International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 04 Issue: 08 | August -2020 ISSN: 2582-3930

EXPERIMENTAL STUDY OF AN ECO-FRIENDLY PAVER BLOCK

Praveen Jesuraj.V[1](Assistant Professor), SSM Institute of Engineering and Technology, Dindigul, Tamil Nadu, India

Dhineshwaran.M[2],Manibalan.M[3],Rajesh.M[4],Vishnuram.M[5]

SSM Institute of Engineering and Technology

Dindigul, Tamil Nadu, India

ABSTRACT - The aim of this project is to replace cement with plastic waste in paver block and to reduce the cost of paver block when compared to that of conventional concrete paver blocks. The degradation rate of plastic waste is also a very slow process. Hence the project is helpful in reducing plastic waste in a useful way. In this project we have used plastic waste in different proportions with fly ash, coarse aggregate. The paver blocks were prepared and tested and the results werediscussed for 9 casts

We are using LDPE plastic waste and completely replacement of cement. Adding fly ash replacement for cement. We did this to make it necessary for unwanted waste. Using round dumblepaver blockmould. The materials used in this work are fine aggregate, coarse aggregate, fly ash, plastic LDPE (Low Density Poleyethelene).

Key words :plastic waste LDPE.

INTRODUCTION

Paver block paving is versatile, aesthetically attractive, functional, and cost effective and requires little or no maintenance if correctly manufactured and laid. Most concrete block paving constructed in India also has performed satisfactorily but two main areas of concern are occasional failure due to excessive surface wear, and variability in the strength of block. Natural resources are depleting worldwide at the same time the generated wastes from the industry and residential area are increasing substantially. The sustainable development for construction involves the use of Non- conventional and innovative materials, and recycling of waste materials in order to compensate the lack of natural resources and to find alternative ways conserving the environment.

Plastic waste used in this work was brought from the surrounding areas. Currently about 56 lakh tonnes of plastic waste dumped in India in a year. The dumped waste pollutes the surrounding environment. As the result it affects both human beings and animals in direct and indirect ways. Hence it necessary to dispose the plastic waste properly as per the regulations provided by our government. The replacement of plastic waste for cement provides potential environmental as well as economic benefits.

With the view to investigate the behavior of quarry rock dust, recycled plastic, production of plastic paver block from the solid waste a critical review of literature was taken up. An attempt was made by Nivetha C et.al to reuse the solid waste quarry dust fly-ash and PET with an aim not to lose the strength far from original Paver blocks. From the observations of test results, PET can be reused with 50% of quarry dust and 25 % of fly-ash in Plastic Paver block. The physical and mechanical properties of materials used in Plastic Paver block were investigated. For the test 6 cubes cube were cast for measuring Compressive strength. SatishParihar et.al used recycled plastic aggregate in various proportions in concrete mix and check there stability.Amount of waste plastic being accumulated in 21st centuries has created big challenges for their disposal, thus obliging the authorities to invest in felicitating the use of waste plastic coarse aggregate in a concrete is fundamental to the booming construction industry. Three replacement levels of 10 %, 20 %, 30 by weight of aggregates were used for the preparation of the concrete. Poonam Sharma et. al. discussed about cement concrete paver blocks for rural roads. The study of Joel Santhosh and RavikantTalluri indicated that fly ash and waste glass powder can effectively be used as cement replacement without substantial change in strength.

Materials used

Cement

Fine Aggregate, Coarse Aggregate, Fly Ash

Plastic (LDPE)

Equipment

Paver blockmould, Metal bucket.

OBJECTIVE AND SCOPE OF THE STUDY

- To reduce the weight of the conventional concrete.
- To increases the compressive strength of the concrete.