Seminar for PAM Penang on 10th December, 2022 (9:00 am – 12 noon)

Photographs Taken During the Seminar:

Organized by: PAM Penang

Speaker: Ir. Dr. Quek Keng Hong

Title of Seminar: "Application of Software for the Urban Stormwater Management Manual for Malaysia (MSMA) including the Design of On-Site Detention (OSD)"

Introduction:

Ir. Dr. Quek Keng Hong, a professional consulting civil engineer by practice for over 3 decades, was invited by PAM Penang Branch to present the above seminar at their meeting room on 10th December, 2022 from 9:00 am to 12:00 noon.

The Seminar was attended by about 20 live participants and about 180 online participants. It was a lively session with lots of questions from the participants and good interaction between participants and the speaker.

Tools and Resources for Download:

Participants received 2 CPD Hours and access to shared gDrive to download useful tools and resources on MSMA as discussed in the seminar via: http://Seminar1.msmam.com.

Participants are offered access to free version of the MSMAware online software. Details at: http://welcomeVideo.msmaware.com.

Access to the free tools/resources and free online software is also opened to all PAM members-limited to the first 300 signups.

Live recording of the session is available on PAM's Facebook at: https://fb.watch/hm-12qxygh/

Objectives of the Seminar:

The main focus of the Seminar is on the design of drainage structures for compliance with the Drainage Design Guidelines by JPS Malaysia entitled: "Manual Saliran Mesra Alam Malaysia" (MSMA) or the "Urban Stormwater Management Manual for Malaysia" published in 2011.

The objective of the Seminar is to give an overall view of the approach, methodologies and tools available for basic drainage design which are commonly performed by engineers.

The design of all drainage structures are based on design storms which are used to compute the peak discharges used for the sizing of drainage structures including On-Site Detention (OSD). Hence the quality of the design storm data is vital for optimal sizing of any drainage structure.

Key Topics Covered in the Seminar:

The seminar covered the following key topics:

1. **Impact of new storm data on drainage design-** Currently, there are three procedures available for computing design storms as follows: MSMA (2011), HP1 (2021) and HP26 (2018). Note: HP1 and 26 are the Hydrological Procedures published by JPS containing storm data for West and East Malaysia, respectively. Out of these, HP1 and HP26 contained more up-to-date storm data and are recommended for use in design of drainage structures.
2. **Sizing of On-Site Detention (OSD)-** At present, MSMA provides guideline on the design of OSD based on the Approximate Swinburne Method in MSMA (2011). The Seminar discussed how the application of the Exact Swinburne Method can result in the optimization of SSR estimate in the design of OSD by 50% of more.
3. **New Software for Drainage Design-** The Seminar covered the application of software for computing the design storm intensities based on MSMA (2011), HP1 (2021) and HP26 (2018). It also covered the design of OSD using software.

Summaries of Topics Covered in the Seminar:

Below are summaries of the topics presented at the Seminar:

Topic No. 1- New Storm Data

1. Firstly, the importance of using the latest storm data on the design of drainage structures is emphasized.
2. The differences in design storms based on MSMA (2011), HP1 (2021) and HP26 (2018) are compared for selected stations.
3. These storm intensities are used as input to the Rational Method and the Time-Area Method to estimate the peak discharges and flow hydrographs
4. The differences in the estimated peak discharges are assessed.

Topic No. 2- Design and Optimization of OSD

1. Secondly, the Approximate Swinburne Method in MSMA (2011) and the Exact Swinburne Method (Quek, 2017) are applied to estimate the SSR in the design of OSD.
2. The latter was found to result in significant optimization of the storage or SSR estimate in the design of OSD by about 50%.
3. The differences are due fundamentally to the approximation of computational results in the Approximate Swinburne Method and the application of the Swinburne Method with available storm data in the Exact Swinburne Method.
4. Design of OSD based on the Exact Swinburne Method can result in about 50% reduction in storage size of an OSD.

Topic No. 3- Application of Software for Drainage Design

1. Lastly, the Seminar will cover the application of software for computing the design storm intensities based on MSMA (2011), HP1 (2021) and HP26 (2018).
2. The software can also be used for the design of OSD using the Approximate Swinburne Method in MSMA (2011) and the Exact Swinburne Method.
3. The Exact Swinburne Method can result in saving in terms of storage volume or land area by 50% or more and can reduce the cost of infrastructures in many projects.