

Season's greetings from Norway!

Dear friends of Olav Olsen,

It is hard to imagine that 2020 in fact started out as a normal year. From March on, however, it has been a year completely out of the ordinary. We are lucky to work in an industry that has been spared the many challenges that the pandemic has created elsewhere. I am proud and impressed by the efforts my colleagues have shown through carrying out assignments and tasks and delivering to the customer's expectations in a year where the work situation has been so different than usual. This is due solely to a very high level of competence, willingness to change, initiative and a large sense of responsibility.

Dr.techn. Olav Olsen has continued the positive development we have seen over the past years also in 2020. I will particularly mention our focus areas geotechnics and dams and watercourses. Our office in Trondheim has also had a great development and will soon count 20 employees.

In October, we became part of the Artelia Group, a leading European multidisciplinary consultancy with 6,000 employees in 40 countries. The purpose is to further strengthen us for continued positive development in the Norwegian market and at the same time increase the opportunities to use our cutting-edge expertise in international projects. We will continue to be the same as you know from before, only with even more to offer.

In the text below we have summarized some of the many exciting assignments we have worked on in 2020. I want to thank customers, employees, industry partners and friends for the cooperation in the past year and wish you a well-deserved and good Christmas holiday and a successful 2021!



Best regards
Olav Weider
CEO

Ports and Industry



Photo: Statsbygg/Trond Isaksen

Despite the special circumstances in 2020, we have been involved in a variety of exciting projects this year.

On the industrial side, the company has contributed to electrification of Norway by projecting newbuilds and renewals of existing transformer stations. Optimized antenna masts securing infrastructure for mobile networks across the country are soon ready for production. Additionally, the Global Seed Vault in Svalbard is now completed, with very positive feedback from the customer. In Norwegian waters, we are ensuring safe sailing by means of OO-designed navigational aids, where realistic wave and ice load calculations have been important elements.

Next year, we are looking forward to many engaging projects. We are especially happy that the government has set aside funds for the start-up of Stad ship tunnel in 2021, on which the company did the pre-project in 2016.

Dams and Waterways



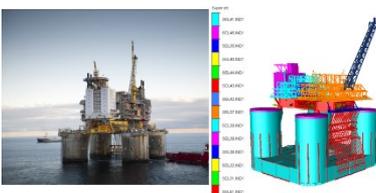
Dam Hoensvannsløken

The business area Dams and Waterways have continued to show a positive development in 2020, and several employees in Olav Olsen have had the opportunity to work on various projects involving dams and waterways.

In 2020, the tasks have been varied and have included, among other things, flood calculations, dam break wave calculations, reassessments, technical plans, follow-ups on construction sites, instrumentation and monitoring and detailed design of dam facilities.

In June 2020, the Hoensvannsløken dam was completed as the first dam we have ever designed and built. We have had several jobs where we have had good use for previously acquired drones and ROVs that we use for inspections on site, to produce drawings and models for non-linear FE analyzes of dams and for CFD calculations of spillways.

Offshore Oil and Gas



After a slow start of the year, the activity in 2020 has picked up after the summer with important projects such as analysis work on Troll A and B utilizing the SRS-models developed in 2019.

This work has proven the importance and applicability of SRS models as they enable us to quickly assess the structural implications of modifications, events or other changed loading conditions. We look forward to continue the important work for our clients in securing safe operations of existing platforms on the NCS.

We have also finalized and launched the agreement with DNVGL on sale and marketing of ShellDesign, an important milestone for our development of this high-end design tool.

Division Trondheim



At the end of 2019 we were 12 employees at division Trondheim, and due to new recruitments, we are now 18. During the year, our focus on geotechnics have payed of, and 5 of our colleagues in Trondheim are working

within this field. In addition to geotechnics, we have had activities within all our business areas; mostly within Infrastructure, Building and Port and Industry.

The activity in the Trondheim Region is quite high, and we have already employed several new colleagues who will start during the winter and summer to meet the demand. The Covid-19 pandemic has forced us to learn a lot about digital coworking – this is an advantage we will utilize in the future regarding coworking with the Lysaker office and also with Artelia.

Infrastructure and Transportation



Ill: Lund+Slaatto Arkitekter

Infrastructure is still a growing business area in Olav Olsen, and despite of the pandemic situation, it has been a busy year, much thanks to 3 large construction projects related to the InterCity double track upgrade. For the section

Drammen - Kobbervikdalen, OO is part of Veidekke's turnkey team for the construction of a 6 km hardrock tunnel and a 600 m long cut-and-cover tunnel. For the section Sandbukta - Moss - Såstad, OO is part of a multi-disciplinary collaboration on the design of a new Moss station, platforms, culverts, bridges, underpasses and roads.

Again, we can look back on a year with many and diverse projects - from inspection, rehabilitation, demolition to construction and R&D. Projects that can be highlighted are the Espern bridge over Hamar station (ill.) now scheduled for construction in 2021, the ferry replacement projects Nordfjord and Rovdefjord link and advancing steel bridge design and fabrication for a new Nærlandsøy bridge in an innovation partnership with Prodtex, Norconsult and Møre og Romsdal county.

Renewable Energy



OO-Star Wind Floater

With the international press describing Olav Olsen as "Floating Wind Pioneers", 2020 has truly been an exciting year. The inhouse developed "OO-Star Wind Floater" concept has emerged as one of the most mature and promising floating technologies, and will now be built, installed and demonstrated at Metcentre in Norway as a part of the project "Flagship". To demonstrate the technology, our project consortium received 25 MEUR in support from EU's Horizon2020, in strong competition among 14 applicants.

Our goal with "Flagship" is to contribute to cost reductions enabling a floating wind industry of commercial scale. We also aim to confirm and strengthen our position in floating wind and to expand in a steady growing international market. As a part of Artelia Group we see a bright future for Olav Olsen within floating wind and renewable energy.

Buildings



Ill: Kontur Arkitekter

2020 has been a busy year where we have started new construction stages at Ulven and in Bispevika. The residential market is good, and there is a demand for more apartments in the market. Both of these projects have allowed

us to develop both technically and with regard to project execution. We would also like to highlight our project at Voldsløkka in Oslo, where Veidekke is constructing a new high school on behalf of Undervisningsbygg. The project has a strong focus on lowering the environmental impact. In combination with an extensive use of wood as a construction material this makes this project especially interesting for us. The school consists of two buildings, where one of them is built within a brick façade from 1912, worthy of preservation. The ground works have started, and the school will be completed by the summer of 2023.

R&D



Ill: HYDRO

We continued our efforts on R&D also in 2020, and we see a good fit with the values of Artelia also in this perspective. To mention a few, the development of aluminium bridge girders in lengths from 100 to 1200 m, development

of a new concrete type suitable for aluminium reinforcement, and finalization of R&D-project on UHPC has been executed in 2020. Furthermore, we look forward to starting up on the newly awarded 8-year BLUES project within Ocean Space together with Norwegian key players. Within digitization, the RAPID project was awarded to our consortium this autumn, addressing physics driven vs. data driven methods.

Together with development projects within fish farming, exploration of AI-methods on dams and bridges and consolidation of our services within CFD, we confirm our focus on continuous development.