SPECIALIST GEOTECHNICAL CONTRACTOR

BUILD ON US
ABOUT US

Menard Oceania is a specialist contractor for geotechnical and civil engineering activities operating throughout Australasia and the South Pacific region, with a reputation for quality, innovation and engineered solutions. Our expertise in ground improvement, specialist foundations, all methods of grouting, environmental remediation, has facilitated the delivery of cost effective solutions for the construction of a large range of structures.

Our services
With an emphasis on value added design and innovation, Menard Oceania can bring its extensive experience to projects in the planning and design development phase to provide optimal geotechnical solutions. Our in house design capabilities underpin our strength in undertaking contracts in both subcontractor and main contractor capacities at the highest level of technical excellence.

A successful 45 years history in Australia
Our first operations in the region can be traced back to the 1970’s and since that date, the company kept growing and conquering the Australian market. Amongst the most recent significant projects completed are the world’s largest vacuum consolidation project for the Port of Brisbane (2006), ground improvement works at the Patrick Terminal expansion in Port Botany (2011) and the New Perth Stadium (2015) to name but a few!

Regional network
With the recent acquisitions of GFWA in Perth, March Construction in Christchurch New-Zealand and Advanced Foundation Services (AFS) in Sydney, the Soletanche-Menard group offers an Australian wide presence and benefits from capability acquired through local knowledge and expertise acquired over the years.

Local expertise supported by a global network
Menard Oceania is the Australian subsidiary of Menard and part of Soletanche Freyssinet Group, who are world leaders in geotechnical, environmental and civil engineering construction. With permanent bases in more than 100 countries, the Soletanche Freyssinet companies provide local service backed by Group expertise and resources, being comprised of individual companies that are all pacesetters in their own fields:

- **SOILS**
  - Soletanche Bachy: World leader in special foundations and underground structures
  - Menard: Recognised world specialist in soils improvement

Together, Soletanche Bachy and Menard form the world’s most comprehensive network of geotechnical engineering contractors.

- **STRUCTURES**
  - Freyssinet: World leader in prestressing, cables stayed structures and strengthening of structures
  - Reinforced Earth: Inventor and world leader of the mechanically stabilised earth market

The combination of Menard Oceania’s local resources with the vast experience and history of the Soletanche Freyssinet group generates an unrivalled capability in design and execution of geotechnical projects. Indeed, this capability has been nurtured from some +1,000 projects successfully completed worldwide.

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A wide geotechnical offer for the benefit or your project

Our broad range of techniques - many developed by Menard Oceania itself - combined with our 45 years of experience in Australia, make us a strong and reliable partner. It guarantees that our teams will determine the best suited solution to handle your ground engineering challenges.
Dynamic Consolidation (DC) and Dynamic Replacement (DR) are high energy methods of ground improvement discovered and developed by Menard Oceania in the case of DC-, effecting densification of granular soils by the creation of shock waves generated by very high impact loads. Heavy pounders (20-30 tonnes) that are released in free fall from heights of up to 30m are used to produce these impact loads. In the case of DR, the ground improvement is achieved by the introduction of granular material into soft cohesive soils, this granular material is fed and driven into the soil by repeated drops of the pounder to form a series of large diameter granular inclusions.

Stone columns provide an economical method of ground improvement and act as reinforcement to the soils into which they are installed, using either the wet top feed method or the dry bottom feed method.

Stone columns are semi rigid inclusions, used to improve the engineering characteristics of loose granular soils or soft cohesive soils. The columns are formed by the introduction of a vibrating poker into the ground; this poker is used to create the void in the ground into which stone backfill is introduced.

Vibro compaction is a process for the compaction of deep, loose non-cohesive soil layers, through the use of a vibratory poker. It is used to improve the mechanical properties and settlement characteristics of the soil. It consists in transmitting vibrations (horizontal oscillations) into the soil to cause the reorientation of soil particles into a more compact state. The poker method we use demonstrates higher levels of compaction achieved than the mandrel method (vertical oscillations).

