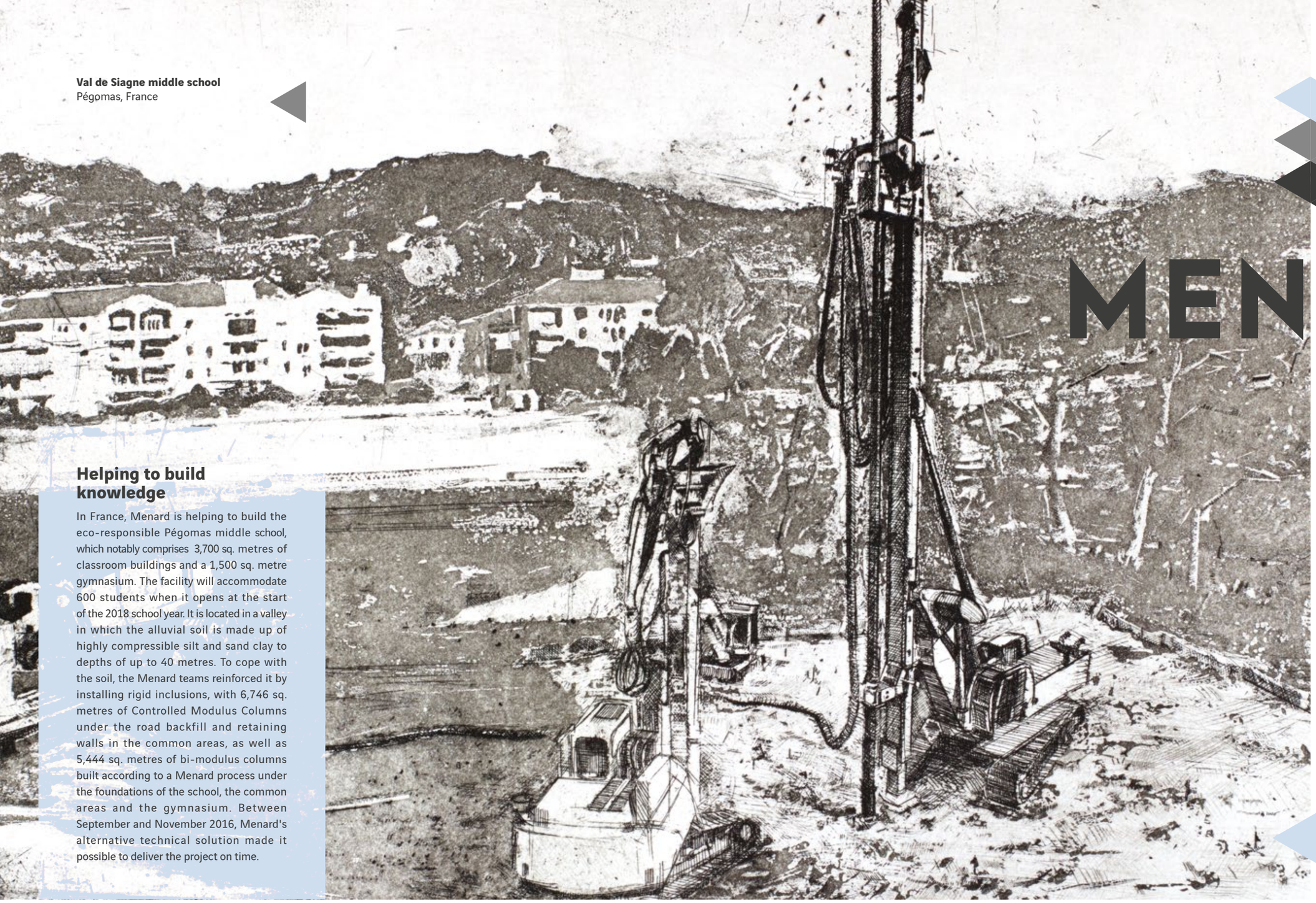
Val de Siagne middle school
Pégomas, France



Helping to build knowledge

In France, Menard is helping to build the eco-responsible Pégomas middle school, which notably comprises 3,700 sq. metres of classroom buildings and a 1,500 sq. metre gymnasium. The facility will accommodate 600 students when it opens at the start of the 2018 school year. It is located in a valley in which the alluvial soil is made up of highly compressible silt and sand clay to depths of up to 40 metres. To cope with the soil, the Menard teams reinforced it by installing rigid inclusions, with 6,746 sq. metres of Controlled Modulus Columns under the road backfill and retaining walls in the common areas, as well as 5,444 sq. metres of bi-modulus columns built according to a Menard process under the foundations of the school, the common areas and the gymnasium. Between September and November 2016, Menard's alternative technical solution made it possible to deliver the project on time.

