

casagrande group

IN DEPTH *NEWS*

The news letter for customers, agents, staff and friends

December 2007 · n.3

EDITORIAL

Best wishes for the new year

2007 is coming to the end and it has been a remarkable year for all of us. Never before there has been a coincidence of growth in the whole world economy which have benefited all of us. We like to review and share with you the achievements of this year and take the opportunity to look ahead to the coming 2008.

We started the year with the first edition of our in Depth News which was released during Bauma. This exhibition has proven once again to be the number one in the world with a record number of visitors. Several Casagrande and Hütte rigs were displayed and have found interest and acceptance from the market. During Bauma we had also the chance to introduce TEC as part of our family with new innovative products which very well integrate in our business line. The FD60 and the C900 NG gave a hands on view of what we are capable of. Bauma gave also the chance to show how we stand in the market raising us to



Agents Meeting 2007

a world class company. A first corner stone was set for this year activity. We continued the year with a new advertising campaign based on the concept of customer care and giving the power in the client's

hands. The NG generation gave the lead of how we intend to introduce our electronic systems.

We have set forth our way to the future on the basis of our new claims. These are trust and confi-

dence built on relationship. Not all in 2007 has been smooth and we recognize the difficulties that we encountered. We do apologize for the inconveniences we may have caused but trust us that we are addressing them and we are putting all the necessary energy to improve those areas for 2008.

We look forward to 2008 in a positive manner and with the support of all we shall achieve the targets that we have set forth.

It is our sincere wish that 2008 will be prosperous and healthy for you and your families.

Always with Casagrande and "The Power in Your Hands"

COMPANY'S NEWS

Geothermal Drilling

Environmentally friendly heating and cooling from under the earth with Hütte HBR 205 GT drill rig.



Borehole heat exchangers (BHE) are not only environmentally and economically friendly, but also a cost-saving way of energy recovery. This applies on both, the installation and the application. You can save

up to 70 % of the operating costs compared to conventional heating and cooling systems.

In times of slender and therefore price increasing fossil fuel, it is no surprise that the heat pump technology is experiencing a revival. The system can be also used as an excellent medium for cooling in the summer.

Nowadays the most frequently used energy source for heat-pumps is the borehole heat exchanger (BHE), composed by vertical pipes placed within a borehole (in a closed loop systems) ranging in depths from 80 up to 250 m.

» CONTINUED PAGE 2

Soil mixing in U.S.A.

Hayward Baker, as a part of the Keller group of companies, is perhaps the largest ground improvement contractor in North America. They have recently selected a Casagrande B300 for an ongoing soil mixing project in southern Louisiana. The job objective is to improve the marshy bayou soil to withstand the load of large capacity oil tanks, for a total of 6. Each tank has a 360 meter diameter circular footprint consisting of 425, 2,5 meter diameter soil mixed columns varying in depth between 6 and 12 meters. Because of the unstable condition of the soil, the B300 was situated on crane mats to distribute the mass of the machine during the soil mixing process.

» CONTINUED PAGE 4



Job site

The Bow Project in Calgary (Alberta-Canada)

The future Bow building, located in Calgary, Alberta Canada, is an innovation in both architectural and shoring design. At 58 stories and with a footprint of two city blocks, The Bow will be the largest building in Canada west of Toronto.

It will be an impressive addition to the Calgary skyline and will serve to redevelop the east side of Calgary's downtown. With 850 caissons to be drilled, combined with extensive shotcrete, there will be 13200m² of total shoring implemented for the construction of The Bow. This is the largest shoring job of its kind in western Canada. HCM Contractors Inc. is proud to be part of the team constructing this ground breaking new building for Calgary.

Specialist Contractor information

For this project, Ontario based excavation-shoring, foundation specialty contractor HC Matcon Inc. expanded into the Alberta market as the newly incorporated company HCM Contractors Inc. A new team was



formed to build HCM Contractors Inc. from both experienced HC Matcon Inc. employees and new hires.

Now based in Calgary, HCM Contractors Inc. brings with it the expertise that has made HC Matcon Inc. respected in the Ontario specialty shoring market.

Special Foundation Equipment

HCM Contractors Inc. has invested heavily in new equipment for this shoring project. With the purchase of two new state of the art piling drills, one of which is a Casagrande B250. Purchases include a two Casagrande M9-1 drill rigs for tiebacks/anchor instillation as well as additional foundation equipment.

Design and Geology

With design from Toronto based Isherwood Associates, HCM Contractors Inc. is introducing the Berlin wall method of shoring to the Calgary construction market. The Berlin wall method involves a combination of caisson wall and shotcrete. The soil conditions in Calgary are unique due to the city's glaciated geological history. The soil is composed mainly of gravel and cobbles transitioning to rock layers of mudstone, siltstone, and sandstone. No one shoring system is ideally suited to all layers. The Berlin wall method allows the shoring system to be tailored to the variable soil conditions of Calgary while still passing on a significant cost saving to the customer. The

caisson wall, completely enclosing two city blocks, penetrates the lower rock to cut off water in the gravel and eliminates all upper ground loss, unlike what would be typical of lagging systems. At the same time, the caisson wall provides greater stiffness and controls the movement of the shoring wall. At lower depths, the rock requires less support and caissons are not needed anchored shotcrete provides an optimal solution.

Quality Control

HCM Contractors Inc. is employing a full survey crew to guarantee millimeter accuracy throughout the shoring installation. Our team utilizes a total station system with targets on the bottom and top of each pile as well as on neighboring buildings. This ensures precision with the caisson layout and implementation of the shoring system. The project also includes the installation of twelve vertical inclinometers and twelve rock extensometers. This is the first time that rock extensometers have been used in construction in western Canada. These instruments provide us with sub millimeter data on movement within the shoring system. With precision monitoring of moments during excavation allows for additional anchors to be installed on an as required basis.