Wick drains also known as vertical drains are used to accelerate the consolidation of soft, impervious soils and for most of our applications, they are combined with surcharge loading. They are a component of the Menard Vacuum™ Consolidation method, which is our proprietary system. Vacuum Consolidation involves the creation of a vacuum pressure within the soil mass, producing an accelerated isotropic consolidation. This effect is doubly beneficial as it increases the effectiveness of vertical drains and the safety of the process at the same time by diminishing the stability risk normally associated with that method.
Jet grouting has been pioneered in Australia by Menard Oceania and is used in a variety of applications such as providing the “soft” infill component in soft-hard pile retaining walls, underpinning, soil reinforcement, cut-off barriers and ground stabilisation in mine shaft construction.

Unlike classical grouting, jet grouting does not penetrate the soil by impregnation but rather uses high energy in the form of a high velocity jet of grout to destroy the soil structure and simultaneously mix cement grout into the in-situ soil.

The distinct advantage of jet grouting is that it can be effective in all categories of soil such as fills, reclaimed land, saturated soils, where other methods of grouting simply are unsuitable. Other advantages are limited material supply, manageable spoil production, minimising traffic to and from site, a total flexibility in plan layout, depth and extent of treatment to be carried out.

In addition to jet grouting, a variety of specialist grouting techniques are undertaken by Menard Oceania, ranging from classical permeation grouting of rocks and soils, to compensation and compaction grouting.

These techniques can be utilised for a wide range of applications from improvement of dam foundations, waterproofing of tunnels and deep basement located beneath groundwater level but also on structural retrofitting for stabilisation of rock mass and structural underpinning.

The CMC (Controlled Modulus Columns), developed by Menard Oceania, is the environment-friendly column for the 21st century. It consists in reinforcing the soil, effectively increasing the global soil modulus through installation of a network of rigid inclusions. CMCs are formed by rotary techniques using an auger designed to displace the soil laterally during installation.

This system is well suited to high surface loading conditions and strict settlement criteria in such applications as heavily loaded slab-on-grade and bridge approach embankments, over compressible clays, fills or organic soils. CMC is a cost effective method of improving the shear strength and moduli of the in-situ soils and requires no spoil disposal, which is particularly beneficial for installation in contaminated soils.

Soil mixing uses a wide range of techniques to inject binder agents to mix with the soil and form columns, for example to reinforce the ground for subsequent construction. The type and amount of binder will determine the hydraulic and mechanic characteristics of the soil.

Soil mixing generally comprises three stages: premixing of the soil, injection of the binding agent and incorporation of the soil/binder mix. The technique produces no, or very little, spoil. The structures produced by soil mixing can be columns, or also panels or continuous structures, such as trenches.
Techniques Environment RemediaTion

Slurry Walls

Slurry wall is a sound and proven technology for the installation of cut-off barriers most often used to intercept ground water migration. It is a cost-effective method for environmental containment of water borne contaminants, for the installation of reactive groundwater barriers or drainage barriers, for the purposes of pollutant containment for landfills or heavily contaminated industrial sites.

PRB Walls

Permeable Reactive Barriers (PRB) are ideal when in-situ remediation of contaminated sites are required whilst limiting the impact on groundwater flow. Usually, a reactive barrier is installed as a narrow trench beneath the ground surface so that contaminated groundwater passes through the barrier and emerges 'clean' because contaminants are treated and/or removed by the reactive medium of the barrier.

Menard Oceania is Australia’s leading contractor for the installation slurry wall and PRB wall structures.

Soil Remediation

In-Situ Stabilisation/Solidification (ISS) refers to methods used to stabilize or solidify soils in place. Solidification does not actively promote chemical changes in the contaminants, but rather relies on cementitious bonds to create the low permeability properties that help to reduce the impact of the in-situ contaminants.

In-Situ Treatment (IST) refers to methods of treatment used to treat impacted soils in place. Treatment actively promotes chemical changes in the contaminants, converting them to less harmful or inert products. Treatment is conventionally accomplished via absorption, reduction or precipitation.

Management of Contamination

In partnership with our group environmental subsidiary Sol Environment which operates throughout Europe, Menard Oceania has developed a diverse portfolio of specialist techniques for remediation of contaminated soils and water. Offering full design, implementation, verification and ongoing monitoring, we bring soils, sediments and sludge treatment methods, as well as groundwater and contaminated pond water treatment methods.
ANCHOERING/SOIL NAILS
Rock anchors represent the first ground engineering activity established by Menard Oceania in Australia and are used in a wide variety of structures, including dams, wharves, retaining walls, foundations and structures subject to hydraulic uplift forces. Menard Oceania can design and install permanent or temporary anchors using strand or bars; jacking systems have been developed in-house for load capacities of up to 1500 tonnes in strand anchors.