INTERVIEW

MARC LACAZEDIEU
Chief Executive Officer, Menard

Working and acting close to clients

A watchword for 2016?

Consolidation. While activity held steady, we worked on our organisational structure to reinforce our local roots.

A reason to be proud?

The efficiency and agility of our local teams in Europe, the result of the groundwork we have been doing for several years.

A key project?

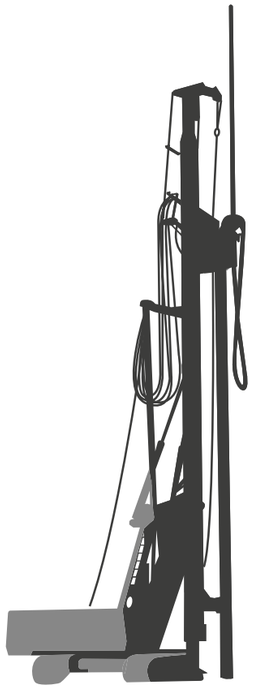
The largest wick drain contract ever awarded in the United States – the container port in Charleston, S.C.

Could you explain the slight decline in Menard's activity level in 2016?
The decline was above all due to a smaller volume of major projects, notably in the Middle East. In North America, the momentum continues and although activity came in slightly under the record year of 2015, it stood 50% above the 2014 level. In addition, the Group had an excellent year in Europe (40% growth). The projects that contributed to revenue included the new Annacis Island wastewater treatment plant in Canada, the Barangaroo project in Australia, the Turkmenbashi seaport in Turkmenistan, the Capital District project in Abu Dhabi and our work on French (A304), Polish (S7) and American (I-295) highways.

In Europe, growth took place against a backdrop of crisis and therefore strong competition in a mature market. What was driving the growth?
In France and Poland, and to a lesser extent in Germany and the United Kingdom, Menard has a strong commercial presence, with well-established networks in the regions and very active teams in the field. There is therefore a recurring flow of projects. They may not be as high profile as major projects, but they generate strong volume and enable us to establish close working relationships with our clients. In France, our teams carried out more than 400 projects with an average value of €70,000 in 2016.

Menard's trademark is its ability to handle projects of all sizes...
Absolutely. The Group is known for its ability to handle complex geotechnical problems on large infrastructure projects in France and abroad. The other pillar of our strategy consists in contracting projects day by day, offering our clients competitive prices with optimum quality. We operate and take decisions close to our clients around the world. That is our strength now and will be an even greater strength going forward. This is the business model we have adopted for Menard.

Is your integration of the soil remediation activity in 2016 one of the ways you are expanding your added value for clients?
Yes, we had carried out some remediation projects in Romania and in France, but we had never developed the activity as a separate business line.



Key ground improvement provider

The Menard Group develops foundation solutions based on ground improvement and reinforcement technologies. Its treatments eliminate the need for the deep foundations traditionally used to support surface structures. The Group also offers expertise in soil remediation and treatment of contaminated soils to rehabilitate polluted sites.

1,000
EMPLOYEES

€250 m
REVENUE

980
PROJECTS

NEW ORDERS

- New international airport for Mexico City (NAICM), Mexico
- Panama power plant and LNG project, Colón Province, Panama
- Newton middle school, Lima, Peru
- Emirati Neighbourhood (package 4), Madinat Zayed, Abu Dhabi, United Arab Emirates
- Prologis Ports Elizabeth-Triport project, Elizabeth, N.J., United States
- Offshore urbanisation project, Larvotto, Monaco

With the integration of Remea (formerly Sol Environment), Menard now has the full range of expertise required. We are rolling it out internationally in 2017 via our network. We started operating in Poland last year, and today we have a fully operational structure there.

How do you see your markets developing in the medium term?
The combination of urban development and environmental constraints is creating huge opportunities. The soils that remain to be treated around the world are of increasingly poor quality and often highly polluted. Clients are now inclined to consider alternative solutions to conventional methods that are often excessive. Our construction techniques are optimised alternatives to standard solutions. They meet the expectations of building and civil engineering companies faced with economic constraints that want their partners to think outside the box.

