# EDGE

the leading edge of Ground Engineering

AARSLEFF®

ISSUE NO.5 APRIL 2021

## FEATURED




One Company excellence delivered for Frednes Brygge II in Norway

# Happy Birthday!

On the 15th of March, our segment leader Stig Weis turned 60 years of age.

Please join us in congratulating Stig as we thank him for all the great work he does for our employees and our company. His dedication and leadership has positively impacted all of us here, and we are forever grateful for that. We are all thinking of you. Happy 60th Birthday Stig!

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From Østergaard we send BIG CONGRATULATIONS to Stig Weis on his 60th birthday. We are the newest member of Aarsleff Ground Engineering and look forward to contributing with our know-how and core competencies within No-Dig work and all kinds of construction works in general. We look forward to the future cooperation.
Søren Kjær, Østergaard

Congratulations on your birthday! Wishing you a truly fabulous day. Hope we can meet in Norway or Denmark soon. *"Age is strictly a case of mind over matter. If you don't mind, it doesn't matter."*
All the best from us at Sør-Norsk Boring and Aarsleff Norway.
Lars Aulesjord, Aarsleff Norge

Happy Bday, Stig! Thanks for your support over the years. By many challenges for Aarsleff Grundbau you have been there with empathy, confidence, and constructive participation. That is very much respected and appreciated. I look forward to continuing the journey to develop Aarsleff's position further on the German market.
Peter Wardinghus, Aarsleff Grundbau, Germany

From Centrum Pile we wish you a very happy birthday. Thank you for your great effort both in the boards, on the sideline, the back line and the front line of our joint efforts to create growth and prosperity. We hope that you will continue to do so for many years to come, while at the same time you allocate time for Susanne, the family, playing with your grandchildren, golf and finishing your summer cottage.
Lars Christensen, Centrum Pile

Dear Stig. Congratulations on your birthday. On behalf of us who are working with Plant & Equipment in the Ground Enginering Segment, I will pass on our recognition for the professional, constructive and empathetic way in which you meet us in our daily work. We appreciate that very much and look forward to continuing the journey we have begun in developing this part of our business. All the best.
Claus Østergaard, Segment (Equipment)

Dear Stig. My employees and I would like to wish you a warm-hearted congratulations with the 60 years. We want you to know that we appreciate you as a manager, a partner for discussion and not least a good colleague. You always manage to have a good and constructive approach to things spiced up with a good sense of humor and empathy.
The best greetings and everything good going forward.
Marianne Borup, Segment (Tendering & sales)

Stig, thank you for all the positive support you have given the UK over the years, we will always offer our positive support to you. Happy 60th birthday from your team in the UK -
Kevin Hague, Ground Engineering UK

I wish you all the best for your 60th birthday. Over the years I have got to know and appreciate you as an empathetic, balancing person. My team and I appreciate your expertise and overview, which comes from your balanced and strong character. I wish you this strength with all my heart also in the recovery of your illness
Bernd Trüün, STB Wöltjen

Dear Stig. A big congratulations from all of us in Denmark. Your commitment and passion for Ground Engineering inspires and gives the organization energy to continue the development of the talented business that you have greatly contributed to creating. You are confident and ambitious on our behalf, which creates joy and pride in being part of your team.
Søren Witt Andersen, Ground Engineering Denmark

Dear Stig, On behalf of all my colleagues from AARSLEFF team in Poland, please accept my sincere congratulations on your 60th birthday. I'd like to wish you all the best for the future, plenty of successes in your career and comfortable cooperation with the subordinates. Your support and respect that you give us is the best motivation for us to constantly enhance our performance and take up new challenges. I wish you good health, strength and determination which are so needed and so valuable to us.
Przemek Nowak, Ground Engineering Poland

Dear Stig. We, the staff and management of the Engineering companies, take this opportunity to send you warm happy birthday wishes and wish you all the best for the future. Thank you for your support and inspiration. On behalf of DMT, Metris and cp test.
Per Grud & Jacob Goth

Hi Stig, Congratulations with your 60 years birthday from the inhouse "facts and figures-team". Together, let us maintain the high cadence for many years and ensure that the turnover graph keeps increasing. Congratulations from Gazi & Kristian, Segment (Administration & Finance)

Dear Stig, 60 years of age – to that we send you all our best wishes from abroad! It's already been a great journey together at Aarsleff. But it wouldn't have been the same without you… In fact, the journey probably wouldn't have begun at all without you! We wish you all the strength and support that there is for the time ahead, to you and your family. You will be missed in the meantime.
Herbert, Tim and the Neidhardt's

There is an entrepreneurial spirit in Aarsleff and when Stig entered our world he personified that spirit. Through his unique ability to create a comfort zone in front of a challenge, we have done what few could and no one else would. Aarsleff is now a leading name in foundations for high rise buildings in complicated geotechnical conditions and it could not be done without him. We have only started! All the best for your 60th!
Niclas Brogren, Ground Engineering Sweden


Tillykke Stig 60 år

# MOJO Park

The classical application of foundation piles is to secure the transition of the construction loads safely into sufficient bearing soils. For that purpose, the precast pile system provides numerous advantageous characteristics: Being produced in a very controlled plant environment, a very high-level product quality and transparency is standard. Combined with an efficient deployment on-site and independency of other activities, the pile system contributes to an excellent holistic project economy. Contrary to in situ pile systems, the Centrum pile can function below and above ground level: below as pile and above as column and/or mounting base. Thereby, serving a valuable multi-purpose function.

Centrum piles as mast foundations by electrification of railways have a long and impressive track record. Thousands of kilometres in Denmark, Poland and Spain have been provided with this solution. Years of practical experience and continuous development of the pile element and the installation technology is a considerable system strength.

Other examples of smart applications are within the renewable energy segment. For instance, the MOJO project – a photovoltaic carport system – in the Flevopark province in the Netherlands. It is an outdoor event facility with a sizeable parking area. The wish to combine the harvest of pure renewable energy via solar panels, provision of parking space and additional parking space with some weather protection, lead to a solution where the Centrum pile system provided the optimal foundation.

From factories located in England, Germany, Denmark, Poland, and Sweden, the Centrum group supplies piling contractors in Europe mainly by truck, but also train and ship. Recently, Centrum has supplied projects in Norway, Iceland, and Greenland.

The Centrum group has the vision to grow its' business through cost- effectiveness, innovative and improved products, and extensive customer service to become the leading precast pile factory in the countries and areas where it is present.

Aarsleff Grundbau GmbH was awarded the contract to deliver and install approximately 2800No. Centrum piles with two cross- sections; pile toe and shaft measuring 45x45cm and the upper pile segment developed to a 45x67cm cross- section. The pile dimension and length are in this case primarily determined by horizontal and bending loads. Here, it resulted in relatively short piles (5m long) and an expanded pile head. As mounting base for the rising steel structure, 4 bolts are integrated into the pile cap enabling very easy fixture.

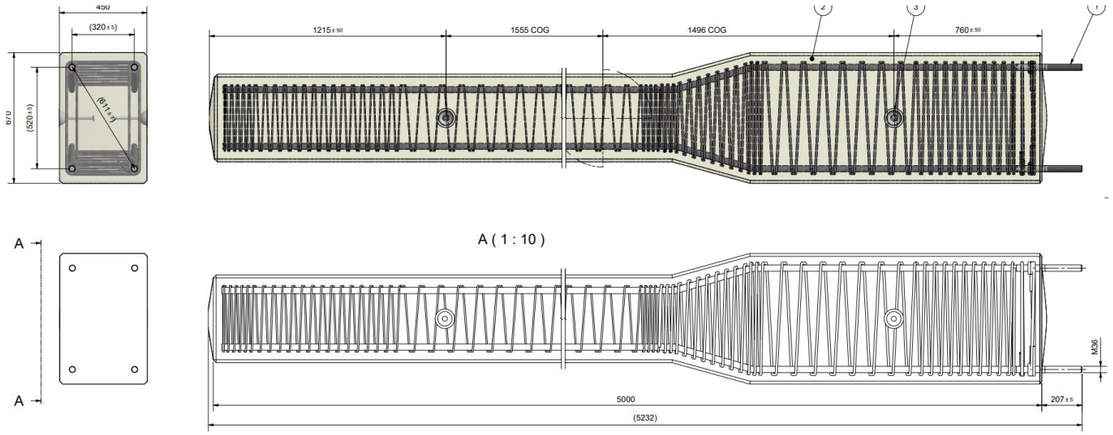
To install the piles, 2 Junttan rigs (PMx22 and PM20), both with a 5- ton drop weight, were utilised. To handle the relatively short pile elements and the integrated bolts most effectively and precisely, a special lifting device was deployed. On average, 30 piles per rig and per day were successfully installed.