MICROPILING
Rock bolts, cable bolts and soil nails systems are available for use in numerous applications, separately, or in combination, as solutions to ground/structure stability problems. Menard Oceania can design, supply and install these products above and/or below ground, using cement based and/or chemical bonding grouts. Menard Oceania have also introduced in Australia several innovative anchoring solutions such as SBMA and Self-Drilled Freyssibar system.

MINE BACKFILLING
Micropiles are often employed where access for large piling equipment is prohibited. Installation equipment is typically the same as for anchoring.

Micropiling is most commonly utilised as direct structural underpenning to support existing structures. It can also be installed in closely spaced groups or networks as an alternative to conventional piling schemes on remote sites or under bridge abutments.

Menard Oceania holds considerable experience in mine filling and cavity grouting for the securing of old underground mines and large subterranean voids. We have access to a large fleet of drilling rigs able to reach treatment depths over 100 meters. We also have an in-depth knowledge of grout mix composition and can tailor the selection of grouts used to suit technical requirements in terms of strength and rheology as well as incorporate cost and material availability considerations.
Menard Oceania has a long track record of providing solutions for small to large infrastructures, for private and public stakeholders throughout Australia. Our experience and wide range of techniques allow us to work across varied applications.

- Transport and Communication Routes
- Ports and Coastal Infrastructure
- Industrial and Commercial Buildings
- Heavy Industry and Mining
- Dam Engineering
- Environmental Remediation
Quays, jetties
Infrastructure built on the coast often require complex geotechnical works. Permanent prestressed anchors, caissons, caissons lying on underwater stone columns, jet grouting stabilisation... all techniques in the Menard Oceania range of skills acquired over several decades of involvement in large international projects.

Reclamation and seabed improvements
Construction projects at ports generally involve vast areas of land, either reclaimed or natural deposits. Treatment objectives can range from retention systems, settlement control and increased bearing capacity, to liquefaction prevention against seismic events. Often reclaimed land lies over wetlands which are recovered using dredged or imported fill materials. The resulting areas of reclaimed land frequently present challenges to the designer to identify economical means of improving such large areas of land. The designer’s primary objective is to induce a soil treatment which stabilises the fill for short-term and long-term performance in the most cost-effective manner. Menard Oceania provides the methods combined with experience to address this objective.

Marine structure remediation
Remediation of quay and marine structures is often complex, but provides a cost-effective way to maintain a port’s activity at full capacity. Menard Oceania’s years of experience, range of activities and ownership of equipment in-house, enables Menard Oceania to provide solutions to many problems associated with long-term settlement, erosion and corrosion of retaining structures that are present in existing port and jetty facilities. Global warming and associated rise in sea level create an ever increasing requirement for coastal and offshore infrastructure maintenance.

Roads and bridges
Transport infrastructure is often confronted with the problem of building over soft, compressible soils such as wetlands or alluvial flood plains. Treatment of the soil to contain settlement and eliminate the risk of failure is unavoidable. Menard Oceania’s ground improvement techniques offer a variety of cost effective solutions to address these problems. Soil type and the depth of treatment required and comprise shall be considered when selecting the soil improvement methods: pre-consolidation or compaction or soil reinforcement methods involving inclusions. Whatever solution is chosen, the object remains to minimise long term creep settlement and improve the shear strength of the soil. Access embankments to bridge structures often generate the most critical demand for soil treatment. The improved soil will increase and preserve the service life of the road pavement, thus reducing life-cycle costs for the roadways and structures.
**APPLICATIONS**

**INDUSTRIAL AND COMMERCIAL BUILDINGS**

Water plants and sewer

Menard Oceania is proactive in the discipline of sanitation engineering: having constructed many retention and storage facilities, storm water runoff, polluted water and flood water; structures include underground and above ground water supply reservoirs, pump stations and wastewater treatment stations. Menard Oceania’s background in foundation engineering is a perfect fit for the application of many of the techniques encompassed within its varied repertoire: watertight barriers; ground improvement and reinforcement, civil engineering works, ground anchors, shafts, jetgrouting and many more.

