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GRAHAM is a privately owned contractor with an impressive 200-year history. Specialising in building, civil engineering, interior fit-out, facilities management, and investment projects, we operate from a network of regional offices throughout the UK and Ireland. With an annual turnover of GB£808.1m and a healthy GB£1.7bn pipeline of opportunity, we are a trusted delivery partner to a range of prestigious clients across a broad spectrum of sectors. These include education and health, highways and maritime, and commercial and

retail. We also participate on over 50 national and regional frameworks. Strengthening our reputation, we are an Investors in People (IIP) Platinum and Health and Wellbeing accredited business, and we were named as the inaugural winner of the IIP Excellence in Health and Wellbeing Award. With over 2,200 employees, these prestigious benchmarks demonstrate our commitment to being a best practice employer that invests in its people, prioritising their health and well-being within a culture of Fairness, Inclusion, and Respect.

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Overview & Background to the Lean Initiative

The Regional Delivery Partnership is a five-year framework whereby contractors are monitored on both their behaviours and performance. In parallel, they are incentivised to innovate and work efficiently. A central component of National Highways (formerly “Highways England”) NEC Contract 3 model is a requirement for contractors to create the step-change desperately needed within the construction industry. The delivery of commitments is not only important to GRAHAM, but also to our clients. Our P6 Scheme Programme includes

everything associated with delivery, but excludes programming for support functions such as tender commitments. From the outset, we identified the potential for software to allow us to programme everything outside of delivery whilst utilising the Lean Last Planner methodology. Our priority was that any proposed tool was cloud-based to meet the challenges presented by Covid restrictions, with the flexibility to run what were historically face-to-face collaborative planning meetings using post-it notes on the wall.

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

What was the problem the Lean initiative was trying to resolve?

As part of the new National Highways Regional Delivery Framework, we were required to deliver 80 additional commitments as part of our tender. These commitments were established to support the National Highways ambition to move towards an alliance type framework. The commitments are activities which the contractor has agreed to deliver as part of the framework, with an expectation that they are industry leading in order to generate the much-needed step-change within construction. Each commitment is costed by National Highways, and the consequence of non-delivery is a financial penalty equating to the anticipated cost of that commitment.

At the heart of the GRAHAM Lean Deployment Programme is an understanding of our client needs. We recognised the importance of simultaneously driving delivery and demonstrating progress against these commitments, thus offering certainty to our client, National Highways. We also identified significant benefits in breaking these commitments down into more detailed sub-tasks.

Initially, commitment delivery was slow and cracks in our process appeared because:

- The Covid pandemic meant meeting up and having a collaborative planning session using post-it notes became impossible.

- There was no consistent approach for progressing and updating commitments. We did not know how we were progressing with the delivery of our commitments as they were being driven by people spread across different parts of the UK. This meant that people were working on multiple spreadsheets where data and updates were getting missed with no single source of governance.
- The plan for commitments, despite being so important to the client, is not factored into the existing P6 Construction Programme. This made it difficult to understand our progress and which commitments required renewed focus.

What was the goal of the Lean project?

We wanted a simple cloud-based solution that allowed staff to efficiently provide updates on the commitments using mobile technology. The creation of a common platform would remove double data entry requirements and eliminate errors and duplication. Having a bottom-up approach, using a pull flow system, would also generate accountability and increase team engagement. Furthermore, it would enhance productivity as it removed the time spent pursuing updates. Another requirement was to report progress to National Highways via a visual dashboard. This would ensure a focus on key areas identified through utilisation of the last planner methodology.

What was the Lean solution?

GRAHAM evaluated the capabilities of a range of software development systems, and, after a rigorous selection process, VisiLean was identified as the most suitable solution. VisiLean is a simple yet powerful Production Management Platform for managing large programmes of work. As a cloud-based platform developed on proven Lean Construction principles, VisiLean ensures flow, value generation, and waste minimisation across workflows.



Figure 1. Primary components of VisiLean

VisiLean allows organisations to visualise project plans at a programme level, with a typical Gantt that supports Task creation and even Plan import from P6, MSP and Excel, for example. Teams then utilise VisiLean to drive the Last Planner® System (LPS) for collaborative planning. It allows all teams to participate, visualise their commitments, discuss any potential issues, and map them in the look-ahead planning view.

Once a clear look-ahead picture is defined with the teams participating on the platform, each member uses VisiLean, either through the browser or the Mobile App (LiveSite), to update the progress on their commitments and flag any issues that require the team’s attention. They supplement this with Notes that allow for healthy discussions during the collaborative review sessions.



Figure 2. Clear capture of short-falls, constraints, and conversations

Finally, all of this data populates a completely automated Dashboard that promotes a focus on Value Drivers that can help improve the planning and delivery of commitments as a team. As the commitments did not form part of our delivery programme, we had to try and organise the commitments into

more manageable sub-groups. The sub-groups were identified as function areas which exist within GRAHAM, for example, customer; stakeholder; quality, or Lean.

Next, we completed Master Planner sessions where we placed all 80 commitment milestones on a programme and then worked backwards to understand what other sub-tasks we may have to deliver to ensure that we would meet the commitment milestones. GRAHAM now has a solid and more detailed 5-year programme for delivery. The commitments programme could have been produced directly into VisiLean, but we used spreadsheets and then imported them into VisiLean.