The many years of experience within the railway segment and now this solar carport project confirms the centrum pile system suitability as an, in all aspects, effective solution. Future potential applications are many: Carpark facilities by supermarkets, airports, amusement parks, industry stock noise wall foundation and much more.

Peter Wardinghus
Managing Director
Aarsleff DE

Centrum piles laid out to be installed at the MOJO site

Example of a solar carport project




Drawing of the centrum pile EP-B14 (Centrum Pæle A/S)

Handling pile into driving cap using special lifting device

Junttan piling rig PMx22 installing centrum piles

# Expansion of pile system portfolio

In Berlin Spandau at the Havel Marina, HELMA Wohnungsbau Hannover/Berlin is building a total of 18 new apartment buildings.

Aarsleff Grundbau GmbH and its sister company STB Wöltjen GmbH were commissioned with the foundation works for the first construction phase. In the first construction phase, 9 apartment buildings were founded with 30 to 40 piles each. Within 4 weeks, 303 full displacement piles with continuous reinforcement in lengths of 10 to 18 meters were installed. A Bauer BG28H drilling rig and a track-mounted concrete pump were utilized for this purpose.

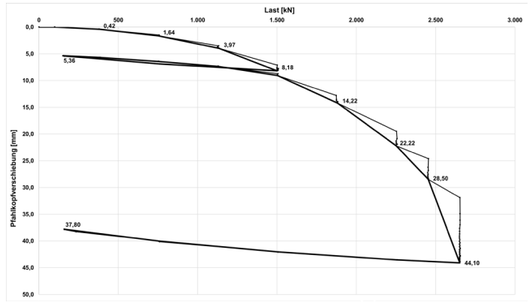
While preparing the bid, the client was offered both driven and bored piles; despite the more economical driven pile bid, the client opted for the full displacement bored pile.

During the site investigations, typical Berlin sands with loose to medium-dense bedding were found, but in this case with local organic inclusions (mud/peat) at different depths.  For this reason, the planners required a continuous reinforcement to be set prior to pile concreting when installing in-situ concrete piles.

Havel Marina, Berlin - Installing the full displacement bored piles (STB Wöltjen GmbH)

The required load-bearing capacities were verified by two static load tests. These were carried out for further system optimization in order to be able to draw on further order potential in the future by similar ground conditions.

The results of the static load tests exceeded expectations with limit ultimate loads of almost 3,000kN.




Static load test (IPM Impuls Pfahlmessung GmbH)

The project development as well as the final system decision was mainly led by Aarsleff Grundbau, the technological preparation and execution was successfully executed by STB Wöltjen.

The project is a showcase not only for the new drilling method but also for the successful internal cooperation within the German Aarsleff group. This raises the profile of the group and will certainly give better market access and order potential for similar projects in the future.

Björn Adam
Regional Sales Manager
Aarsleff DE

# Electrification of the railway

**Electrification of the railway in Denmark**

As part of the preparations for electrification of the railway network in most of Denmark, clearances under a substantial number of existing bridges must be enlarged to enable space for the overhead line equipment (OLE) for the new trains. At some locations the tracks can simply be lowered without much impact on existing bridges, while at others, old bridges are replaced with new and higher bridges.

**Just a stone's throw from the head office**

By begin of 2020, Per Aarsleff A/S won a task with a replacement of a bridge at Skanderborgvej - just a stone's throw from the Viby office. The bridge - originally from 1914 and since expanded in the 1960s - had to be demolished as to the oldest part and a new one be erected. The construction works started around Easter 2020 and meanwhile a few hundred meters of tracks have been lowered and a new concrete bridge has been constructed. Prior to demolition works and excavations for new foundations near the remaining bridge, respectively, Aarsleff Ground Engineering drilled approx. 90 secant piles (Ø630mm) and bored some 60 anchors, set in 2 levels for a temporary wall. During the works, it turned out, some old concrete structures challenged the excavation works, and we therefore had to pierce them by drillings – at first by an attempt with one of our small Tescars, but subsequently larger forces had to be applied by a Bauer BG 28.

**Partners in cooperation**

Aarsleff Rail A/S was the pen driver in the OC project, in which both Construction and Ground Engineering Denmark was also involved. In addition, our German colleagues from Neidhardt Grundbau GmbH provided machines and personnel for installation of ground anchors, and our sister company, Dan Jord A/S did the re-lay of underground cables and pipes. The demolition works were carried out by subcontractor Kingo Carlsen A/S. The project was handed over to the Owner in January 2021.

Peter Heinrichson
Construction Manager
Aarsleff, DK

Jens Jørgensen
Head of Clients & Markets
Aarsleff DK


# Frednes Brygge II

Aarsleff Norge A/S are executing their first contract in Norway in a One Company collaboration with Sor Norsk Boring A/S.

Aarsleff's ground engineering work forms part of the foundations for a new 7-storey apartment block in Porsgrunn: a city and municipality in Telemark in the county of Vestfold og Telemark. Set within a spectacular location located right on the riverbank, Frednes Brygge II, as its referred, will comprise 65 flats spread over two buildings above an underlying garage facility.

Betonmast is one of Norway's largest construction contractors, who deliver projects across the public sector, residential, commercial, and industrial sectors, in both Sweden and Norway. Although they are a new client for Aarsleff Norge, Sor Norsk Boring have worked on projects together previously.

This project is a significant milestone for Aarsleff Norge as it realises their first contract in Norway with Sor Norsk Boring, becoming yet another excellent example of a One Company project where inter-company collaboration has played a pivotal role in problem solving and site logistics.

Sor Norsk Boring's Head of Market and Sales Hans Vetle Sjørholt secured the award from his ongoing relationship with Betonmast, Aarsleff AB provided their machinery and equipment, Centrum Pile AB supplied the precast concrete piles, and Sor Norsk Boring provided an experienced driver to operate the specialist rig.

At time of writing, Aarsleff Norge are on site driving 280No. 270x270 39m long reinforced precast concrete piles, having already installed 2300m$^2$ of sheet piles (10m maximum length) to form a construction pit in February. For equipment, Aarsleff deployed a Junttan PMx22 rig and an ABI Mobilram TM11/14 leader rig, transferred over from Sweden's fleet.

Aarsleff commenced piling operations on the 8th of March 2021 and expect to be on site for a further 6 weeks.

Aarsleff Norge's project manager Rasmus Sulander said: *"Despite the border between Sweden and Norway closing just before the project's agreed start date, the project is being executed without any major foreseeable challenges. One of the great advantages of being part of a wider organisation, is that we can frequently discuss capacity and operations with our colleagues in Northern Europe, and take advantage of a massive inter-transferrable fleet and labour force to suit our demands. Although we were unable to utilise our Swedish personnel this time due to the Covid-19 restrictions, our sister company Sor Norsk Boring A/S were able to step in."*

Jessica Banham
Group Marketing & Brand Manager
Aarsleff Ground Engineering

Rasmus Sulander
Site Manager
Aarsleff NO


# MEET
# ØSTERGAARD A/S

## ...the newest member of the Aarsleff team

At the beginning of the year, the Danish construction company Østergaard A/S changes segment in the Aarsleff group and is now a part of GE.

