon grid on wet of optimum was found to be more than dry of optimum, due to less friction in Ist case than later between soil and the composite. Therefore, it should be taken care during the construction of embankment that the design is based on dry of optimum of optimum to reduce the displacement of the nylon grid.
4. The number of nylon strands increase with loading to keep the nylon elongation in permissible limits. It was observed that with the increasing overburden from 0.72 ton to 2.88 ton, the resistance of the nylon grid also increased.
5. Standard nylon material strength of 0.12 ton is required to be achieved before using it as reinforcement.

6.2 RECOMMENDATIONS

1. After conducting the pullout tests on nylon rope of 0.12 ton tensile strength with three strands, and achieving good results in the design example of an embankment and a retaining wall for the height of 15 ft, it is recommended that the nylon grid should be used as soil reinforcement.
2. It was observed during the tests that the displacement on wet side of optimum moisture content was more than the dry side of optimum therefore, the

compaction of the soil should be done on dry side of optimum moisture content to reduce the displacement in the soil composite.

3. As nylon is sensitive material to ultraviolet rays and it can be damaged upon long exposure to sunlight therefore, an arrangement should be done to protect the nylon where it is exposed to sunlight.
4. Since the pullout apparatus was fabricated and several complications were faced during the tests therefore, for further research in soil reinforcement field, state of the art apparatus should be bought for pullout tests.
5. For the comparison of analytical results of pullout tests with experimental results, finite element analysis is recommended for further study.
6. Set of specifications should be formulated for nylon material strength and its chemical composition.
7. In temporary structures, nylon grid reinforcement is recommended for the military bunkers and underground trenches for its stability.
9. To prevent the short-term elongation in nylon and the process of pre-stretching, it is suggested that nylon should be manufactured in the industry with such consideration, which is stiff and of high tensile strength.