



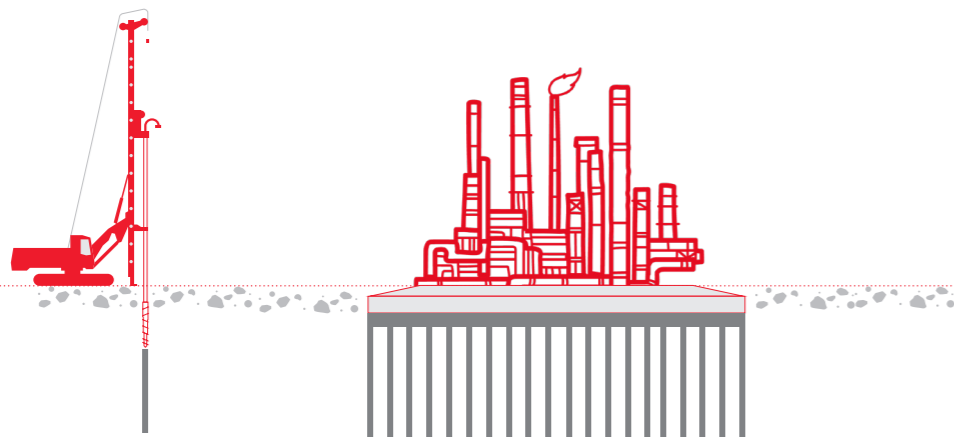
Ground improvement  
solutions

# Oil and Gas



# Supporting Industrial Process and Energy Construction

The design of foundations for large industrial developments, such as power oil and gas, is often very complex; because, in many cases, you are building a foundation on varying soils in different areas of the sites with low bearing capacities. Furthermore, hefty machinery, storage tanks and large main operations buildings pose specific geotechnical risks, the most common being differential (non-uniform) settlement occurring when a structure's foundation settles unevenly, leading to significant structural damage over time. Energy sources are considered one of the essential resources that countless people worldwide rely on every day. That's why it's crucial that no matter what type of structure is being built or where it is located, it needs to perform without any interruption, quite literally 24/7. In short, there is no room for error when developing a site for any type of plant.



## Efficient ground improvement solutions for oil and gas

**Menard** can help you most, by effectively taming your worst site soils, simplifying your project, and helping you utilize the very best in ground improvement techniques to benefit your project by:

- ✦ Reducing the risk of soil liquefaction
- ✦ Controlling differential settlements
- ✦ Removing the risk of bearing capacity failure
- ✦ Avoiding deep foundations

Some of the most widely used ground improvements that we use for processing and energy sectors are:

- ✦ Controlled Modulus Columns
- ✦ Dynamic Replacement
- ✦ Dynamic Compaction
- ✦ Stone Columns
- ✦ Deep Soil Mixing

**Menard's** ground improvement solutions are an effective, economically efficient, and environmentally-sound replacement for deep foundations or excavate and remove methods, which are highly disruptive to existing structures and the environment. It's all about ensuring that you get a **value-engineered** foundation solution that you and your team can count on to support the heaviest structural loads and deliver on our promise of a reliable and maintenance-free foundation that can stand the test of time.

These solutions make it possible to:

- ✦ Support heavy uniform loads (water, oil and gas storage)
- ✦ Support individual loads (pipeline supports, industrial equipment)
- ✦ Support dynamic loads (oscillations, vibrations, seismic loadings)
- ✦ Reduce absolute and differential settlement of structures
- ✦ Reduce the risk of soil liquefaction

**Less is MORE MENARD.**

Less is More Menard is a fundamental part of our DNA. This principle means using fewer resources to accomplish tasks and achieving greater development and growth through increased innovation.

## Success Stories



RDMP Pertamina RU V Balikpapan (Indonesia)



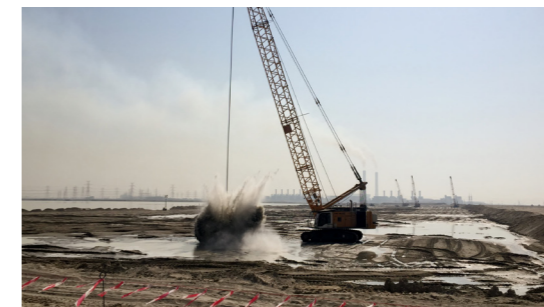
Pertamina Balongan Project (Indonesia)



Senoro Gas Development (Pertamina-Medco E&P) (Indonesia)



Nghi Son Refinery (Vietnam)



KNPC New Refinery Project (Kuwait)



Oil and Gas Development in Louisiana (USA)

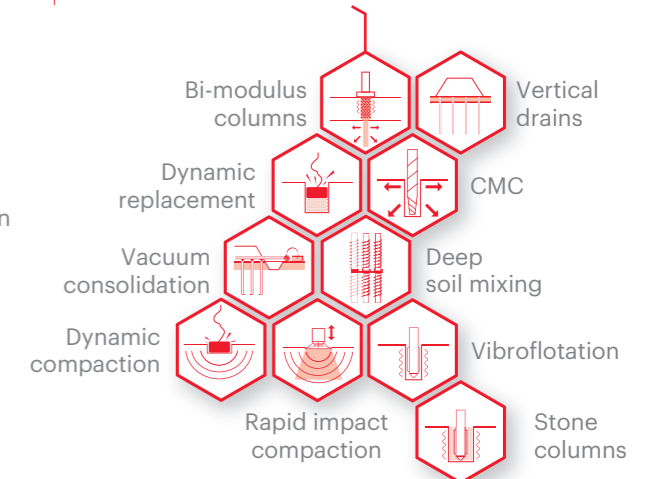
## Geotechnical Expertise

### GEOTECHNICAL EXPERTISE & REMEDIATION



## Our Methods

### GROUND IMPROVEMENT







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