Founded in 1910, Østergaard began their work in port construction, bridge construction and railway projects, followed by tunnel-pressing and tunnelling tasks just a decade later. Today, the company consists of a department that solves traditional construction tasks within soil, road, paving and drainage, as well as a department that performs No-Dig work. These operations are carried out throughout Denmark, Norway and Sweden for both public and private customers.

Since 2011 Østergaard has been part of the Aarsleff group. They have around 100 employees and deliver both large and small construction tasks. The company have gained extensive experience in solving complicated sewerage and paving tasks in densely populated areas. Over the years, Østergaard have also gained a high degree of specialisation in No-Dig work.

Østergaard pride themselves on having an experienced, stable and competent workforce, both on the engineering side and among executives. It is a tradition at the company that they develop and innovate own technical equipment and methods. For example, much of their tunneling equipment and pilot pipe method has been developed by themselves. Collaboration between the client, consultant and contractor on the planning of the tasks as well as having a close dialogue through the execution processes is of paramount importance to the team in Østergaard.

Østergaard are experienced and competent to perform the following techniques in both city centres and rural locations:

**Traditional civil works**
- Sewage separation
- Installation of pressure and graviation pipes
- Basin and earthworks
- Paving and roadworks
- Excavations for construction and establishment of construction pits

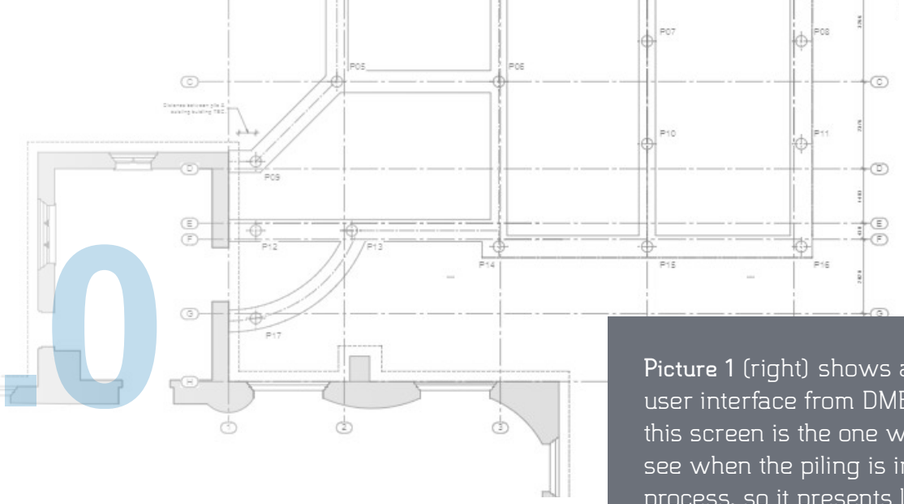
**No-Dig works**
- Pipe jacking, Tunneling open front, Ø1200mm – Ø4000mm
- Micro Tunneling Ø400 mm – Ø4000 mm
- Pilot tube drilling, Ø100mm – Ø400mm
- Pipejacking, Steel casing Ø200mm – Ø1200mm
- HDD – Horizontal directional drilling, Ø32 – Ø1200mm
- Pipebursting, Ø40 – Ø250mm

Speaking about the new relationship with Aarsleff Ground Engineering, Søren Kjær said:

"We are already working close together with GE in many of our projects, but being in the same segment will bring us even closer, especially when looking into the rest of the Scandinavian market".

For more information or to discover some of the projects Østergaard A/S have worked on, please visit: www.oestergaardas.dk


young talent.



# DME 3.0

## The New Pilelogging System

In Ground Engineering we have had our pilelogging system for over 20 years. With this system we have been able to log all the data related to our piling process, whether it has been concrete piles, tubes or sheets piles, the system has been capable to log it all. Therefore, it is no surprise that we have this system installed in all our machines in Denmark, and in many in Germany.

But the system is not flawless, which have resulted in some difficult implementation in our segment. With the upgrading of our DME 2.1 to the new DME 3.0, we strive to limit these flaws which results in a more consistent and less error prone system, that will be common practice with piling and the whole segment.

With the introduction of DME 3.0 (the new system, that is under development), we aim to get rid of "Runtime errors", that have occurred in DME 2.1 without any logic. These "Runtime Errors" results in downtime on the machine, and if the driver cannot solve the issue themself they need further support which only extents the downtime. Therefore, the errors have been critical when trying to implement it broader in the segment. We, and the developers of DME 3.0, believe that the errors are a product of some old code. DME 2.1 runs on code that is no longer maintained by Microsoft. Besides old code, the frequency of updates to Windows and the impact of these updates, have been a reason for many hours of fitting the code and troubleshooting of the system.

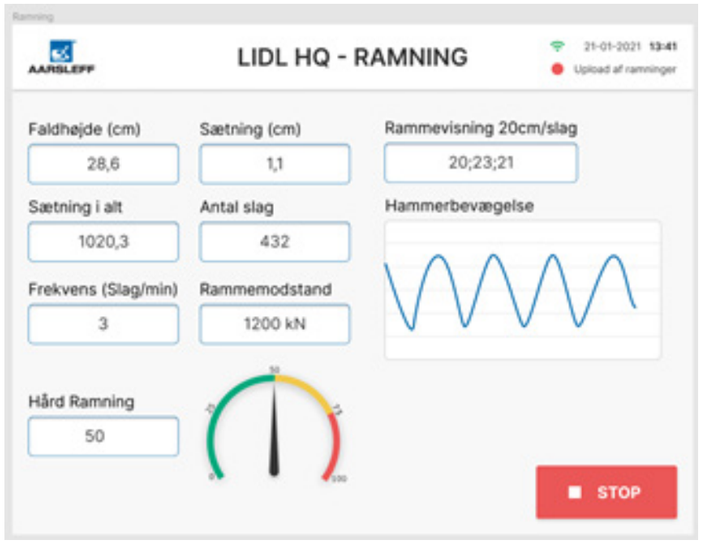
Because of the before mentioned complications with DME 2.1, DME 3.0 is going to be:

- Running on a new operation system, Linux, where we can control the amount and frequency of updates.
- It is going to be build on the newest code that is widely supported.
- The user interface is going to be like the old DME 2.1, so we avoid confusion with the users.
- The upload of pile-files (PL-Files) is going to be automated and synchronized with a cloud database.
- DME 3.0 will use all the existing hardware; laser, computer etc. So no new hardware is going to be needed.
- We introduce a new admin portal, where all data is available, and from where the foreman can update project information and send it to the machine.

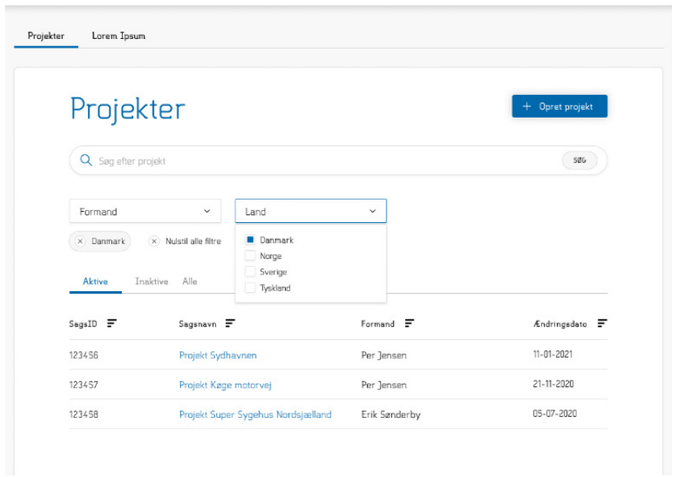
The exciting thing about the admin module/portal, is that it is going to be a browser-based software, so you can access it from everywhere if you have your credentials and internet connection. When the foreman starts a new project in the portal all the information is transferred automatically to the machine. And when the pile is finished, the data is automatically transferred back to the admin portal when there is internet connection.

The system will, as is possible now in DME 2.1, work in offline mode, where you transfer data to USB and later upload that to the admin portal. We expect that DME 3.0 will be available during the start of June 2021 since development is already begun.

