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## Pilot Study of StormPav Green Pavement System

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## **Abstract**

Combining road and stormwater is proven possible by exploring the nature of modularity in Industrial-based Building System (IBS). This idea is to have a permeable road surface, storage cells under the road pavement using a green pavement technology named StormPav. These are high strength concrete pieces that consist of hollow cylinders sandwiched by top and bottom plates. Its ability to capture stormwater also adds a function to provide shallow inundation to conserve peat. A pilot study was constructed in a Kampung Mang in Sarawak, Malaysia on shallow peat. Reported here are the construction processes, first-hand observations of its stormwater impact and road subsidence.

**Keywords:** Potholes, Road Drainage, Rutting, Stormwater, Subsidence.

## 1. Introduction

StormPav Green Pavement [1] could contribute as an alternative to the existing asphalt roads. The shortcoming of asphalt roads lies in the imperviousness of the road surfaces. Stormwater tends to accumulate on the road surfaces during storm events, and in some worst cases, flash flooding would occur when road drainage is insufficient to pass the water away. Flash floods have been known to disrupt lives and activities of many urban dwellers.

On the other hand, StormPav Green Pavement is a new form of permeable road. It consists of three concrete pieces to make up a single modular unit. Referring to Figure 1, the top and bottom of the modular unit are hexagonal plates with service inlets. The inlet hole on the top plate allows water to be drained to the hollow cylinder under it; while the inlet hole on the bottom plate allows infiltration to the underlying soil. The cylinder piece functions as the temporary storage for stormwater runoff that would otherwise accumulate on road surfaces. The plates are interlocked with keys to create a monolithic structure for the top and bottom layers.

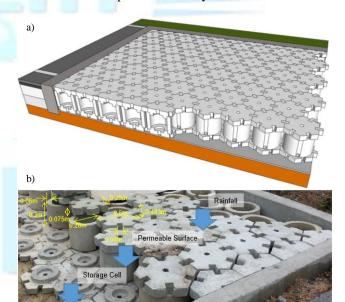


Fig. 1 StormPav Green Pavement, a) Technical Drawing and b) Stormwater Detention Mechanism.

General hydrological processes acted on a permeable road are described by [2] for a vertical downward path line (Table 1). The surface layer receives direct rainfall; while it losses water through permeation to storage layer,