



“We can do our work so much faster. In the past, these questions required more than a week of work to answer, but now we are finished in a few hours.”

Dirk Talsma,
Civil Engineer,
Grontmij

Pump Up The Volume

European civil engineers complete design tasks in hours instead of weeks

Project Summary

With over 3,000 employees, Grontmij is Europe's thirteenth largest civil engineering and architectural firm and boasts half a billion euro in annual revenue. The firm provides a range of civil engineering and infrastructure services including urban, transportation, and environmental design for public agencies and private firms. Faced with strong competition, shrinking budgets, and demanding government regulations, Grontmij adopted dynamic design software to speed projects and reduce costs. By using Autodesk Civil 3D, Grontmij is:

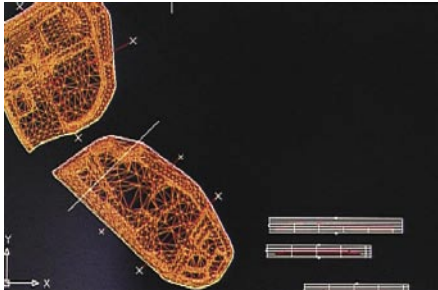
- Performing design tasks ten times faster
- Extending the useful life of an important waste facility
- Winning new customers with new services
- Beating the competition with innovative technology

The Challenge

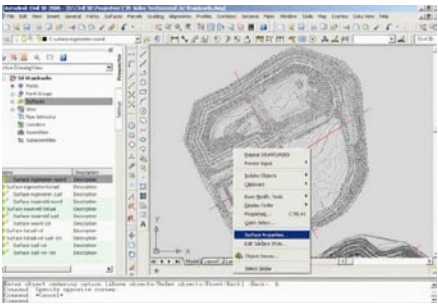
Traditional Design Software Slows Progress

Strong competition for infrastructure projects drives civil engineering firms to operate with razor thin budgets. Extensive changes can slow these projects and reduce the company's profit. To address these risks and attract new customers, some engineers are employing new technology. New, dynamic software automates drafting tasks and provides the flexibility to create many design alternatives, not just one or two. Working mostly in Belgium, Germany, and the Netherlands, Grontmij began using Autodesk Civil 3D to remain competitive and profitable.

“These projects last a long time,” says Jan de Boer, a Grontmij project manager. “A small change can dramatically affect the schedule. We wanted to try Autodesk Civil 3D because we saw enormous potential to improve our service and reduce risks associated with design changes.”



The dynamic nature of Autodesk Civil 3D helps engineers develop multiple design options quickly when a customer requests changes.



By establishing design standards and creating a dynamic model, civil engineers enjoy the power and speed of automated drafting tasks.

The Solution

A New Way

Traditional civil design software frustrated Grontmij engineers as they created plans, profiles, and cross section drawings. Because the software does not link these elements together in a single, dynamic computer model, any changes required extensive and tedious manual updates. Adjusting alignments, recalculating material volumes, and updating annotation meant that technicians spent days or weeks to revise the designs, maps, and documents. Hundreds of manual edits on hundreds of drawings made errors commonplace and inevitable. And because customers often request changes, designers expect these delays and errors as an unavoidable obstacle.

In 2004, Grontmij approached various software vendors and discovered a new Autodesk technology that radically improves traditional design. "Autodesk Civil 3D makes design much faster," says de Boer. "We establish a set of in-house styles and build a single computer model. Everything is automatically linked. Alternative designs and changes move very fast compared with other tools. We discovered that only Autodesk offered this technology."

Eliminating Waste

Once Grontmij purchased Autodesk Civil 3D, they considered customers that would provide a suitable test of the software. "We selected the ideal project because it required constant material volume calculations," noted Dirk Talsma, another Grontmij project manager. "The Stainkoeln waste processing facility was a good test for the software."

In a nation where engineers reclaimed much of the territory from the sea, land is a precious commodity and government regulates environmental protection closely. Located in Groningen, Netherlands, Stainkoeln has become a model for efficient and intelligent waste management by pioneering safe treatment and storage procedures for industrial and agricultural waste. Grontmij helps by carefully calculating the volume of cleaned soil and waste materials that the facility can store safely, making the most efficient use of the land.

Software That Speaks Volumes

Civil engineering projects often require accurate volume calculations to forecast the amount of dirt and other material necessary to move for roads, buildings, and other infrastructure.

This task is especially important for Stainkoeln because processing and storing massive volumes of material is its primary, day-to-day responsibility. In addition, Stainkoeln and Grontmij monitor the pressure of the material to avoid groundwater contamination. They balance this with the fact that increasing the landfill's height by one meter extends the facility's life and defers the need for a new landfill. "While we work to extend the life of this facility to its safe limit and delay building another landfill, we also make certain that our efforts to store waste do not threaten the environment," explains Talsma. "It is an important balance."

Like other software, Autodesk Civil 3D calculates material volumes. But unlike other software, Autodesk Civil 3D derives these calculations by using a single, dynamic, intelligent computer model. Once the engineer has entered all of the basic measurements and survey coordinates, the software offers very quick volume calculations. In addition, changes or alternative designs do not require manual drafting edits. For a multi-year project like Stainkoeln, a dynamic 3D model is invaluable.

The Result

A One Week Task Now Completed In Hours

Autodesk Civil 3D shortened schedules considerably. The new model twists on the computer screen as engineers study results and consider alternatives. "We do our work much faster," exclaims Talsma at his computer. "These questions took more than a week to answer, but now I am done in a few hours. We established the parameters using government regulations and created the model. The software automates the rest. It is a new way of working with many advantages."

Satisfied with the results from this first project, Grontmij explored additional features and won new interest from customers. "We will use Civil 3D on a variety of projects now including road and site design," says de Boer. "Last week, we delivered two options for a competitive local government project: one with the old, static method and one with the new, dynamic model. After we highlighted the advantages of Civil 3D, the customer was enthusiastic and selected the new alternative."

For more information

To learn more about how Autodesk Civil 3D accelerates the pace of projects, visit us on the web at www.autodesk.com/civil3d