**Picture 1** (right) shows a user interface from DME 3.0, this screen is the one we see when the piling is in process, so it presents live data from the piling:




**Picture 2** (below) shows a user interface from the admin portal, where we see projects and can filter on foreman, country, date etc:




We are excited to show you the finished result and look forward to introducing it to you all during 2021. With the digitalization of the ground engineering segment we believe that DME 3.0 is aligned with the digital intention here and further, we will get a system that is futureproof and more consistent.

If you have any questions or are curious about the development, do not hesitate to contact us.


Carsten Olesen
Electronic Engineer
Aarsleff, DK

Claus Østergaard
Technical Manager
Aarsleff, DK

Peter Andreas Novak Hansen
VDC Team Manager
Aarsleff, DK
Mobil 5180 0525

# ‘LOVE AT FIRST SITE’

## New Quay, Eskifjördur, Iceland

## DRIVEN PRECAST CONCRETE PILING

# OPINION

When you experience a set back in your project, how to you get back on track in order to deliver on the programmed completion date without sacrificing on quality or health and safety standards?

Depending on the cause for the setback and the urgency for a solution, I will start analysing the situation and the possible impacts, i.e. the technical, legal, and financial consequences - before I do anything else. On the basis of that analysis, I will discuss internally - and maybe externally - what measures should be taken in order to get back on track. Maybe we have to pull in extra manpower or machinery, maybe we can agree with the client on solving the issue in another way without compromising the job and contract.

In many occasions I have experienced, that the above combined with timely and precise communication can get me out of most trouble.

Jens Jørgensen
Head of Clients
& Markets
Aarsleff DK

Planning is key on any project, and a suitable and robust plan can definitely increase our outputs on site, leading to completing projects ahead of schedule. By engaging with our clients early on to establish both parties requirements, we can ensure that we allocate the correct resources, agree a suitable sequence of working, and create a successful working relationship. Carrying out an effective probing exercise early on is also of paramount importance, and should allow any issues to be highlighted early and allow our site team to then work in a safe and efficient manner for the duration.


Simon Cottington
Senior Contracts Engineer
Aarsleff UK

Dariusz Iwan
Commercial Director
Aarsleff PL

Every day, when starting our works, we analyse the current situation on the site and strive to reduce the risk of clashes and accidents to a minimum. We train our crew and implement modern solutions. Our employees' life and health are of primary importance to us. If meeting the deadline means a threat to any of our crew members, we are always ready to suspend or delay the works, being at the same time aware of our responsibilities and consequences. However, our experience and ambitions to deliver the highest quality of service are always an incentive for us to ensure that all the Client's needs and requirements are fully satisfied.

# MAMUT BAKERY

## Sheet piles and temporary anchors

Situated in one of the oldest parts of Wrocław, at Sienkiewicza Str., the historical buildings of the Mamut Bakery were erected in pre-war Breslau. Since the beginning of the 20th century, the former Mamut bakery complex was one of the largest bakeries in Europe, producing 8 tonnes of bread per day in 1945. The historic complex will now receive a second life, transformed by the renovation and adaptation of its two buildings to become a hotel and modern student apartment building. This beautiful building will become a modern facility whilst still preserving its historical character.

Acting as the ground engineering subcontractor, Aarsleff constructed the excavation support system, with a total length 634lm. Aarsleff installed 1,100No. steel Larsen-type sheet piles utilsing the pressed-in method using pre-drilling in order to decompress the soil - some of the profiles were as long as 20 metres. The total length of profiles used for the construction was 15.5km with a 1,126,000kg weight.

To construct the excavation support system, Aarsleff installed underwater temporary anchors with a total length of over 1km and 270 tonnes of temporary strutting.

The Mamut Bakery project was another of Aarsleff's significant investments in Lower Silesia . Aarsleff's work on site completed in August 2020 and in less than three years, the old Mamut bakery will become a modern student apartment building with a wide range of multipurpose common spaces, serving students attending any of the many colleges and universities in Wroclaw.

Marcin Łuczak
Regional Sales Director
Aarsleff, PL



# PLANT & MACHINERY
## with Claus Østergaard

**New plant**

Sheet piles are getting wider and lighter. It is the way of optimizing installation speed and pile weight vs capacity of the pile. Nowadays double piles with width of 1400 or 1540 mm are a normal choice. Installing these relative light and wide piles with vibrator, can be a challenge to do only with a single clamp installed in the vibrator. The transfer of vibrating forces is in that case not optimal.

For Aarsleff Ground Engineering in Denmark, we have therefore decided to invest in a set of double clamps for the ABI rigs. The first job using these clamps has already been done with success.

The clamps can be used for most double U- and Z- profiles on the market. Installing 16,4 meter long AZ14-1540 double sheet piles with double clamps (Photo on Right).

In UK, we have since August 2020 been long-term renting a Soilmec SF-50 drill rig by Aarsleff Ground Engineering. The rig was new when we started the rental. We have now taken over the rig from Soilmec. It's a rig with operating weight of app. 35 ton, primarily made for CFA drilling in diameters up to 900 mm.

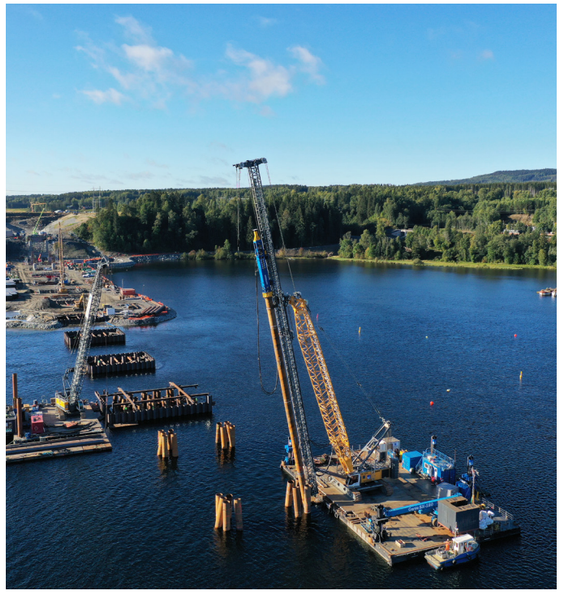
**Setting out piles with GPS on piling- and drilling rigs**

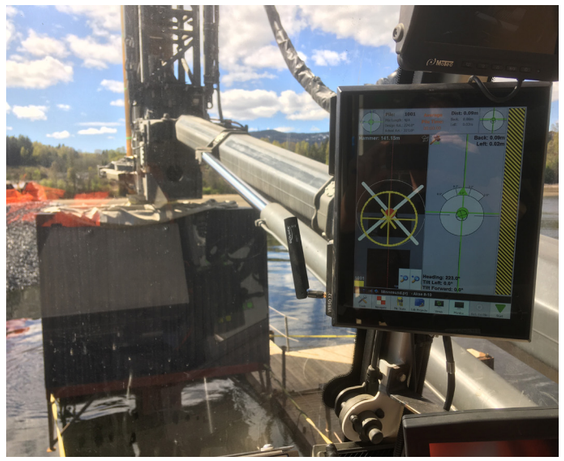
For some years, we have been trying to find a system, to use for setting out piles with our rigs by use of GPS positioning. The intension has been, that that the system should be able to guide the rig into position, for installing the pile, without the need for setting out the piles with a stick in the ground.
We have now found a system, where we can get the back-up needed from the supplier to get a reliable system, but also a system able to install not only vertical piles, but also piles with inclination.
These two requirements have until now been a challenge to solve for our previous suppliers.
The new system has been tested for almost a year on our project in Norway, where long and inclined steel piles have been installed from both on shore platform and from barge.

It has worked very well and have been able to install piles with very good accuracy. When sufficiently good satellite connection is available, our aim is to be able to install piles within plus/ minus 5 cm accuracy.

