



The massive construction site of the Vuosaari cargo harbour in Helsinki, Finland has hundreds of contractors working around the clock.

Kesälähden Maansiirto Oy, an earth-moving company, has been working in different capacities in the area for several years now and is presently running its third major project: installing pre-insulated water and sewer pipes to be used for emptying and filling the ships' water tanks. The pipes used in the project are supplied by KWH Thermopipe.

In its 40 years of operation, Kesälähden Maansiirto has solidified its standing as one of Finland's top ten earthmoving companies. It has around 100 employees, and its annual turnover is near EUR 30 million. The company specializes in large-scale, demanding earthmoving projects in the building of roads, railways and bridges.

Water-related projects include work on canals, harbours and quays, as well as groundwork for water supply and water treatment facilities. The company has a branch dedicated to construction, working primarily on public utilities, shopping centres and other commercial sites. Kesälähden Maansiirto also engages in joint projects with other organizations. The 100-hectare project at Vuosaari is therefore a natural fit for the company.

Risto Niemi is Kesälähden Maansiirto's Site Manager at Vuosaari. "Our job is to complete all of the work that goes under the asphalt surface: we cast crane support systems and lay pipework, water piping and cable protection piping," he explains.

PRE-INSULATED WEHOTEK PIPING PROVIDES water service for ships



Preparing the ship to sail

The plan for the pipework near the Vuosaari cargo harbour quays landed on Risto Niemi's desk early last year. The water and sewer pipes to be installed are to be used for water services that empty and fill the ships' water tanks. When a ship arrives at the harbour, the ship's wastewater is pumped out and piped to the city wastewater treatment plant. Clean water is then pumped back to the ship for the next journey, leaving it shipshape and ready to go.

"We made our first bid for the project in February 2007. It was checked in September and accepted in December," says Niemi. A contract was drawn up shortly before the New Year, after which the earthmoving company received the project plans. The pipe contractor chosen was KWH Thermopipe, who began manufacture of the pipes forthwith. Actual installation work at the site began in mid-February 2008.

A three-pipe challenge

Pipes installed in the surface of the harbour quays must be pre-insulated and trace heated so the pipe content will not freeze in cold weather. "The pipes are embedded in the quay at a depth of 0.5 m," explains Niemi. The system consists of three pipelines, of which the 140 mm sewer is the largest. The water pipes are 80 and 100 mm in diameter. The pipes are insulated with a 50 to 60 mm layer of polyurethane foam, and the entire assembly is covered with a protective jacket pipe made of steel and polyethylene.

Wehotek pipes are well suited to this kind of project, and a total of 2,200 metres of piping was required. Delivery also included various valves and fittings. "Delivery of material has gone well. There were very few deficiencies, and we were never held up because of deliveries," says Niemi.

Heavy material

Four men began installation work in February and March: two plastic pipe joint welders, one acid-resistant steel pipe welding professional and an installer representing the earthmoving company, responsible for the connections on site.

"Once the installation is in full swing, six to eight installers will be needed. The speed of the material delivery has picked up as planned, and we are increasing our manpower," says Niemi.

The pipes are installed in two different ways. Some of the pipes are installed in the quay jetty, on top of the concrete slab in the sea. The other pipes will be attached to the retaining wall quay, against the ground. In the latter case, the trunk pipeline will be installed in the ground and its branches will



Pre-insulated Wehotek piping provides water service for ships at Vuosaari Harbour in Helsinki.



continue on into the tunnel. Installation demands a lot of practical experience. The pipe elements with carrier pipes, insulation and steel jacket pipes are 12 m long and heavy to move.

"They must always be moved with machinery. You cannot move heavy pipes like this by hand. But in other respects, the work is standard installation: welding plastic and steel pipes," says Niemi.

Installation has been successful because the material is familiar. Niemi notes that handling heavy material requires an expertise of its own, but once you know what you are doing, the work flows smoothly. The pipes, drains and equipment installed here need to withstand the great traffic loads in the harbour area. "Because the pipes will be in the quay at a depth of 0.5 m, they will need to be able to withstand the weight of the heavy lorries and loaders," says Niemi.

On top of the game technically, working together

The earthmoving company planned the pipe project together with KWH Thermopipe. "We received valued technical assistance. We held several meetings, and the wishes of the electrical contractors were also taken into consideration. Installation of the trace heater cables in the pipes will be handled flexibly," Niemi comments. Pipe installation at Vuosaari Harbour will continue through the spring and into the summer. The project will be completed by the end of July 2008.



Vuosaari Harbour

» Vuosaari Harbour will comprise the gate area, the enclosed harbour area, the adjacent Harbour Business Park and the Meriportti Business Park.

» The project is being conducted by the Port of Helsinki, in cooperation with the Finnish Maritime Administration, the Finnish Rail Administration and the Finnish Road Administration.

» The cornerstone was laid on 7 January 2003, and the harbour will begin operation at the end of 2008.

