
# ABU AL SHAOUM ISLAND CONNECTING BRIDGE

## ABU DHABI, UAE

## DYNAMIC COMPACTION

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|---|---|
| Category: | **Road & Infrastructures** |
| Developer: | **Abu Dhabi Municipality** |
| Engineer: | **N/A** |
| Contractor: | **Nurol** |
| Area / Quantity: | **10,000 $m^2$** |

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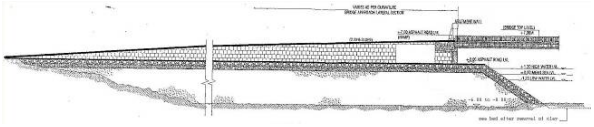
### PROJECT DESCRIPTION

The project was the construction of the bridge connecting Abu Dhabi to Abu Al Shaoum Island.

The bridge was designed to have two spans, and its slabs were to be supported by the side abutments and a group of columns in the sea. All slab supports were to be on piles.



The project involved some reclamation to reduce the bridge spans. In addition to the general construction of the platform, approach roads had to be elevated an extra 5 m to connect the road to the bridge.

### SOIL CONDITION / GEOTECHNICAL PROBLEM

Even though reclamation had to be carried out with suitable granular material, sea water level made it impossible for the contractor to compact the general platform. Engineering studies indicated that the construction of the approach road embankments and the service load would cause problems to the road's proper functioning.

These studies showed that up to 8 m of soil would remain in a loose state if specific measures were not adopted.

### MENARD SOLUTION

Menard assessed the project, and proposed the implementation of Dynamic Compaction to ensure that the road would be able to bear a uniform load of 120 kPa with a safety factor of 3 and that it would not settle more than 30 mm under service loads.

Dynamic Compaction began as soon as the contractor placed the fill, and reclaimed the land.

The design parameters were optimized by a calibration program.

Production commenced immediately after the approval of the DC scheme.

### QUALITY CONTROL

Pressuremeter tests were carried out to confirm that the acceptance criteria had been met.

Measurement of the modulus of deformation and pressure limit, and calculations proved that the project's objectives were readily met.