ABSTRACT

Problems that arise in a densely populated urban areas when heavy rains is a inundation and flood. Inundation and flood can occur due to the closing of open surface by impermeable layers. Impermeable layer that often used in Indonesia can be either asphalt, concrete, or paving. Impermeable layers (impervious pavement) can not save and release water into the soil layer underneath. Market paving stone can only reduce runoff through space between paving, while paving itself is impervious.

Pervious paving is a paving stonet which can pass water. In this research uses pervious pavings are made to reduce the runoff as well as flooding. Paving made in this study are made of cement and gravel of uniform size. Uniform gravel is expected to create space between the pebbles (the pores) where can enter into water. Variations in the study include variations in diameter of gravel, and cement composition. Variations in diameter of gravel are three types: 2.36 mm < x < 4.75 mm; 4.75 mm < x < 5.14 mm; and 9.5 mm < x < 14.25 mm. While for the variations of cement composition are 30%, 20% and 10% of the overall mass. Each variant will be examined by three tests, namely runoff test (to determine the ability of paving to reduce runoff using a rain simulator), infiltration rate test, and compressive strength test. In the runoff test there are rain runoff to discharge 0.145 L/second and 0.1516 L/second. Pervious paving had successfully made in this research and the result show that the maximum discharge that can be reduce, the maximum infiltration rate, and the maximum compressive strength of the pervious paving stone are 0.1426 L/second (98.3%); 5.15 cm/second; and 34.19 Mpa, respectively.

Keywords: Paving, Pervious paving, Rainwater, Runoff
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