What are your new expansion priorities?
There are regions in the world that remain to be "conquered", especially in Africa and Latin America, where Menard is just getting started. The effort is bearing fruit in Mexico and in Colombia and we are now gaining a foothold in Guatemala and Central America. However, our goal is not to set up a large number of locations but rather to consolidate our activities in accordance with our European model. We are boosting our penetration of markets where Menard is already operating – North America, Asia, Australia and the Middle East – and we are making a special effort in Egypt and Turkey, two densely populated countries with huge needs beyond major projects.

Safety remains Menard's major focus...
The results have improved substantially compared to 2015. The culture is changing, and we are concentrating especially on equipment mobilisation and demobilisation, which call for increasingly rigorous preparation. Menard's performance depends first and foremost on the safety and well-being of our employees. This is the whole point of the Home Safe plan launched in 2016 (see page 22).

MENARD HIVES: COLLECTIVE BY NATURE

Projecting 10 years ahead, what are the major challenges that Menard must tackle on an international level? That was the question put to all the company's employees in 2016. To arrive at an answer, Menard experimented with a new way of working together in which each employee becomes a potential source of innovative ideas for the company. Objective: to go beyond technical innovation by generating collective intelligence.

Participative innovation

Around this forward-looking vision, focusing on the key needs ahead, each employee could contribute directly to the development of the company by posting their "innovation challenges" on a dedicated online platform. In the last quarter of 2016, more than 200 challenges were collected in the areas of technology, safety, environment, organisational structure, and business models. After this initial stage, the selected ideas were assembled into 12 challenges. A series of "innovation hives" were organised, during which participants including management and site representatives brainstormed in small groups to find the solutions to meet these challenges. The first hive session took place in France in December 2016. This was followed by sessions in Poland, then Dubai for teams in the Middle East, and lastly by the United States for the North American continent. This was an unprecedented exercise for Menard, the gatherings bringing together some 300 employees. In this second phase, each participant had an opportunity to voice his or her views and outline what he or she felt were the most promising channels for innovation.

Menard's people: a source of fresh ideas

This interactive format involving decidedly collaborative workshops was directly inspired by the Menard spirit, involving high-quality work in a good working atmosphere. The company believes in servant leadership, according to which the manager must serve his or her team. It also encourages employees, notably the younger ones, to be creative, pragmatic, and autonomous. Entrepreneurial because they are enterprising; enterprising because they are entrepreneurs. In 2017, the hive experiment continues online, with employees invited to hone selected innovations and to come up with concrete solutions for the implementation of key actions, thought up together and shared by all, which will drive the company's commitment in terms of innovation in the years ahead.

"The limits? Our own imagination!"

Natalia Rucinska - Menard
Geotechnical and environmental engineer for the Middle East and Central Asia region

"Company employees thinking about idealistic solutions to resolve the problems of tomorrow - that is a recipe for an animated discussion! The hives were a lot of fun, and a rare opportunity to get together with many colleagues. It encouraged us to think differently without saying: "No, that could never work." We all had to move outside our comfort zone to consider ideas that are not necessarily part of our day-to-day responsibilities. Thanks to this approach, everyone could come up with original ideas without the risk of criticism. The sky was the limit! This was the first time we had been asked to contribute to such an unconventional process. Nonetheless, it retained the Menard spirit, revolving around creativity, innovation, and entrepreneurship. Encouraging innovation by giving staff the chance to be creative is perfectly in tune with our values."

Annacis Island wastewater treatment plant
Delta, British Columbia, Canada

1.5

MILLION CU. METRES

In June 2016, following 21 months of work, Menard, working in a joint venture with JJM Construction, completed the reinforcement of about 1.5 million cu. metres of soil as part of the extension of a wastewater treatment plant. In a demonstration of its agility, Menard's Canadian subsidiary proposed reliable alternative solutions for excavating 180,000 cu. metres of materials, relocating existing utility lines and carrying out ground improvement. After painstakingly implementing nine test phases, the team settled on a construction method, rigorous planning and a technical solution geared to the constraints of the site. Anti-liquefaction treatment was applied via vibrocompaction and installation of stone columns, while adjacent structures were protected with a 30-metre-deep Cutter Soil Mixing (CSM) wall over a length of 480 metres as an alternative to the jet grouting solution initially planned by the engineers. In another development, Sixense experts continuously monitored settlement during construction to avoid incidents and damage to the existing facilities in the vicinity of the site and to enable the plant's work to continue unabated.

