

## IOR Lytton Terminal Expansion

Lytton, QLD

Minimising and controlling heave to finish the mass mixing to the required level to facilitate the construction of new tanks



### The project

The IOR Lytton Terminal is expanding with eight new fuel storage tanks. Keller was contracted to improve the ground conditions by mass mixing the foundations for the new tanks and crane bases.

### The challenge

One of the key challenges was the ground itself. The area used to be old swamp land, so the amount of organic material is quite high combined with a high ground water table. This required finding the right mix that gave the required strength but also mixed to a good consistency to deliver a high quality product.

## The solution

The site has an existing tank for which the foundations were constructed by removing the soft and compressible soils and replacement by structural fill. A similar solution was initially considered by the client for the new tanks. However, due to high water table and proximity to the existing tank and associated infrastructure, alternative ground improvement solution was deemed necessary. Keller worked collaboratively with IOR to workshop and provide various foundation solutions, with mass mixing being the most cost-effective solution that suited the challenging ground conditions, with the project's geotechnical consultant Golder Associates verifying the design. An extensive laboratory trial followed by rigorous site testing and monitoring enabled Keller to come up with a perfect combination of optimum binder dosage and pre-digging to reduce the heave and quantity of spoil thus saving the client a lot of trimming and disposal.

## Project facts

### Owner(s)

IOR Petroleum

### Keller business unit(s)

Keller Australia

### Main contractor(s)

IOR Petroleum

### Solutions

Bearing capacity / settlement control

### Markets

Industrial

### Techniques

Mass mixing