▶ FROM PAGE 1

COMPANY'S NEWS

Geothermal Drilling

In order to meet the special demand required for this Geothermal application, the drill rig type HBR 205 GT has been developed and designed with all necessary features for a safe and efficient operation, especially for drilling depths up to 250 m (near-surface Geothermal application).

The advantages of this HBR 205 GT drill rig are as follows:

- double-head unit for safe and manageable drilling of the complete drill string (casing and rods), i.e.



- simultaneous and opposite-rotating drilling of casing and rods enable a pin-point bore-hole
- the drilled casing prevents the borehole from dipping and ensures the later sinking of the BHE
- the frontal rotary head (HG 24) with its torque of $M = 2.400 \text{ daNm}$ enables a hole down to the homogenous soil
- a controllable conduction of the flushing due to the ring circulation between casing and rods
- drill mast with 20 tons retraction force for effective and safe retraction of the casing
- casing box (magazine) with handling-system (magnet) for fast and ergonomic handling of the drill string
- capacity of 100 m drill rods $\varnothing 88,9 \text{ mm}$ and 35 m casing $\varnothing 152,4 \text{ mm}$
- operation by radio-remote control or hydraulic control arm. Client can choose which solution meets his demands best
- easy and effective handling of the drill rig. Only two people are required on the job-site.

HBR 205 GT drill rig even complies with the rising international demand to protect the groundwater resources by new regulations, saying that boreholes for BHE's have to be done with casing and rods.



Total installed wall area	11710 m ² (126,000 ft ²)
Secant piles wall	4090 m ² (44,000 ft ²)
Shotcrete wall	7620 m ² (82,000 ft ²)
Secant piles diameter	1000 mm (39")
Total Number	850
Max. Length	21 m (70 ft)
Anchors diameter:	90 mm – 140 mm (3 1/2 to 5 1/2)
Total Number:	1740
Max. Length:	18 m (60 ft)

project quantities

HBR205GT

GEOHERMAL DRILLING RIG

The power
in your hands

HÜTTE

BOHRTECHNIK



In depth care

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Largest ever piles in UK constructed with Casagrande C800 rigs

A major UK contractor, Expanded Piling Ltd from Grimsby, has recently completed a project in London using their recently purchased Casagrande C800DH and C800P rigs which involved the construction of what are believed to be the largest ever under-reamed piles formed in the UK.

For the ESSO GOLDEN, Expanded designed a solution which required the drilling of piles up to 40 m deep with under-reamed bases 6.3 m diameter and having a capacity of 2100 t.

A special under-reaming tool was

developed to optimise the drilling torque and extraction capability of the C800 rigs and to avoid manned descent to clean and inspect the pile bases prior to concreting, Expanded also developed a radio controlled monitoring device to inform the oper-

ator of the position of the under-reaming tool and a remote camera system to inspect the base of the pile. Work was performed near a railway tunnel and with severe restrictions on working hours, vibration and noise.

One further difficulty for Expanded was that one part of the site was inaccessible for the C800 rigs and the C800P had to be dismantled and lifted into that part of the site with a large mobile crane.

Ground conditions were typical of London with fill and gravel overlying stiff clay but the rigs also had to core through concrete obstructions occasionally. Taking advantage of the long masts fitted to both C800 rigs, Expanded were able to sink a single 11 m length of casing for the piles next to the railway tunnel in order to ensure good ground stabilization.



The powerful C800DH and C800P rigs achieved cutting times with the under-reaming tool that were not previously thought possible and Expanded completed the construction of 155no piles in less than the planned 24 week programme.

Including the two C800 rigs, Expanded have recently purchased a good number of Casagrande piling rigs including B125, B180HD, B300 and CFA26 models.



► FROM PAGE 1

Soil mixing in U.S.A.

The customer quickly realized an almost doubling of the production rate compared to the drill that was previously on-site.

This was a result of the robust Casagrande H30SX high speed rotary head in addition to a more appropriately sized single stroke mast with a powerful crowd winch feed system. Project manager Ron Short also appreciated the larger footprint of the drill over the previous machine, noting the increased safety factor and greater stability of the rig during operation.

The machine's operator also reported a higher level of comfort in the larger cabin of the drill over its predecessor.

The delivery of the machine on time was critical to prevent down time on the job, especially considering the delivery date falling the Wednesday after a holiday weekend DOT shutdown of oversized hauls.

Thanks to pin point timing and the superior service from Casagrande, the B300 was a home run for Hayward Baker.



Job site

AGENCIES HIGHLIGHT

Seminar – Jeddah, Saudi Arabia “Next Generation of Foundation Equipment”



Following the success of the seminars proposed in other countries, the newly instituted Saudi branch of Casagrande has successfully conducted a seminar in Jeddah titled “Next Generation of Foundation Equipment”. A group of 70 attendees from the leading foundation/geotechnical contractors, general contractors, geotechnical and structural engineering and consulting firms from the Kingdom of Saudi Arabia have decided to participate.

A presentation on the history of the Casagrande Corporation and its products was made by our Sales Manager for Saudi Arabia,

Mr. Sreedhara Narayanan, and our Middle East Area Manager, Mr. Andrea Babbo.

A technical presentation on Slurry Walls, Jet Grouting & Polymer Slurries was given by Mr. Gianfranco Di Cicco, Senior Consultant, Casagrande.

With the new office in Jeddah, Casagrande made a clear statement about the company's commitment in the Kingdom market. We believe that the market reaction towards the efforts invested by Casagrande will be very positive and expects to be the major player in the supply of foundation equipment in the entire region.