CASE STUDY

CAT Next Generation 320 & Trimble Earthworks: A421 Dualling

Overview

Over the past twelve months Flannery Plant Hire has made a significant investment in the Cat Next Generation product range. Packed with safety features and the latest technology including Cat Grade Assist, Cat Grade and Cat Payload, these machines offer a noticeable advancement in connected and automated plant technology, making them ideal for complex earthworks schemes.

The Project

Flannery Plant Hire is working with Morgan Sindall to upgrade the A421 Expressway, creating a dual carriageway from the Eagle Farm roundabout to Junction 13 of the M1. This stretch of road is used by almost 30,000 vehicles a day. The major road works started in March 2019 and are expected to finish at the end of 2020.

Innovations

A significant development on the Cat 320 tracked excavator is the introduction of semi-automatic control over the boom, dipper and bucket movements as part of Cat Grade Assist. These machines also come complete with:

- **Trimble Earthworks** GPS platform combines an intuitive touch-screen display that is easy to use whether you are a veteran operator or first time user. The technology allows data files to be loaded into the system (via USB or remotely) which then enables the operator to work accurately with the latest digital model.
- **Cat Payload** delivers precise load targets and increased loading efficiency with on-the-go weighing and real-time payload measurements to ensure optimum productivity of the dumper fleet.
- Standard **Grade Assist** automates boom, stick, and bucket movements so operators can effortlessly stay on grade with single-lever digging.
- The **E-fence** feature prevents the excavator from moving outside operator-defined set points - particularly useful when working beneath structures or near traffic.
- **Cat Link** allows telematics data to be fed to the Flannery telematics dashboard, providing machine critical data including idle times and fuel burn.

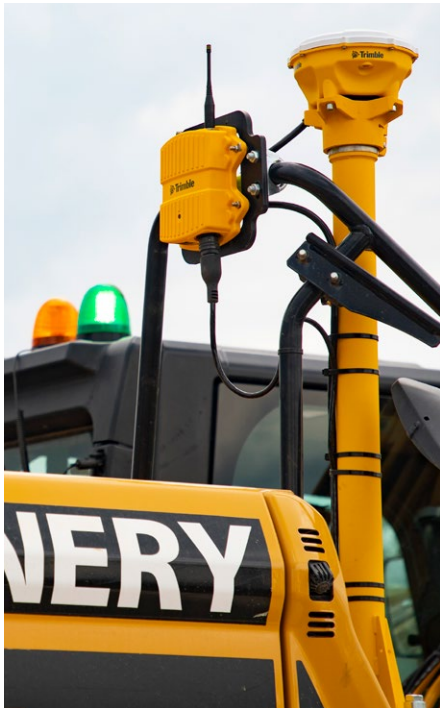
Innovations

- New **Smart mode operation** automatically matches engine and hydraulic power to digging conditions, optimizing both fuel consumption and performance. Engine speed is automatically lowered when there is no hydraulic demand to further reduce fuel usage.

Caterpillar has reported fuel savings of up to 45% with these excavators over the previous model.

Background

Flannery Plant Hire is committed to building a future focused on **Digital Construction.** Having consistently invested in the latest technology and adopted innovations, customers can be sure that the Flannery solution will offer the greatest value.



Machine Guidance and GPS have become an increasing focus for Flannery Tier One customers over the last twelve to eighteen-months, perhaps in response to Highways England **mandating the technology** on all earthworks projects from June 2019. Keen to drive innovation and as a proactive member of the Highways England Plant Group, Flannery have been involved in trialling and testing different products on a number of infrastructure projects.

Investment in the Cat Next Generation excavators further enhances the company's Digital Construction offering. Investment has not only been made across the fleet but also in telematics which ensures customers are getting the most from the equipment they have on hire.

The company's focus on enhancing GPS capabilities through the use of integrated machine control systems and **Caterpillar Production Management Systems** helps ensure productivity and efficiency across any project.

