

ISSUE NO.2

SPRING/SUMMER

2021

## A NEW IN-HOUSE SERVICE OFFERING FROM GEL

As a dynamic engineering organisation, **GEL** is always on the lookout for products & services that complement our existing solutions portfolio and add value to our client requirements.

2020 provided the ideal opportunity for **GEL** to review and evaluate the kind of services high on our client's agendas, with 'Fabrication Services' an obvious choice.



## A NEW IN-HOUSE SERVICE OFFERING FROM GEL

For the uninitiated, **Fabrication** is the process of constructing products by combining typically standardised parts using one or more individual processes. For example, steel **fabrication** is the production of metal structures using a range of processes such as cutting, bending and assembling. Demand for fabricated solutions on all our projects & frameworks has increased tremendously over the last 18 months, and we found that some of our suppliers, were too busy and less dynamic than we are used to at **GEL** in terms of supply.

We therefore felt it was good business strategy to incorporate it into our business model and in December 2020, we established our **GEL** Fabrication facility in Stroud.

This new facility is *already* satisfying demand from our clients. Bringing this facility in-house, rather than sub-contracting, brings not only commercial benefits to **GEL** and our clients, most importantly, it provides us with the opportunity to ensure timely, *quality*, innovative solutions, supplied in the UK. This new facility provides us with an opportunity to deliver a whole range of fabricated products, including (not limited to):

- ***Innovative Coffe Damn Solutions***
- ***Access Walkways***
- ***Lifting Beam designs***
- ***Pipework - stainless & mild steel***
- ***Bespoke stainless steel fabrication***
- ***Discharge Boxes***
- ***Machine Chutes***
- ***Temporary works requirements***

An important client benefit this new service provides, is the emphasis on *designing out risk* for all our clients on installation & project execution.

For further information on how this new in-house service could support you, please contact us [info@gelengineering.co.uk](mailto:info@gelengineering.co.uk)

# GEL 'BYTES'

GEL has a reputation for tackling the projects that are deemed impossible or too complex by others; GEL thrives on this type of challenging project, allowing us to demonstrate our engineering skill, flexibility and dynamic approach to finding solutions. We'd like to share some of these successes and celebrate the teams which have delivered them.

## Penstock Framework



The existing 5no. penstocks at the rear of the Greenwich pumping station were installed in the early 1900's and in a state of disrepair. GEL undertook a full 3D model of the wet well to inform the design stage. This allowed the new penstocks to be modelled in such a way that it eliminated any conflict with in-situ assets during the removal and installation processes.

## Thames Water Pump Framework – Earl Pumping Station



BEFORE



AFTER

Storm pump no.1 had failed in service with evidence that the pump had run dry causing internal mechanical failures. GEL's solution has been to use replace with a completely self-lubricating system with anti-galling and anti-wear. The new innovative seal arrangement pays for itself after 2 years of use.



## Innovation – Cofferd Dam

The Client required several FST chamber valves repaired or replaced to allow isolation for the future works of overhauling the FST tank. This was a difficult task as the chambers could not be drained and access to the valves was therefore restricted. One of our solutions was to design and fabricate a set of Cofferdams. These Cofferdams would be lowered into position creating a sealed, fully watertight area to allow the **GEL** team to have a safe temporary work area, to investigate and carry out any necessary improvements.



## Rye Meads

### – GMES Screen Breakdown & Repair

A level 1 event (site is very close to failing consent) arose when a screen failed. **GEL** reacted within 12hrs and immediately repaired the screen using spare parts borrowed from neighbouring sites, a great example of the collaborative work between GEL and its Clients.



# GELR&D

## GELnet – MANAGING & MEASURING PROJECT PROGRESS, DYNAMICALLY

For decades, studies have suggested numerous solutions to improve construction's productivity. This resulted in the release of the Government's 'Construction Strategy 2016-2020', setting out a blueprint of how to improve the industry's capacity and capability; one of the strategy's themes is 'Data' and using this Data to:

- *Measure progress*
- *Report savings*
- *Increase efficiency*
- *Establish best practice*

GEL decided early on to invest in an approach that would achieve the strategy's Data goals and GELnet was conceived. Our own systems were too manual to accelerate our growth and enable us to react quickly to both internal and external data requests, investing in this technology was therefore a 'no-brainer'.

The internal R&D project, led by Matt Velupillai (Chief Transformation Officer), has delivered a product that will be a construction company-specific intranet & system environment, able to automatically collect, process, report and analyse data.

