

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2020-170
Project Title:	Feasibility study of using dredged marine deposits stabilised with coal fly ash as fill materials for geotechnical projects in Hong Kong
Principal Investigator:	Dr Kwok Chung Yee Fiona, Department of Chemistry and State Key Laboratory of Marine Pollution, The University of Hong Kong
Total Approved Grant:	\$490,000
Duration:	2/7/2021 to 1/1/2024
Project Status/Remarks:	On-going
Project Scope:	<p>Dredged marine deposits, resulting from fairway maintenance and offshore excavation work, are a significant source of solid wastes in Hong Kong. They are generally dumped in open waters, which is often a costly practice and may lead to adverse effects to the ecological environment. So, it is favourable to explore the reusability of the dredged marine deposits to minimise the need of dumping and meanwhile help relieve the shortage of fill materials that Hong Kong is facing. Traditionally, cement is used for soft marine deposits stabilisation, however, it is environmentally unfriendly to some extent, due to the greenhouse gas emission during the production of cement. Fly ash has been used successfully to partially substitute cement in concrete work. Since fly ash is also a type of solid waste, its reuse will undoubtedly enhance the sustainability, considering both the cost and greenness.</p> <p>In this study, the feasibility of using dredged marine deposits stabilised with fly ash and cement blend as fill materials will be thoroughly explored by a series of laboratory tests, which aim to develop optimum design mixes, investigate the strength development with curing time, and examine the microstructures that govern their mechanical behaviours.</p>
Summary of the Findings/Outcomes:	To be available upon completion of the project