Siemens plant
Cuxhaven, Germany

"One of Siemens' largest projects in Germany in recent years"
Joe Kaeser, President and Chief Executive Officer of Siemens AG

The days when the arrival of the shrimpers and the noise of the canning plants set the pace in the German fishing port of Cuxhaven are long gone. Today, with the majority of container ships continuing on to Hamburg, the city has specialised in renewable energy and more particularly in assembling wind turbines to be installed offshore. As part of the construction of a plant to manufacture components for new-generation offshore wind turbines, Siemens (which has undertaken a major restructuring of its activity portfolio) awarded a contract to Menard's German subsidiary to treat 130,000 sq. metres of soil. Up to five rigs were used over a period of four winter months to carry out dynamic replacement and install wick drains in soft clay soil. To cope with the project's location near a rainwater runoff pipe, the solution was altered to include stone columns. The plant, covering an area equivalent to 24 football pitches, will employ 1,000 people.

O-Bahn city access project
Adelaide, Australia

The Australian teams implemented 58 jet grouting columns

The columns were installed to stabilise the soil in the heart of Adelaide and to support the creation of priority lanes and a tunnel for the O-Bahn guided busway. Created in the mid-1980s to relieve traffic congestion in the city, the O-Bahn continues to modernise and adapt to new patterns of mobility and the growth of new neighbourhoods. In addition to the jet grouting columns (with diameters ranging from 1.2 to 1.6 metres), 36 temporary ground anchors were installed. A cyclone with winds gusting at 140km/h and heavy precipitation disrupted the work. Between September and October 2016, Menard made its expertise and professionalism available to its client McConnell Dowell, coping with the complex weather and ground conditions, carrying out the project near road traffic and removing muddy spoil via vacuum trucks so as to protect the environment and avoid unpleasant site impact on local residents and motorists.

Metro Point Logistics Center
Ridgefield, New Jersey, United States

14,000 LM

New Jersey is a diversified industrial region with access to the sea, railway links, a network of SMEs working with prestigious universities and a large consumer market. As multimodal hubs proliferate, Menard completed specialist works on the Metro Point Logistics Center in June 2016. The hub has two warehouses with 19,000 sq. metres and 8,000 sq. metres of floor area respectively, 56 loading docks and 208 parking spaces. The teams taking part in the project simultaneously applied three techniques: installation of Controlled Modulus Columns (CMCs), deep dynamic compaction and rapid impact compaction (RIC). Six weeks of compaction works were carried out at the same time the CMCs were installed – a challenge that Menard successfully met. The teams adapted the technique to fit the area's geological makeup and were thus able to optimise the budget and lead times. In a last innovation, standard penetration tests (SPT) using a penetrometer were supplemented with Menard pressuremeter tests, which are often carried out in Europe but are little used in the United States.

The Suez Canal has connected the Red Sea to the Mediterranean for the past century and a half

To accelerate economic development in the strategic region, a free trade zone is under construction in the East Industrial Area of Port Said, the undisputed hub of the eastern Mediterranean. In September 2016, Menard signed a contract with the Egyptian Armed Forces Engineering Authority (EAAF) under which the Group's subsidiary in Cairo is working as main contractor to carry out ground improvement and reinforcement works at the site. The team faces a triple technical, logistical and production challenge. They need to treat 8 million sq. metres of soft clay soil to expedite the consolidation process and improve load bearing. Following a campaign of testing and soil reconnaissance, work to install prefabricated vertical drains (PVD) to a depth of 25 metres got under way at the end of 2016. Nearly 20 rigs are currently working at the site.

East Industrial Area - Free Trade Zone
Port Said, Egypt

UMW Aerospace Serendah Factory
Selangor, Malaysia

Accelerating the valley consolidation

At a stone's throw from Kuala Lumpur, Menard completed work in February 2016 to improve the soils on which a factory is to be built for UMW Aerospace, the aeronautical arm of Malaysia's UMW conglomerate. The manufacturing plant will produce fan cases for Rolls Royce aircraft engine. It is to be built in a valley whose lowest point is at +41 metres and highest point exceeds +80 metres. As an alternative to the conventional layer-by-layer compaction method, Menard's Malaysian teams came up with an innovative solution to accelerate fill in the valley. It combines dynamic compaction and dynamic replacement. After filling the site to establish the final hard surface at +65 metres, 82,650 sq. metres of soils were compacted. The solution not only cut the project's lead time from four to two months, it also met the demanding differential settlement and post-construction subsidence criteria.