It has been developed using the Microsoft PowerApps & Power Automate formulaic languages and will integrate with our SharePoint site, to allow two distinct GEL Engineering Ltd audiences – Office Staff and Site Staff, to log the fundamental project-based data from anywhere with an internet connection:

- *Office-based Staff - Can use GELnet to record and automate all detailed aspects from new enquiries and all types of purchases & types of invoices to employee data and marketing.*
- *Site-based Staff - Use GELnet to record all HSQEA forms & asset use, triggering automated processes to the office staff as well as passively logging performance & best practice.*

The benefits to GEL, LOS and our clients are clear, by streamlining our business processes, and providing a method of internal & client reporting, as well as adding the ability to share industry best practice with peers; agility, flexibility and accuracy are all improved. This will result in creating a new form of business model which can be adapted and implemented to other construction industry companies.

If you are interested in GELnet, please contact [matthew@gelengineering.co.uk](mailto:matthew@gelengineering.co.uk)



MATTHEW VELUPILLAI



# PROJECT FOCUS

## OXFORD STW DIGESTER

**CLIENT: THAMES WATER**

**Duration: 1 year**

The Oxford Digester is a key asset for Thames Water, and is a crucial part of the sewage treatment process. Its purpose is to manage sludge and waste-producing bio-mass, (used for heat generation). It is critical that sludge waste is processed and digested efficiently, so that the resulting 'digestate' product can then be recycled and used as a form of fertilizer.

### Scope

Due for completion in Autumn 2021, **GEL's** role is that of Principal Contractor and designer, responsible for the construction and design of the fully upgraded infrastructure. Prior to commencing the project, a full operational & maintenance review was undertaken with Thames Water, to ensure an outcome that meets all their operational requirements. This resulted in **GEL** being able to offer a full *in-house* engineered solution, from design through to Civils, Mechanical and Electrical.

### Benefits

The resulting benefits for Thames Water, will be an asset with a further circa 25 year design life, incorporating increased capacity, thus maximising efficiencies (which can be realised through bio-gas production); ultimately, meeting stringent operational, maintenance and safety standards. This aligns with their strategic bio-gas reduction requirements in helping to reduce Thames Water's overall carbon footprint.



### Potential Project Challenges

The project is adjacent to another 'live' digester asset, and on a fully operational site, therefore challenges included:

- *Demolition/working at height - removal of the digester roof, constructed in the 1980's, from a tank constructed in the 1950's. The lifting operations to manage this activity saw the roof lifted off in sections weighing up to approximately 6 tonne each*
- *The removal of a 12m-high, free-standing column and refurbishment of the existing concrete structure*
- *Future-proofing subsequent access requirements for maintenance*
- *Traffic Management - Thames Water office access directly through the centre of the project site/tight footprint.*

## Managing the risks

In light of the potential project challenges, **GEL's** approach to managing risk, encompassed several strands; a full Hazard & Operability Analysis (HAZOP), to identify potential hazards both in the build and the subsequent upgraded plant & process was undertaken. **GEL** undertook an operation and maintenance assessment to ensure that the new plant and equipment could be operated and maintained safely. **GEL** also adopted a DFMA (Design for Maintenance & Assembly) approach, for the construction of a 4m deep sludge outlet chamber which reduced the construction programme by 3 weeks, and significantly reduced working at height challenges – with obvious health & safety benefits for our teams. CFD Modelling (Computational Fluid Dynamics), was adopted to verify the performance and efficacy of the new sludge mixing system.

**GEL** also produced an in-house control philosophy and design specification to encompass all aspects of the Civils/Mechanical & Electrical design with inputs from a large design team, resulting in a functional design specification for the upgraded asset which fully aligns with Thames Water's operational requirements.

## Project Phases to date

1. Safe removal of digester roof
2. Demolition of 12m high free-standing column - safeguarding the existing structure
3. Demolition of approximately 72 linear metres of existing wall section using specialist wire sawing concrete cutting technique
4. Design & Construction of a new wall extension, capable of withstanding loads from the new structure
5. Sludge Chamber - installation of new drainage system, ensuring Thames Water Operations can comfortably operate and maintain the new digester mixing system
6. Installation of the new MCC - designed to operate & control the upgraded digester 2, with capacity for future expansion for digester 1.
7. Designed & Constructed new plinths and footpaths to allow safe access to all pumps, plant and equipment
8. Fabricated in-house (off-site) and subsequently installed a 360°, 70m access platform around the perimeter of the new structure for improved maintenance access
9. Installation of the new digester mixing system incorporating new 15Kw 'Positive Displacement Chopper Pumps', capable of dealing with rag and grit in the harsh sludge environment.
10. Application of specialist coating to extend the life of the asset.

