

Simulation of Storm Sewer Network Using a Storm Water Management Model (SWMM), Ramadi City as a Case Study

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Abstract

Ramadi city is suffering from severe flood problems during rainfall season as in many cities in developed countries. Storm Water Management Model (SWMM) was used to simulate storm sewer network in the study area and depending on design rainfall intensity of 9.6 mm/hour. The rainfall intensity was proposed to increased by two to three times of the design intensity because of the absence of metrological stations in the study area to record rainfall intensity data of the rain storm. The intensity increasing by three times led to maximizing the flood risk by 43%. The proposed management to overcoming this problem is linking the collateral lines in Al-Andalus and Alhoz suburbs by additional pipes, this method reduces the percentage of flooding to 31%. Moreover, Economic Indicators (EI) were suggested to evaluate the cost of the network development. The area index () which represents the total cost of the added pipes to the total area of the suburb, and the longitudinal index (), which represents the total cost of the added pipes to the length of the main pipe, the magnitudes of these indexes are 178 US dollar/hectare, and 57 US dollar/m respectively