



STORMWATER DETENTION IN ROAD SHOULDER USING STORMPAV GREEN PAVEMENT SYSTEM

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ABSTRACT

Computational Fluid Dynamics (CFD) is applied on StormPav Green Pavement system as combined road shoulder and stormwater detention structure. Applicability of the system is tested by simulating flow through the multiple chambers within StormPav system via road curb-opening inlet and outlet. The CFD simulations demonstrate flow patterns resulted from 5-minute 10-year ARI design rainfall. The distance of inlet and outlet is found to play a major role in the flow pattern in the StormPav system. The further the outlet away from the inlet, the more the CFD simulations show flow trajectory plots that suggest a water mixing quality. This finding is interestingly point to a self-cleansing ability in the StormPav system that suggests the flow pattern is favourable to flush out sediments carried by stormwater from roads.

Keywords: CFD, On-Site Detention, SolidWorks, StormPav, Stormwater.

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1. INTRODUCTION

Stormwater detention structures are one of the human interventions to the urban hydrological processes to reduce the volume of running water in the built environment [1-2]. Pertaining to