## Commenting on the project to date, Brendan Ryan, GEL Contract Manager said;

**“ This has been a multi-disciplinary project, which has provided GEL with an opportunity to demonstrate their expertise in design co-ordination, knowledge of operational requirements, specialist supply chain management, and our overall skill and capability to deliver a complex MEICA installation.**

**Our in-house capability around design of & metal fabrication, has proved significant in eliminating risk and providing our client a great long-term access solution. I'm incredibly proud of all the teams that have contributed to and worked so hard to ensure the safe success of the project to date.**



# PROJECT FOCUS

## FEATURE SITE - MOGDEN PAS SYSTEM UPGRADES

**CLIENT: THAMES WATER**

**Duration: 2 years**

**GEL** have had full CDM duties for multiple projects and ensured the utmost care went into each stage of the project process, from design to implementation. **GEL Engineering's** innovative in-line repair to coils, resulted in speedier commissioning, whilst eliminating the requirement to replace the full coil, thus allowing more operational time. **GEL** takes a pro-active approach to maintenance, to try and ensure the best possible life cycle on equipment. Over the course of these projects, **GEL** have always tried to re-purpose and repair equipment to full working condition - in an innovative way.



### Scope

Over a two-year period, **GEL Engineering** completed works on PAS 9,12,8,5,3 and 1 and have begun work on PAS 3. These works spanned from general maintenance to complete replacement of motors and gearbox.

On PAS 9, **GEL** designed, fabricated, and installed the agitator bottom bearing replacement. After multiple heat thermal tests, the replacement was deemed stable and returned to the client to successfully put back in service.

On PAS 12 a full clean out was required, and the motors and gearboxes needed replacing. **GEL Engineering** used intrinsic electrical and complex skills to replace ATEX rated junction boxes and glands.

PAS 8,5,3 & 1 consisted of similar works to the internal heat exchange coils. On these works, **GEL's** innovative ideas and confined space skills allowed the client to continue works in a short period as they did not have to replace the entire coil. The team cut out failed sections of coil, fabricated a new coil section and welded new section of coil inside the vessels.

Current refurbishment are being completed on PAS 3 includes maintenance work to the knife valves, heat exchanger and reactor works.





# LOS - 1ST YEAR ANNIVERSARY

## CELEBRATING SUCCESS

The 12th March, was a significant milestone for LOS. It was the 1st year anniversary since amalgamating with **GEL Engineering** and therefore, a great opportunity to share their achievements over what has been a challenging year for everyone. Just a few highlights include:

- **The completion of electrical works on the Luton DART project -**  
a multi-million pound scheme aimed at providing a step-change in how passengers get to and from the airport; scheduled to open in 2022, passengers will be able to travel between St Pancras and London Luton Airport in just 30 minutes using the fastest trains and seamless Luton DART transfer.
- **The completion of the Mogden 'Hach Optimisation Project' in a timely manner -**  
The success of this project has led to a further 4 optimisation projects with Thames Water. (As with Luton, the client feedback has been excellent and stands LOS in good stead for further projects moving forwards.)
- **Over 100% increase in new people to the business -**  
(from 8 to 18 people), increasing our capacity and capability – this growth strategy will be maintained during 2021.
- **We've added 'Panel Building' to the LOS service offerings -**  
and are already looking at in-house design to provide our clients with a one-stop concept to completion offering.

- **We've invested in our 'identity' with new PPE, power tools & testing equipment -**  
together with a fleet of 5 new vans and 2 trucks with new livery.

Whilst these are just some of the highlights, our biggest success has come from *our staff and clients* and the part you have all played – big or small, against the backdrop of a pandemic. Thank you all.