Foundation works under LNG tanks and similar structures

Identifying the most effective foundation system, one which guarantees smooth and safe performance over time is the objective for Menard Oceania engineers. The most cost-effective foundation system often requires several different ground improvement methods that take into account the variations in soil properties and load conditions. The most common requirements are for support of heavy and uniform loads (water, oil, gas storage) and isolated loads (industrial, infrastructure, pipe-racks) to achieve the reduction of total and differential settlements within acceptable limits.

Warehouses

Warehouse structures are typically located within poor soil areas and have a requirement for differential and total settlement across ground floor slabs. Ground improvement for warehouses considers optimisation of the in-situ ground properties to achieve settlement criteria, this then removes the need to bridge poor soil conditions with structural piles and a thick structural slab. In this instance structural designers can consider slab on grade design, founded on Menard Oceania’s ground improvement solutions.

**HEAVY INDUSTRY AND MINING**

The Menard Oceania group is routinely involved in civil and geotechnical works associated with the mining industry.

The range of techniques provided by Menard Oceania enables it to deal with most issues related to slope stabilisation, underground grouting, formation of cut off walls to facilitate mining activity and assist in dealing with mine tailings.

Menard Oceania has been involved in several projects across Australia to facilitate transport of mining products and develop all types of mining infrastructures such as tanks, processing facilities, warehouses, intermodal facilities, etc.

**DAM ENGINEERING**

Design criteria for dams are constantly evolving, generating the need in the design of new dams for the adoption of upgraded parameters and in the maintenance or extensions of existing dams, additional works to ensure compliance with changing standards.

The principal areas in which Menard Oceania can assist with these matters are in the treatment of the dam foundation rock to eliminate seepage and erosion, the improvement of safety margin against failure by the use of high capacity vertical rock anchors, upgrading or replacement of the dam core, installation of cut-off walls and drains as well as spillway and slab anchors often combined with monitoring of dam performance.

**ENVIRONMENTAL REMEDIATION**

Menard Oceania offers a range of environmental remediation solutions to treat in-situ the source of contamination. Techniques such as soil mixing, pump and treat and jet grouting can be offered. Trench support by polymer is also used when permeable backfills are required in order to create collector drains or reactive barriers.

In addition, Menard Oceania offers a full range of contamination containment solutions involving cut-off walls, permeable reactive barriers, funnel and gate. These techniques can either completely cut-off contaminated ground water flows or facilitate passive treatment whilst providing means to perform long term monitoring and management of contaminated sites.
Menard Oceania works are accredited under AS/NZ ISO 9001:2000. The company recognises that in order to meet its customers' needs as the organisation's goals, it must have competent, able staff who fully achieve specified requirements and meet contractual obligations before seeking customer approval and acceptance. The QMS also enables Menard Oceania to maintain effective control of the quality of all supplies, provide testing facilities, and perform all reviews and examinations necessary to demonstrate compliance of the supplies with the contract specification requirements. This is achieved and assured to clients by the required third party audits, conducted regularly to ensure the system’s approach of review and improvement is carried through and reviewed by management.

**ENVIRONMENT**

Environmental sensitivity and care through the company’s Environmental Management System (EMS) has also added to the QMS and OHSMS that Menard Oceania is committed to observing. Menard Oceania supports the principles of sustainable development and ensures all its employees comply not only with statutory requirements but to be environmentally responsible AS/NZS ISO 14001-2004 Environmental Management Systems is the benchmark for the development and future accreditation plan to complete the Business Management Strategy for ongoing development. The EMS ensures Menard Oceania recognises that its commitment extends to the protection, care and responsibility for the environment including in particular the environmental impact outbound and inbound to sites, together with the implications of responsibility to the workforce under company control.

**INDUSTRIAL RELATIONS**

Menard Oceania currently has in place for all its operations Enterprise Agreements which have been fully ratified and registered with the Industrial Relations Commission in the relevant state. When in place, these agreements have ensured that all operations have proceeded without disruptions caused by industrial relations issues with our workforce.

**INNOVATION**

Innovation is a key focus for Menard Oceania’s activity which benefits from the expertise of the group’s R&D teams. Working on the most demanding projects, engineers, technicians and operators concentrate on satisfying the client by bringing state-of-art technologies to construction, repair and services. Employing new processes, equipment and technologies to adapt to the constantly changing configurations and constraints of the thousands of projects carried out every year; the R&D teams generate a continuous flow of innovations.