The system is now available for use, and we have started with installing it in one traditional Junttan piling rig in Denmark and will continue with another 3 or 4 rigs here, with one rig in Sweden, and 3 rigs in Germany.

We are sure that this system will make pile installation easier in the future. It will however be a new way of working and requires that the rig operator get used to work with it. Until now it has worked out well, after a little practice.





Claus Østergaard
Technical Manager,
Aarsleff Ground Engineering

Martin Chudý, Sales Manager

# 5Q'S WITH...
# MARTIN CHUDÝ

*We fired 5 questions at Martin Chudý from Aarsleff Ground Engineering in the Czech Republic, a sales manager with many years of experience in the field of special foundations, which he gained as a construction manager in the implementation of the establishment of large-scale infrastructure projects in Poland.*

## 1 Hi Martin. Please introduce yourself and what you do at Aarsleff.

Hello. My name is Martin Chudý. I am from Brno and I live here with my family and couple of English Bull Terriers. Since April 2013 I work as a Regional Sales Manager (representative for the Czech Republic and Slovakia) for Aarsleff, Poland.

## 2 How have you managed to build an organisation and activities in the Czech Republic?

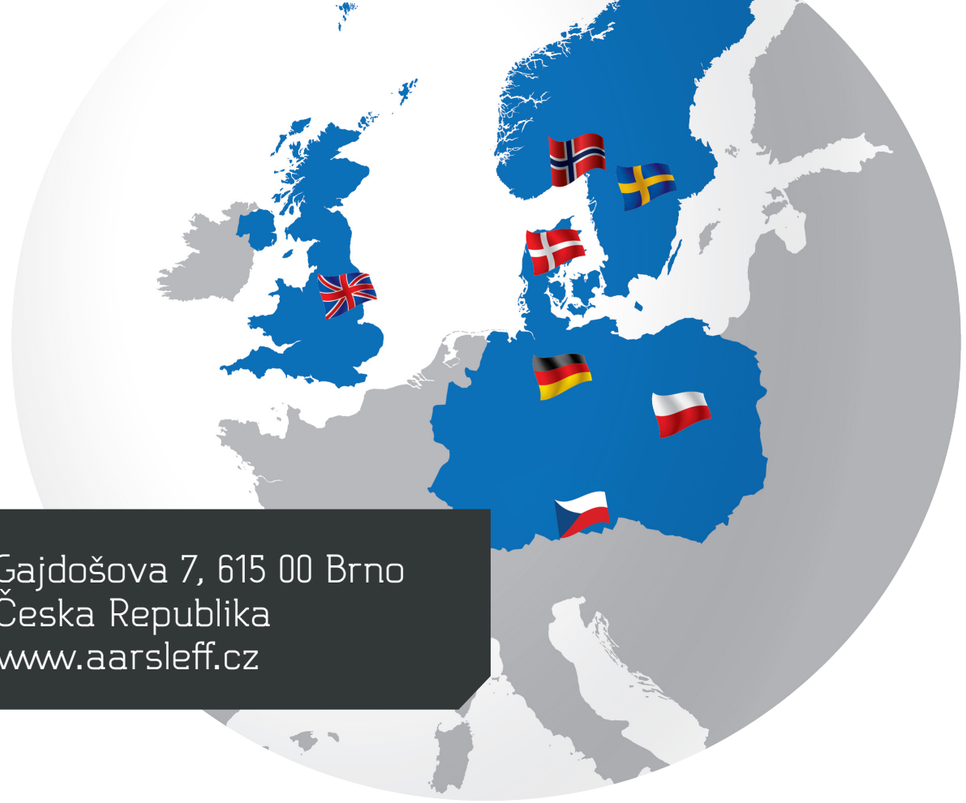
I took it as a challenge, I tried my best and I enjoyed it. Then there is always a way.

## 3 How do Aarsleff in Czech Republic and Aarsleff in Poland operate?

We started here with one employee. My task was to find suitable contracts, sometimes change of design, solve contracts, lead the implementation with the use of Polish workers, solve invoicing and provide formalities associated with operating in another state. It was fun, but limiting for further growth in region.

Today we have two capable and skilled colleagues in the office to take care of the back office and sales. We also have stock in Brno including staff and several site engineers. For the implementation we still use workers and machines from Poland.

In order of the company´s growth it was decided to establish a company registered in the Czech Republic. This will make it easier for us deal with the administration problems, motivate clients for more cooperation and new employees for develop the local production part.



Gajdošova 7, 615 00 Brno
Česka Republika
www.aarsleff.cz

## 4 Which projects are you most proud to have worked on in the Czech Republic?

I can definitely say the contract of BD-Palmovka from 2015. It was about securing a deep construction pit next to the headquarters of the largest construction company in our country.

This was the first major contract in our country that we won due to a change in technology, which was considered impossible due to the geological conditions. We showed that nothing is impossible. There I had the opportunity to handle the whole process - business, design changes and implementation on the construction site.

In addition, my daughter was born at the beginning of the construction, so I had a reason to be proud.

## 5 Please describe the marketplace in the Czech Republic – what sectors are most active?

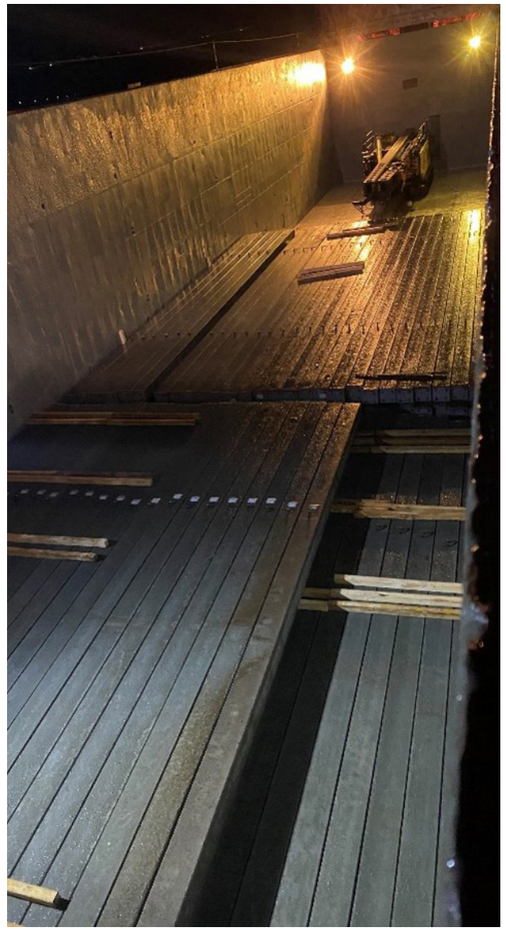
Due to our current market share, the size of the individual sectors may not be decisive. We focus on events where we can offer interesting design or technical solutions. In this way, we win orders and achieve margins regardless of the sector.

Thanks Martin!

# NEWS IN SHORT

## Iceland – for the second time

Per Aarsleff A/S are back in Iceland for the second time in one year to carry out pile driving. For the extension of the quay area, we are to establish a concrete slab cast in situ on 40-60-metre-long concrete piles with a dimension of 35x35 cm supplied by Centrum Pæle A/S in Vejle and sailed directly to Eskiljford.



In relation to the lockdown due to the coronavirus pandemic, certain requirements apply. All employees are tested before departure and upon arrival in Iceland and again after five days. We have obtained a permit from the authorities for each individual employee. During the first five days, they are in a special work quarantine and must not be close to the locals. Domestic flights are not allowed, which means that you have to drive across the island in a rented car. A beautiful/long drive of 8-10 hours.

The piles and the piling rig are shipped from Vejle harbour in Denmark and sailed directly to the construction site. Purchasing Manager Torsten Halling has helped us with chartering of vessel and customs clearance – he has 25 years of experience within this field of work. In addition, Istak/Dali has helped us with the everyday tasks in Iceland.

Thanks to everybody in the team: Jes, Dan, Jimmi, Jeppe, Torsten, Dali and Kåre who estimated the price (and also Mette and Mikke from Tax who helped us with notification of work permits and VAT in Iceland).

