

Strategic Evaluation of Existing Drainage System in Apalit, Pampanga

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Abstract : This paper aims to conduct an evaluation of the drainage system in a specific village in Apalit, Pampanga using the geographic information system to easily identify inadequate drainage lines that needs rehabilitation to aid in flooding problem in the area. The researchers will be utilizing two methods and software to be able to strategically assess each drainage line in the village- the two methods were the rational method and the Manning's Formula for Open Channel Flow and compared it to each other, and the software to be used was Google Earth Pro by 2020 Google LLC. The results must satisfy the statement $Q_{Manning} > Q_{Rational}$ to be able to see if the specific line and section is adequate; otherwise, it is inadequate; dimensions needed to be recomputed until it became adequate. The use of the software is the visualization of data collected from the computations to clearly see in which areas the drainage lines were adequate or not. The researchers were then able to conclude that the drainage system should be considered inadequate, seeing as most of the lines are unable to accommodate certain intensities of rainfall. The researchers have also concluded that line rehabilitation is a must to proceed.

Keywords : strategic evaluation, drainage system, as-built plans, inadequacy, rainfall intensity-duration-frequency data, rational method, manning's equation for open channel flow

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