The use of the latest GPS platform - Trimble Earthworks - ensures accuracy and productivity in accordance with the uploaded 3D model of the site plan, reducing errors and improving efficiency. The combination of the latest Trimble platform and Caterpillar's machine control systems provides machine automation to deliver **the accuracy customers require first time, regardless of the experience level of the operator.**

Flannery has been partnering with SITECH, the Trimble distributor in the UK and Ireland for the last five-years.

Ian Barnes, Head of Business for SITECH explains, "It has been really important for us to work collaboratively with the team at Flannery. Our focus is on supporting a field-to-finish solution that offers Flannery a great service proposition and their clients a more effective, sustainable method of work.

Our products have really helped to revolutionise the market space. We are proud to support a product that supports operators, contractors and hirers to dig once, move once and pass once. This is of huge importance in today's market, where we need to watch what we spend while protecting workforces and the environment in which we are working."

Scan this QR code from your smartphone for a quick link to the **Background Video**.

Case Study

Flannery Operator Chris Mayers is operating the new Cat 320 on the A421 dualling project.

An experienced operator, Chris is pictured excavating to grade and utilising the **payload technology to ensure maximum efficiency** when loading trucks.

“I have been really impressed with how easy the Trimble system is to use and can see how it will support an experienced operator to maintain consistency. For newer operators the system will really help with accuracy and grading speed, it certainly feels like we are a step nearer to **machine automation** with this combination of machine and technology.” Chris commented.

Morgan Sindall Project Manager, Steve Martin said, “Utilising the latest CAT machines has definitely helped us to work more efficiently. Working collaboratively with Flannery has ensured that we have the most **cost-effective solution to get our job done in the safest way.**

For us, working efficiently is not just a cost focus, working sustainably is a major factor in our decision making and using less fuel obviously contributes to this. These next generation machines meet the latest emissions regulations, meaning we really are adopting the cleanest machines available.”

One of the advantages of utilising this technology is a reduced requirement for marking out and for engineers to be on site to check and measure levels and accuracy against the model. On a busy and compact site reducing the number of people in the people plant interface has very obvious safety advantages.

Steve Martin continues, “By getting it right first time and being able to monitor progress we have reduced the need for site engineers to check and monitor works.

This means reduced interactions of people and plant, which is a huge benefit.

The ability to build-in height and slew restrictions or obstructions to the model also allows us to better manage risks on site and helps us to get everyone home safe every day.”

Niall Hester, Operations Director for Flannery Plant Hire further explained, “Flannery has a wealth of experience with GPS and machine control systems, and work with the site team to ensure this technology works effectively.

By using a **collaborative approach** Flannery is delivering the best solution to clients like Morgan Sindall.”

Conclusions

We know from the Caterpillar comparison data that these Next Generation machines are providing up to 25% fuel savings and that the smart grade assist showed a 45% increase in operator efficiency when compared with traditional grading methods. From operator feedback on this site it is clear that there are also many qualitative benefits to this technology; a reduction in operator errors and fatigue and improved consistency of finish for operators at all levels of experience.

- Flannery Plant Hire is committed to supporting the industry’s move towards connected and automated equipment.
- The use of the Cat Next Generation excavators supports a huge step forwards, providing great advantages in terms of productivity, carbon savings and efficiency.
- The technology enables operators of all levels of experience to achieve accurate finishes.

Being able to facilitate a “connected site” is really important, as Flannery Digital Manager Steve Bayliss explains, “Data is now driving construction. That is, data delivers digital models to machines, and in turn these machines help our operators monitor their level of accuracy against the model. This means we are only digging and moving material once, creating fantastic efficiencies for our clients.”

Our investment plans reflect our focus on the move towards digital construction and, as a hirer, Flannery will continue to work closely with our clients to ensure they are gaining the benefits associated with this technology.

More Information

For more information, why not visit our website **flanneryplanthire.com** where you will also find a supporting video for this case study. If you have any questions please contact us by emailing **marketing@flanneryplant.co.uk**

For a quick link to the **Case Study Video scan this QR code** from your smartphone.