- Frank Roland Nielsen, Per Aarsleff A/S

## New Websites for Per Aarsleff GmbH

Our German companies are now online with their new web designs – and they look fantastic! Designed to provide visitors with all the information needed to make an informed choice over their next project or career path, the new website hosts a selection of references, media, and detailed information about their company, credentials, and civil engineering services. Links below:

Aarsleff Grundbau GmbH: www.aarsleff-grundbau.de
STB Wöltjen GmbH: www.stb-woeltjen.de
Neidhardt Grundbau GmbH: www.neidhardt-grundbau.de
Ponel Bau GmbH: www.ponel-bau.de
Per Aarsleff GmbH: www.aarsleff.de

## Employer Branding

Aarsleff Ground Engineering (UK) have been working on Employer Branding and enhancing the induction experience for new starters. Marketing have created a stylish film to introduce, promote and explain Aarsleff's 'Step into the Blue' vision whilst also detailing their three Core Values. By the end of the film, the new employee should have a full understanding of Aarsleff's working culture, vision and values as well as feel inspired to 'Step into the Blue' and fully embrace working for Aarsleff.


https://www.youtube.com/watch?v=7sIJSVcsUC8&t

## Aarsleff Ground Engineering Design Group

To further develop the One Company idea and generally enable co-operation and employment of best practice across the group, a special group of experts from all Aarsleff countries has been established.

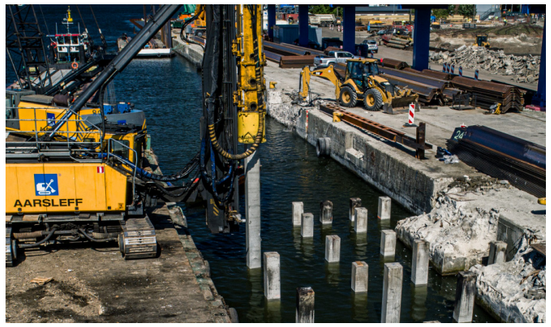
The aim of the group is to facilitate an exchange of experiences, to challenge and compare national design issues and in general to join forces. The overall incentive is to ensure safe, optimized and competitive designs in order to support our daily business.

Thomas Garbers (DE) is chairman of this cross-border design group, which consists of the members Jan Hockerup and Ole Möller (DK), Ash Rogers (GB), Patryk Hyberg (SE) and Dariuz Iwan (PL).

- Thomas Garbers, Per Aarsleff GmbH

## Lights, Camera Action! Port of Świnoujście

Aarsleff SP. z o.o. have showcased their ground engineering work from Port of Świnoujście in a fantastic new video. Working offshore, precast concrete piles and steel sheet piles were installed to create the quay walls and foundations.




https://www.youtube.com/watch?v=478ntA51vgo&t

## News from Neidhardt Grundbau

The long-planned generational change in the company management at Neidhardt Grundbau has been initiated and we are pleased to announce that Stefan Hansen and Tim Neidhardt have joined the management of Neidhardt Grundbau GmbH as of 1 January 2021.

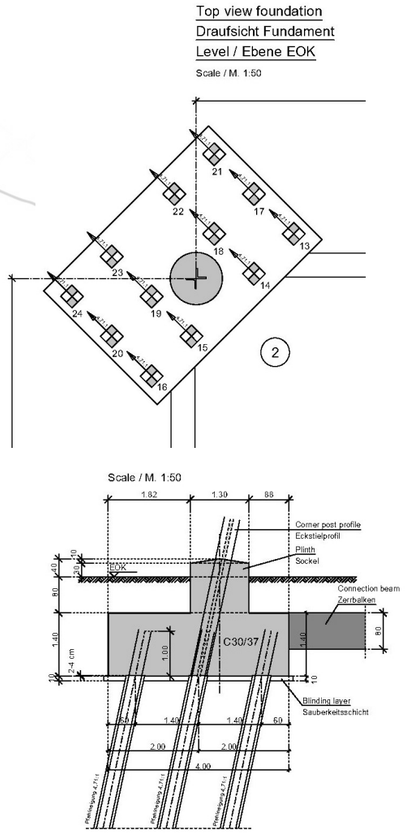
Stefan will be the head of the technical division and Tim of the commercial division. We were able to win over company founder Herbert Neidhardt for another year and he will thus remain as managing director and "third in the group" for the year 2021 to accompany the transition. Mr. Neidhardt Senior had also temporarily represented Per Aarsleff GmbH as Managing Director since 2019. In October 2020, the management has now been handed over to Stig Weis as planned.

At the same time, it was decided to appoint Marcel Lepszy as an authorised representative with power of attorney.

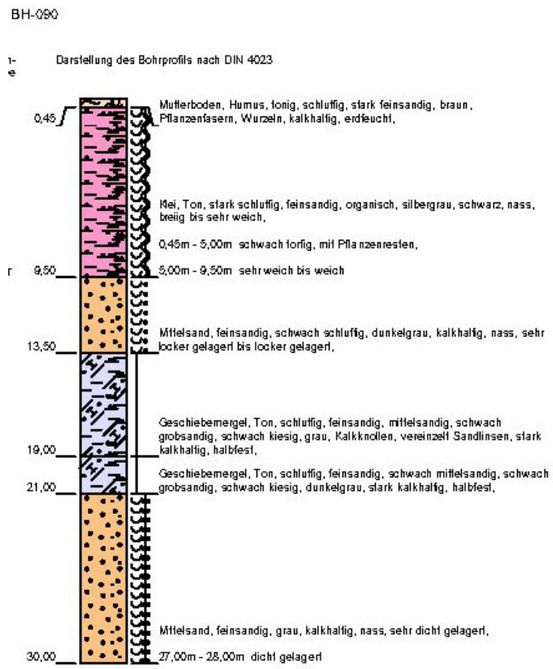
Neidhardt Grundbau is thus well positioned for the future.

- Tim Neidhardt
Neidhardt Grundbau

# FOUNDATIONS FOR POWER LINES




Pile layout section (Fröhling & Rathjen)




Profile of the subsoil mast 090 (FUGRO)

As a leading European electricity transmission system operator, TenneT TSO GmbH develops the German power infrastructure extensively and thereby delivers an essential contribution to the energy transition. This demands secure and economical ground engineering solutions for the power lines. For the fourth project section Husum-Klixbüll, Aarsleff Grundbau GmbH delivers and installs driven precast piles – the CENTRUM piling system.

Under each mast, 4 x 12 Centrum piles with a cross section of 40x40 cm are arranged in separate foundations. All piles are inclined outwards with the same inclination as lattice mast foot. In order to exclude an inadmissible horizontal displacement of the entire support system, the foundations are connected with transverse ledgers.

The local subsoil conditions were extensively analysed and described by FUGRO. The typical structure beneath the topsoil is an alternating bedding of clay and loosely bedded Holocene sands. From a depth of approx. 14 m, stiff boulder clay is present. This is underlain by medium to dense sand. The verification of the tensile load-bearing capacity of the pile is the decisive factor for determining the required pile length. Thereby, important criteria determined by the client regarding the permissible heave must be particularly considered.

At the mast positions 090 and 092, an extensive test programme was realised during this pilot project. The aim was to investigate the load-bearing capacity of a driven precast pile in order to confirm the suitability of the pile system and to enable a comparison with other deep foundation solutions. In addition to supplementary cone penetration tests (CPT-E) and extensive and complete driving logs for all piles, the following tests were carried out:

- Dynamic load tests during driving
- Dynamic load tests immediately after installation and again after 5-7 days
- Static tensile load tests on instrumented, separate test piles
- Static tensile load tests on four construction piles as acceptance test (1.25xstructural design load)
- Static horizontal load tests on one instrumented, separate test pile

The piles were installed utilising a Junttan PM26 piling rig with a hydraulic hammer (drop weight 9 t). The pile installation and all the pile tests were carried out according to plan, quickly and successfully. Thus, an important basis for the realisation of further deep foundation measures using Centrum piles for power lines has been secured.

