Specialist Press Release

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Increased demand for renewable energy: Bauer Spezialtiefbau involved in development of land for industrial investment in Sweden

Östrand, Sweden – In Timrå, approximately 400 km north of Stockholm, the Swedish forest industry company SCA's pulp mill Östrand, a world-leading pulp producer, is located. SCA is now building industrial land west of the mill. Sverige BAUER GL AB, a subsidiary of BAUER Spezialtiefbau GmbH, was commissioned for this project by SCA to carry out underwater soil improvement measures using the Single Column Mixing method (SCM).

“In order to obtain the best decision quality possible in our large investment projects, SCA always make decisions in different stages. At present, we have not made any investment decision but a biorefinery is one option that we are exploring. Demand for biofuels will continue to increase why a biorefinery at Östrand is a very interesting option to SCA. There is a good local supply of saw dust and bark that can be used as feedstock for biofuels including biojet fuel”, says Roger Östlin, General Manager Sustainable Fuels SCA.

As the largest private forest owner in Europe, SCA is committed to sustainable forestry and the manufacture of wood-based products such as pulp, packaging material and paper. The company also focuses on producing renewable energy from wind farms and from by-products that are generated from our industry. SCA already contributes a climate benefit of more than 10 million tons of carbon dioxide annually. Forests provide renewable raw materials for the manufacture of products that replace those with a higher carbon footprint.

Underwater soil improvement as a basis for a future dam
The underwater soil improvement measures that Bauer is executing using the Single Column Mixing (SCM) method will form the basis for constructing a dam near the shoreline. “This dam will then serve as the boundary of a planned landfill in the sea so that the biorefinery can be constructed on roughly 150,000 m² of existing ground and approximately 50,000 m² of newly acquired ground in the sea,” explains Cristian Piaggi, Project Manager at Sverige BAUER GL AB. “Our range of services for this project includes eliminating obstacles on the sea floor over the entire area of roughly 50,000 m². Other tasks include measures to prevent turbidity as well as the principal order: constructing roughly 210,000 m³ of mixed columns using the Single Column Mixing method.”

In the SCM method, the mixing tool and drill string are connected with a rotary drive, while a guidance system enables the vertical alignment of the drill string. The single mixing tool, comprising a double cut starting auger with teeth and round shank chisels as well as

mixing paddles, is inserted into the ground and thoroughly mixes the soil on site with a binder in slurry form.

Achieving stability by socketing the SCM columns into the bedrock
“Work is carried out in nearshore conditions on a barge. The water depth is up to 8 m,” continues Cristian Piaggi. The fine sediment on the sea floor is followed by very soft soil strata. These consist of a clay layer up to 17 m thick and up to 10 m of sandy silt, followed by a layer of up to 20 m of frictional soil – a free-flowing soil type made of sand or gravel. In order to achieve the required stability of the columns, they are socketed into the load-bearing bedrock. The longest column reaches a length of 26.9 m. In total, the Bauer team constructed 5,190 columns with a total length of 76,950 m and a diameter of 800 mm for a total treatment of approx. 39,000 m³ of soil using the dry mixing method, as well as 1.550 columns with a total length of 25,000 m and a diameter of 3,000 mm for a total treatment of approx. 176,000 m³ of soil using the wet mixing method. “Due to our extensive experience with this method, we were able to convince the customer to use the wet mixing technique, which is not yet widely used in Sweden,” explains Cristian Piaggi.

XXL-sized SCM mixing tool
A particular highlight of this project: the use of the largest SCM mixing tool (diameter: 3 m) ever used on a construction site of BAUER Spezialtiefbau GmbH worldwide. In addition to a container mixer CMS 45 from BAUER MAT Slurry Handling Systems and two mono pumps onshore, a BAUER BG 45 drilling rig is used on the barge. The required slurry is pumped through pipelines to the nearshore site.

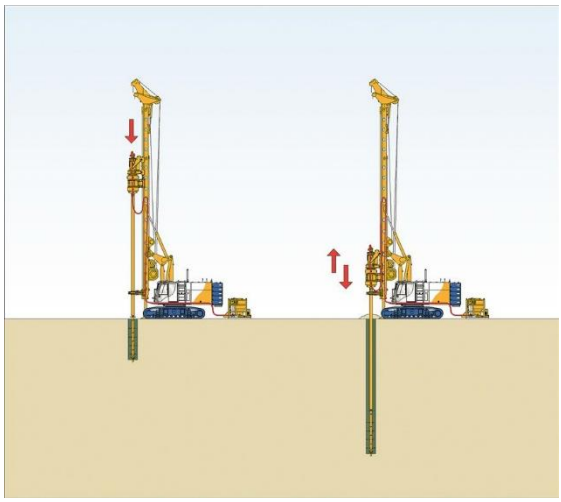
The project preparation took place in record time of only ten weeks. This was possible thanks to the implementation of the BAUER Construction Process (BCP). Not only were various departments at the Schrobenhausen headquarters – including the Purchasing department, Equipment department, Technical Services, the Design team, Logistics, the International Project Services department, and also the HR department – involved in this. The worldwide network of workshops also played a role, especially the workshop in Abu Dhabi, for example in fabricating and providing tools and equipment within very short lead time and in a professional way. Teamwork was also key in the tender and execution phase, as well as in personnel and commercial tasks.

The trial phase of the project began in November 2022 and was already successfully completed. The actual work with the BG 45 started in January and is expected to be completed by September 2023.

Photos: 2023-02_BAUER_SCM_Sweden…

(1) The BAUER BG 45 drill rig works in nearshore conditions on a barge.

(2) The water depth is up to 8 m.



(3) The SCM tool is inserted into the ground and thoroughly mixes the soil on site with a binder.

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About BAUER Spezialtiefbau Group

BAUER Spezialtiefbau GmbH, the original parent company of the BAUER Group, has been a major driving force in the development of specialist foundation engineering. It carries out all of the customary processes of foundation engineering, primarily for excavation pits, foundations, cut-off walls and ground improvements on a worldwide basis. In doing so, BAUER Spezialtiefbau GmbH works closely together with their over 50 subsidiaries and branches across the globe. Regional networks around the world allow for the quick and flexible application of machines, teams and expertise. Bauer Spezialtiefbau offers their customers individual, creative and economical specialist foundation engineering solutions for demanding construction projects, from planning through to execution. More at bst.bauer.de

About Bauer

The BAUER Group is a leading provider of services, equipment and products dealing with ground and groundwater. The Group can rely on a worldwide network on all continents. The Group's operations are divided into three forward-looking segments with high synergy potential: Construction, Equipment and Resources. Bauer profits enormously from the collaboration of its three business segments, enabling the Group to position itself as an innovative, highly specialized provider of products and services for demanding projects in specialist foundation engineering and related markets. Bauer therefore offers suitable solutions to the world's greatest challenges, such as urbanization, the growing infrastructure needs, the environment, as well as water. The BAUER Group was founded in 1790 and is based in Schrobenhausen, Bavaria. In 2021, it employed about 12,000 people and achieved total Group revenues of EUR 1.5 billion worldwide. BAUER Aktiengesellschaft is listed in the Prime Standard of the German Stock Exchange. More information can be found at www.bauer.de. Follow us on Facebook, LinkedIn and YouTube!