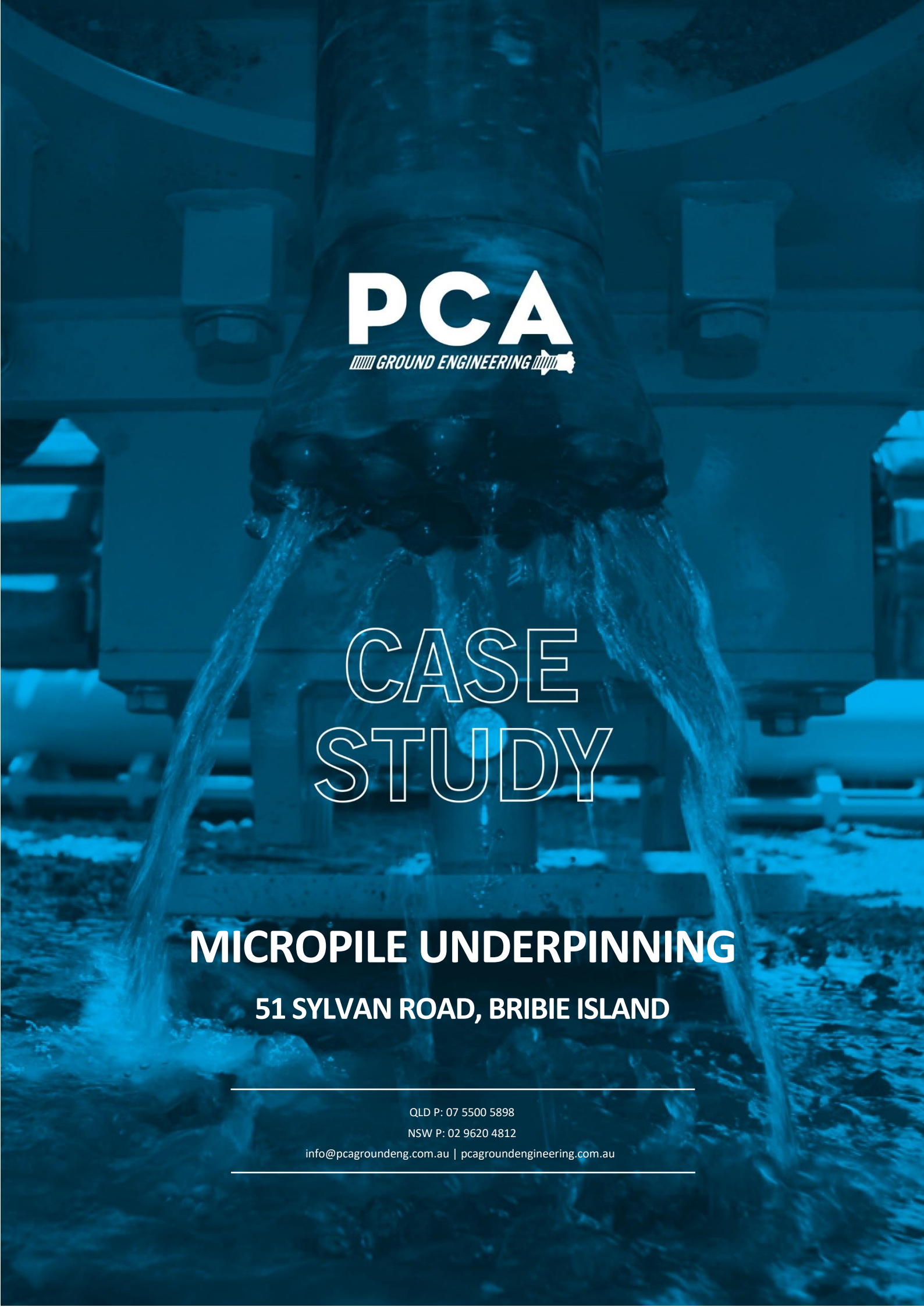

PCA

GROUND ENGINEERING

# CASE STUDY

# MICROPILE UNDERPINNING

## 51 SYLVAN ROAD, BRIBIE ISLAND

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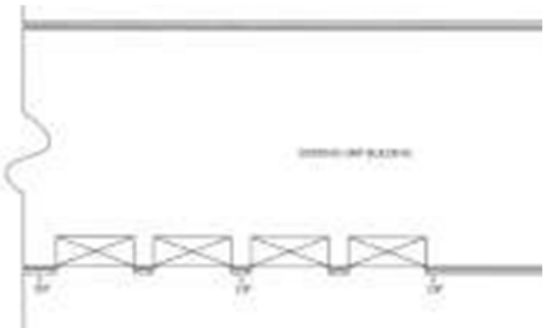
# CASE STUDY

PCA GROUND ENGINEERING

SHOTCRETING I EARTH RETENTION I PILING I GROUTING I ENGINEERING GROUND IMPROVEMENT I CIVIL CONSTRUCTION

| | |
|---|---|
| **PROJECT TYPE:** | **MICROPILE UNDERPINNING** |
| **CLIENT:** | **GREENLIGHT CONSTRUCTIONS** |
| **MAIN CONTRACTORS:** | **GREENLIGHT CONSTRUCTIONS** |
| **PROJECT ENGINEERS:** | **AB CONSULTING ENGINEERS** |

Micropile locations on corner of building

## PROJECT DESCRIPTION AND CHALLENGES

The residential unit complex at 51 Sylvan Road, Bribie Island was constructed on a 5m deep layer of material described by the geotechnical report as “Loose Sand”. The result of a rising and falling water table within the loose sand layer manifested itself as significant settlement and damage to front corner of the structure.

The presence of an overhanging balcony and stairs to the upper level of the structure precluded the use of heavy machinery. There was also concern from the potential effects of vibration from having any heavy machinery operating in close proximity to the structure.

## THE SOLUTION

Low vibration grout injected micropiles were selected as the most efficient and safest option to provide support for the structure. A total of six micropiles were installed on either side of the corner and attached to the edge beam of the slab via a concrete pile cap.

The micropiles were installed using PCA’s mini- excavator mounted drill rig with a 2m high mast to be able to reach beneath the overhanging veranda.

The micopiles were installed to provide “passive” support and simply arrest the movement in the slab. However, the same system can be used to “jack” a slab back into position if required.

All micropiles were installed in a single day.