Construction for the acceptance test

Peter Wardinghus
Managing Director
Aarsleff DE

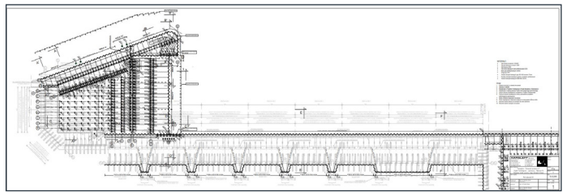
# SALES INTELLIGENCE AND CLIENTS' NEEDS:

## an alternative solution to the Ferry Quay 5 project in Świnoujście.

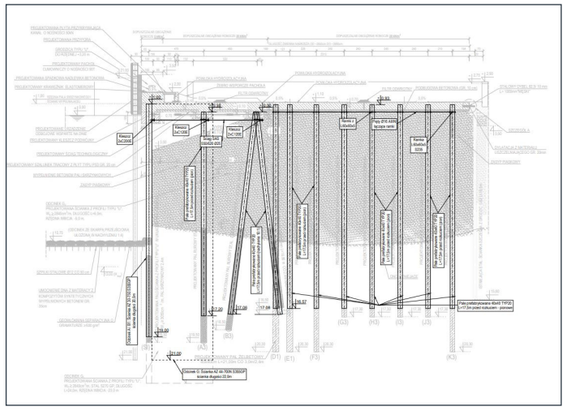
Among many definitions of sales, the one proposed by Charles Futrell seems to deserve most attention: "Sales is the personal communication of information to persuade a prospective customer to buy something – a good, service, idea, or something else – that satisfies that individual's needs."

When initiating each sales process, in particular in B2B relationships, we frequently meet with our Clients. During these meetings we need to precisely determine our Client's expectations and needs that they wish to satisfy when buying our service or product. We applied the same approach when working on a tender for Budimex S.A., General Contractor for the Świnoujście project. It was as early as in the tendering phase that the first meetings with the Client were held, during which AARSLEFF Sp. zo.o., being a competent and reliable marine work contractor, proposed directions of changes in the design, based on our own designing concept and successful long-term sales and production experience. The alternative solution not only provided cost savings for the General Contractor as compared to the original one, but also made it possible to introduce a new unit to the contract concluded with the Investor: 11m of precast pile – the key element of our tender. This was what the Client needed. For comparison, the original solution was estimated at PLN 32 million, whereas our alternative solution – at PLN 21.5 million.

We signed a variant contract with Budimex S.A. for both the solutions, the main goal of which was to approve AARSLEFF's alternative solution as fully equivalent to the original one.



Client's detailed design



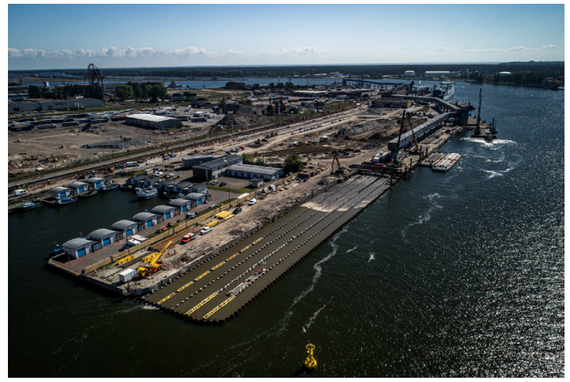
Aarsleff's detailed design

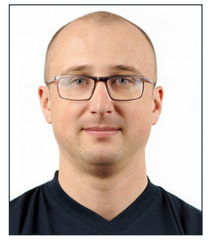
Basing on our long-term experience, we are of the opinion that the key element is a comprehensive tender ensuring that the Client reaches their goals with a trustworthy partner. In case of the Świnoujście project, it was crucial to combine the design, sales and production competences. Owing to this approach and commitment of the whole team, many questions and doubts could have been answered and cleared directly during those early meetings in a form of consultations. The talks were in particular focused on convincing our Client to our design concept, technology of works, time schedule and risk assessment related to the existing infrastructure or his other works. During such meetings it is much easier to assess what the Client needs and what is not acceptable for them as well as to recognize the limitations that may either increase the costs or, on the contrary, allow for a better margin.

Another important aspect of sales is strong relationships with Clients, preferably developed over years.

The Świnoujście project is a good example that a long-term relationship with the Client, properly customized design solution and rich experience gained during a similar project in the past provide a good foundation for talks in a spirit of openness and mutual trust. If one team wins a contract and is also responsible for its execution, the project management continuity is ensured, good relationships with the Client are maintained and the Client can be sure that all the agreements and arrangements will be properly implemented (not everything is provided in the contract). Moreover, a well-experienced team, including production engineers, gives an extra value to the tender, which is not longer seen as "words on paper" only, but as a real Contractor's obligation. This is about securing a partner position as a contractor who is really capable of executing the contract. If the obligation is assumed by the same person who is also responsible for contract execution, it would be hard to withdraw from it and such withdrawal would have serious consequences to this person's image.

In our opinion, Clients usually just want "a peace of mind", without obstacles and problems, and that is why they need a reliable and experienced Contractor. Team work has definitely added to our company's positive image.





Sebastian Sobczak
Chief Designer
Aarsleff PL

Michał Olech
Deputy Production Director
Aarsleff PL

Dariusz Iwan
Commercial Director
Aarsleff PL

# H&S GROUP

**Accidents for Q1 2020-21**

We can see from our statistics than we have less accidents in Q1 this year compared to last year, and accidents with absence is less. Very good!

| | Aarsleff Ground Engineering | Centrum Pile |
|---|---|---|
| Total Accident | 17 | 12 |
| Lost Time Accidents (More than 1 day) | 4 | 1 |
| Accidents (Less than 1 day) | 13 | 11 |
| Near Miss Incident | 36 | 22 |
| Accident Rate | 11.5 | 8.7 |

Remember still to take care of yourself and each other.

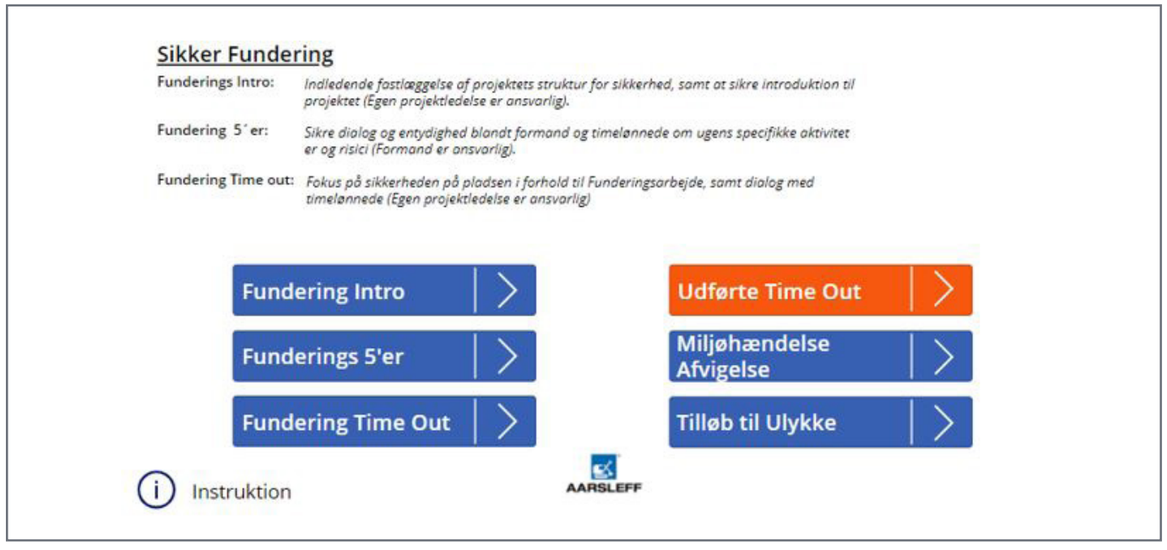
**Safety Aarsleff Ground Engineering app:**

In the last 2 years, Aarsleff Ground Engineering in Denmark has experienced a large increase in its number of accidents. In our working group this last year we have been developing a solution where we in the section can get more focus on our own safety on the site.

