



ANNOUNCEMENT

AGS (HK) Technical Seminar

Observational Method Associated with 3D Analyses for HKBCF PCB Open Cut Excavation

by

Ir. Alessandro Martucci

(Associate Specialist Director, Tony Gee and Partners Asia Ltd)

Date : Thursday, 27 February 2025

Time : 18:30 – 19:30 (Hong Kong Time)

Venue : The webinar will be conducted through Zoom.

Successful applicants will be informed by emails with a Zoom's link to the webinar. Participants should arrange for their own device with a stable network environment to join the webinar.

Enquiry : agshk.org@gmail.com

Fee : Free of charge

Registration : <https://www.ags-hk.org/event-details/observational-method-associated-with-3d-analyses-for-hkbcf-pcb-open-cut-excavation>

Please register by 18:30 on 27 February 2025. Successful applicants will receive webinar details after registration. CPD certificate will be sent to the attendees, who attended more than 80% of the webinar time, within 2 weeks after the webinar.

Book Prize : Professionals under 35 years of age are encouraged to submit a Book Prize Report (max. 500 words) on webinars and site visits arranged by AGS (HK).

Contributors to successful Book Prize Reports will be awarded a Book Prize that comprises of a book "Geology of Site Investigation Boreholes in Hong Kong" written by Chris Fletcher, and a coupon of HK\$500 for Eslite Spectrum (誠品生活) or equivalent. The successful Book Prize Report will also be published on the AGS (HK) website to showcase your accomplishment.

Prior to report submission, please refer to the "The AGS Book Prize Reports – Assessment Framework"* on the AGS (HK) website. You may submit your Book Prize Report to our assessors by uploading the report file through the AGS (HK) website at <https://www.ags-hk.org/book-prize>. Should you have any questions, please contact us at agshk@meinhardt.com.hk.

*Link to the AGS Book Prize Reports – Assessment Framework:

https://www.ags-hk.org/files/ugd/521a4c_b94496034732484687441cf4ed4d0bf9.pdf



香港岩土及岩土環境工程專業協會
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Synopsis:

The Passenger Clearance Building (PCB) is located in the middle of the on newly reclaimed land HKBCF island and provides the customs and immigration facilities for passengers entering Hong Kong from the Hong Kong-Zhuhai-Macau Bridge and the Tuen Mun-Chek Lap Kok Link.

The construction of the PCB basement required an excavation of approximately 10 m depth within the fill layer, which overlies 20 m of very soft to soft Marine Clay. Extensive ground investigations indicated that the low strength of the Marine Clays posed a stability related challenge to the design of the basement excavation.

The standard design approach based on 2D stability analyses would have required extensive ground treatment, for example using cement injections. Instead, an innovative open cut solution was developed, using 3D modelling associated with observational method, taking advantage of the basement H-shaped geometry to fully account for the 'edge effects', which increase the stability when the excavation is of limited extent.

The design provided an effective and sustainable solution compared to the ground improvement option, which would have required injection of over 14 thousand tons of cement in the soft soils and would cost approximately 6 million US\$. The observational method implementation further saved over 2 months of programme. To the authors' knowledge, this project marks the first successful implementation of a combination of 3D stability analyses and the observational method on a large-scale infrastructure project in Hong Kong.

About the Speaker:

Ir. Alessandro Martucci is a Chartered Civil Engineer with over 15 years of professional experience. Alessandro's key expertise include reclamation and deep excavation design, advanced 2D and 3D finite element soil-structure interaction modeling, characterisation and treatment of soft soils. His proficiency in these areas is a result of his extensive involvement in large scale reclamation projects such as the Artificial Island in Central Waters, HKIA 3rd Runway Reclamation and Hong Kong Boundary Crossing Facilities. Alessandro spent his entire career in Hong Kong, joining Tony Gee and Partners in 2024 after previously working as specialist geotechnical designer for Golder (now part of WSP) and Benaim.