As our commitments are only over 5 years, we decided to run the collaborative planning meeting at 10:00 on the first Tuesday of every month.

Challenges

Setting up the LPS was challenging for the commitments for several reasons:

- There was no existing programme for the commitments, and the original dates that were identified in our tender were from almost 4 years prior. As expected, the programmes had changed significantly since then.
- Some commitments have evolved since the contract and therefore more in-depth conversations had to be had with National Highways surrounding the amendment of contractual commitments to suit the current environment.
- Setting up the initial workshops and allocating owners to provide updates.
- Adaptations had to be made within VisiLean to make the system suit non-construction-related activities. The VisiLean team worked closely with us to swiftly make amendments.

Meeting Format

- Discipline leads within GRAHAM meet virtually on the first Tuesday of each month.
- The leads will have submitted progress updates throughout the month using their mobile devices.
- During the meeting, each discipline lead will take turns to run through their commitments for that month.

Lean Initiative Improvements & Impact

- Any re-planning is then done with full consent from the rest of the team.
- Completed commitments will already be marked as complete, but non-complete tasks will need to be pushed to a new date along with a reason for non-completion.

VisiLean has resulted in major improvements, including the certainty it has provided to us in delivering on our contractual commitments. National Highways has really supported GRAHAM by engaging in this new way of working and acting as the quality assurance approver for the commitments. Working collaboratively alongside the client on the same platform supports the ambition to work as an alliance with trust and transparency.

We are not only meeting but exceeding contractual requirements made by our client, National Highways, by driving Lean initiatives such as Collaborative Planning, identifying waste within the programme and construction processes, smoothing the flow and creating a pull system – meaning the programme is led from bottom-up with updates provided by the people that do the work.

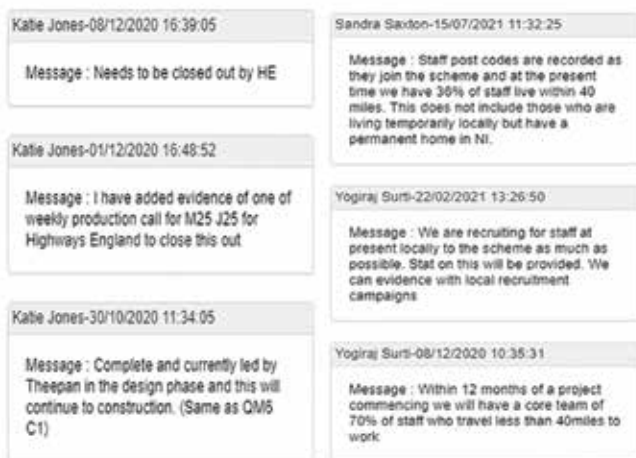


Figure 3. Clear capture of project conversations

We have noticed that staff now have increased time to concentrate on more value-adding activities. Traditionally, the people doing the work more often than not did not engage in the programme. Now, our programme is led by our staff who have full accountability of their tasks.

Not only is this more efficient, but we have seen an improvement on behavioural maturity assessments conducted on behalf of National Highways. There is much more communication and collaboration amongst the team, with a willingness to try and support one another.

VisiLean enhances communication through a simple interface that promotes conversation, allows users to add notes, drawings, pictures, and voice notes against each commitment. This data is particularly useful as it provides a lessons learned log for any given commitment. National Highways uses this information to share and increase maturity of its supply chain, supported by its data-driven improvement initiative.

We have detailed visibility of live commitment progress and performance in any given area. VisiLean enabled GRAHAM to quickly identify where it was consistently falling short on its PPC. The output report from VisiLean, very quickly and at the press of a button, provided a succinct business case to gain an additional resource. This meant that we have been able to identify a shortfall



Figure 4. PPC of 82% achieved through Nov-Dec 2020 – Design Primary Constraint

in our programme commitment to National Highways early in the process.

This traditionally would not have been identified until the end of the project when our programme was delayed. We have also found that VisiLean has strengthened collaboration between our support functions, office staff, and our site workers who add the real value.

The live dashboards and intelligence around commitments and highlighted areas, significantly reduce the time spent on reporting and administration. Equally, they provide us with reports against value drivers, themes, and potential efficiencies, all of which can be easily and quickly sent to National Highways. Notably, we have achieved 100% commitment programme certainty.



Figure 5. Single platform for capturing evidence for each commitment

The VisiLean team has supported us along the journey and made adaptations to the system to support our needs. This case study illustrates how GRAHAM and VisiLean, along with National Highways as the client, have established an exemplar collaborative partnership that mirrors the UK Government desire to drive productivity and increase collaboration as referenced in The Construction Playbook.

Tracking productivity and focusing on areas for improvement have been industry challenges for some time due to the lack of reliable data. GRAHAM, VisiLean, and National Highways continue to work closely to further expand the process to track productivity, drawing from live data taken directly from site. Finally, our commitment relating to innovation was exceeded through this VisiLean Pilot as it guaranteed visibility and achieved maximum efficiency.