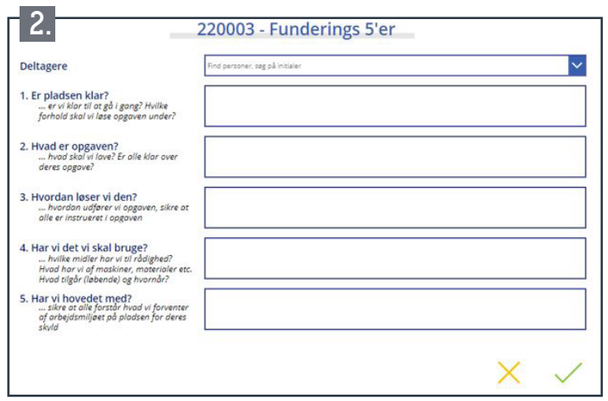
The work is implemented in an app, and has three steps:
- Intro "Fundering Intro"
- Weekly or daily follow-up "Funderings 5´er"
- Mini safety inspection "Fundering Time Out"

We have started to use the app in January this year, so we can´t see the result yet, but we expect that it will help reduce the number of accidents this year in Aarsleff GE Denmark.

Frontpage of the app:

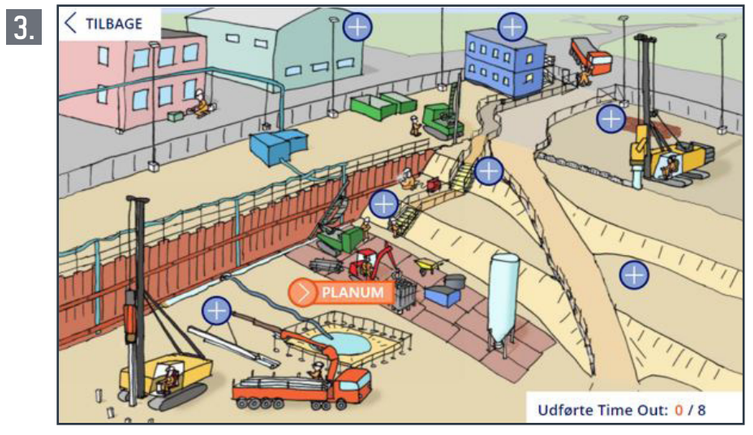


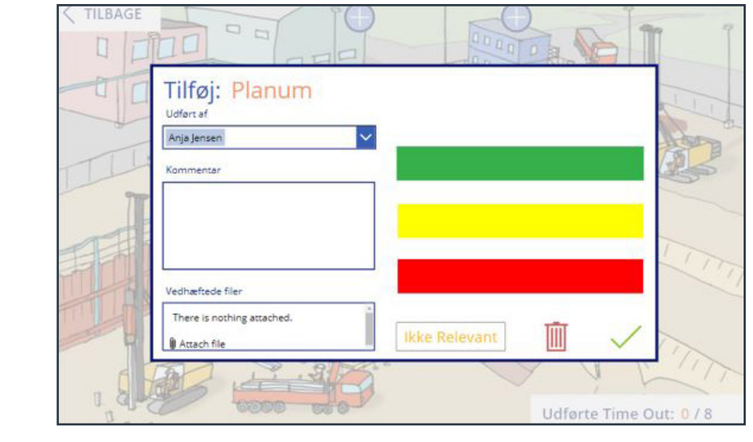

1. Intro "Fundering Intro"
Initial determination of the project's structure for safety, as well as ensuring introduction to the project (Own project management is responsible).


2. Weekly or daily follow-up "Funderings 5´er":
Ensure dialogue and unambiguity among the foreman and workers about the week's specific activities and risks (The foreman is responsible).

3. Mini safety inspection "Fundering Time Out":
Focus on safety on site in relation to Ground Engineering's work, as well as dialogue with workers (Own project management is responsible)



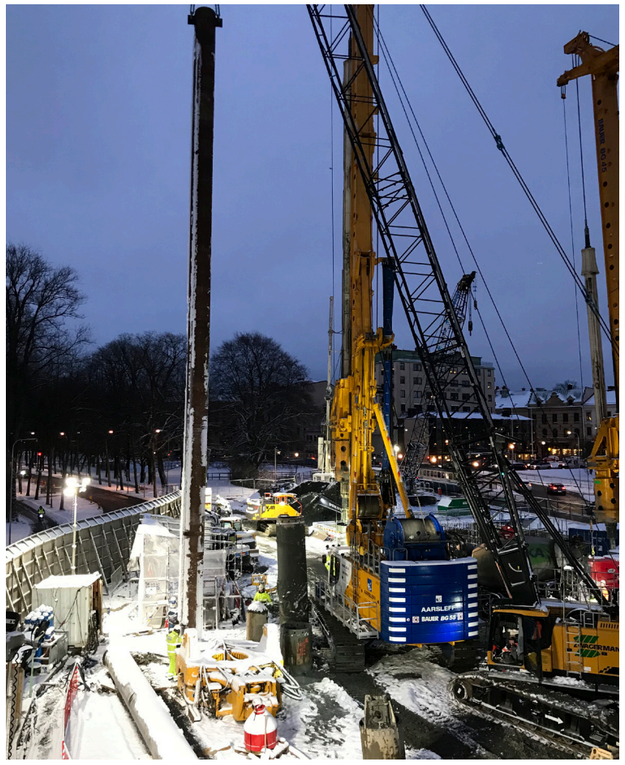

Anja Jensen
Departmental KMA Engineer
Aarsleff DK

# SNAPSHOT

Send your photographs to jessicabanham@aarsleff.co.uk or WhatsApp +44 7990 005436


Porsgrunn, Norway - Aarsleff NO


Werrington Grade Seperation - Aarsleff UK




HAGA Station, Gothenburg, Sweden - Aarsleff SE


LIDL Headquarters, Aarhus, Denmark - Aarsleff DK

Vistula Lagoon, Baltic Sea, Poland - Aarsleff PL

# AARSLEFF IN 3D

When a new employee joins our business from outside of our industry, it can sometimes be a challenge to clearly describe and explain our ground engineering services. Similarly, a good percentage of our clients know what they want and when they want it, but they'll have trouble understanding what we will actually deliver in the end.

Both the above scenarios take time and effort. Luckily, the digital era is here to make it easier. We partnered with Polish firm Modii3d to produce 3D visualisations that would illustrate some of the core construction processes we carry out on site, all of which have been translated in English, Polish and German. These are:

1. King Post Walls
2. Sheet Piling
3. Full Displacement Piles
4. Slurry Wall
5. Driven Precast Concrete Piles
6. Bored Piles
7. Secant Piles - Vor Der Wand
8. Diaphragm Walls
9. Anchored Wall

According to research, more than 80% of people are convinced of using a product or service from a specific company after watching a visualisation. Visualisations are attractive and easy to follow and understand, not least because our brain processes images much faster than just text. In addition, the versatility of animated videos makes it easy to include visual elements, colours, and characters that help people connect and recognise the Aarsleff brand.

**Applications**

Our visualisations can be used for an array of reasons, but for the most part, you should be utilising it in your websites, in presentations to clients or new employees, and any material whereby you need to explain the operation principle.

Please speak with your Marketing Coordinator or send an email to jessicabanham@aarsleff.co.uk to access the visualisations.


Jessica Banham
Group Marketing & Brand Manager
Aarsleff Ground Engineering

*At the beginning of the year, the Danish construction company Østergaard A/S changes segment in the Aarsleff group and is now a part of GE.*
*Read more on page 12...*

# EDGE

AARSLEFF®

NEWS FROM GROUND ENGINEERING ISSUE NO.5 APRIL 2021