

Case Study

Chek Lap kok Airport

Hong Kong

Market Sector

INFRASTRUCTURE



Application

DEEP IMPACT COMPACTION



Site Conditions

DREDGED SANDS



Project

Chek Lap Kok Airport was built on an airport platform (12.5 km²) with 75% of the area on reclaimed land with the remaining 25% formed by excavating two existing granitic islands. The construction comprised the placement of approximately 197 million m³ with 70 million m³ of that being hydraulically placed dredged sand fill. The placed fill thickness varied from 10 to 25m.

Soil Conditions

The capping materials to sub-grade level on the southern runway and taxiway areas was predominantly dredged marine sands. The balance of the capping materials consisted of decomposed granite with variable quantities of rock fragments. The southern runway area had a compressible in-situ marine deposit below the dredged fill. The anticipated settlement prior to the sub-grade construction had not occurred within the allowable timeframe resulting in the reclaimed levels close to the sub-grade design levels with inadequate compaction.

LANDPAC

INTELLIGENT GROUND ENGINEERING SOLUTIONS

Geotechnical Solution

To achieve the required sub-grade compaction in the hydraulically placed dredged fill the removal and replacement of the fill with convention vibro-compactors was uneconomical and time consuming. The upper 300mm required a density of 98% modified density the sub-grade below that a 95% modified density. Landpac was engaged to carry out Impact Compaction of the in-situ sub-grade materials on the southern runway and associated areas.

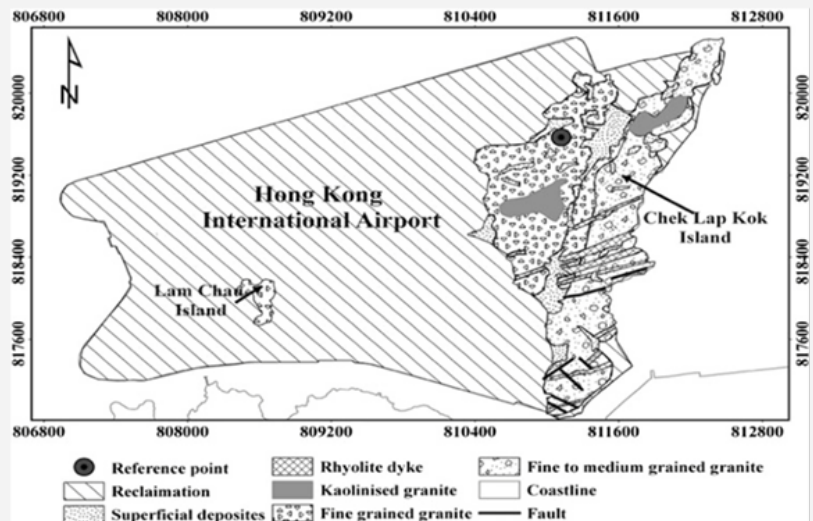
Client: Hong Kong Provisional Airport Authority

**Principal Contractor:
Downer-Paul Y-McAlpine JV**

**Ground Improvement Contractor
(Top 2.5 metres): Landpac**

Monitoring & Verification/QA

The subgrade dredged sands contained variable amounts of coarse grained, finer grained plastic materials and shell fragments. Due to the variability of the subgrade material plate load tests were used to verify the compaction method used. The geotechnical test results verified that the required subgrade design parameters were achieved.



Summary

- ✓ 12.5 km² Airport Platform
- ✓ 70 million m³ dredged sand fill placed
- ✓ Landpac worked on the top 2.5 metres of sub-grade
- ✓ Required density of 98% modified density (upper 300mm)

Get in touch

☎ 1300 237 045

✉ info@landpac.com.au

🌐 www.landpac.com.au



LandPac Asia-Pacific is part of the
Conplant Group of Companies