### MOGDEN BUFFER TANK



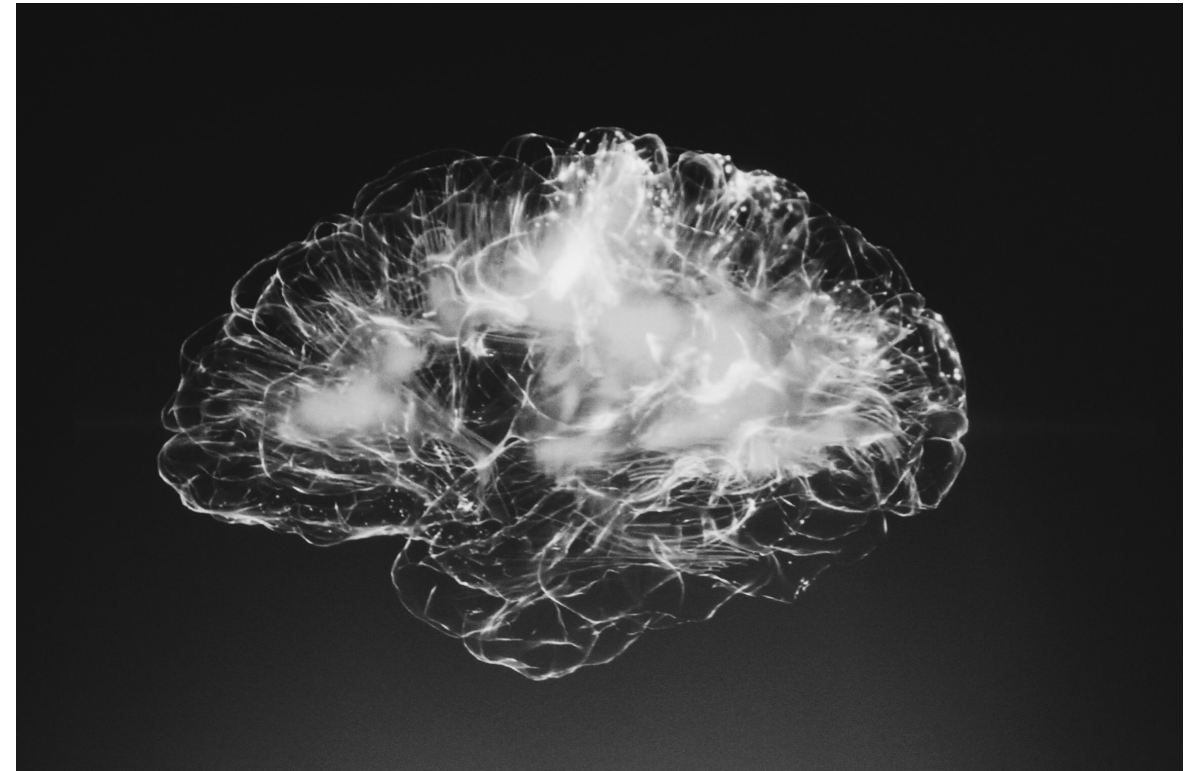
# GEL 'EVOLVE'

## CONTINUING TO DIFFERENTIATE CULTURALLY

Investing in our people is high on the **GEL** agenda and forms part of our values. Understanding our people is *key* to performance & collaboration, as well as great communication, and as part of our recruitment and personal development strategy, everyone who joins us undertakes a 'traits' assessment and takes part in a team dynamics exercise.

Our teams get to learn about how understanding character traits (neuroscience in the workplace), can influence own behaviour and the behaviour of others and potentially transform approaches to collaboration for improved communication generally, and safety specifically - positively impacting projects and client relationships.

We actively encourage our clients to take part in our team dynamics workshops (with *great* feedback to date), as the workshops also provide an *introduction* to the wider psychological aspects of how we behave and the impact on communication (which styles we prefer naturally), language, 'geophysicallity' – all of which impact how we collaborate and who with. *Specifically*, attendees are asked how this might impact our approach to safety communication. The sessions encourage engagement, openness, participation and feedback. It provides our staff & other delegates with a platform of understanding each other as 'human beings' and provides mental tools for practical application in an outside the workplace. Clients frequently tell us this is the best training they have ever been on!





# SPOTLIGHT ON ....

## ROMEO MARIAN



Our people are *our* business, this edition we spotlight **ROMEO MARIAN** who is a **FABRICATOR**.

**Q: What is your role at GEL?**  
**How long have you been with the company?**

“Fabricator - 3 months.”

**Q: What do you enjoy most about your role?**

“Everything. I love the company & the people. I especially like making a difference with my own two hands. Whether it be welding or coming up with a solution to a problem, I enjoy it all.”

**Q: What do you enjoy outside of work?**

“I have a passion for tuning cars or fixing cars mechanically as well as building my own sound system. My favourite car tends to be the fastest one but I have a strong appreciation for the Mercedes brand.”

# THAMES WATER 'SPOTLIGHT ON EXCELLENCE AWARDS'

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WE ARE PROUD TO ANNOUNCE THAT GEL ARE THE RECIPIENT OF THE 'BE PROUD, BE BLUE' AWARD.

The first "Spotlight on Excellence Awards" were held on the 1st July in an on-line ceremony, hosted by David Wylie Commercial and Procurement Director of Thames Water. With 5 award categories celebrating "the passion and pride of [Thames] supply chain"

The "Be Proud, Be Blue" award recognised an individual or team who actively celebrates and promotes the great things we [Thames] do together. *"They're our champions, clearly demonstrating their pride in what we do every day as an essential services provider".*

As the winners of this category, **GEL** demonstrated that they are *"role models, encouraging the same from their colleagues and partners, and they celebrate their colleagues' achievements too"*. The award celebrates **GEL's** pride, which is evident to those around them, whether it's through a well looked-after site, the way they interact with [Thames] customers or how they talk to [Thames] as a stakeholder and our team members. The award demonstrates that we, **GEL**, are *"real ambassadors for Thames Water"*.



Thames Water  
Supplier Awards 2021  
Winner

CONGRATULATIONS TO THE WHOLE GEL FAMILY FOR THEIR HARD WORK RESULTING IN THIS RECOGNITION FROM THAMES WATER.

CONGRATULATIONS ALSO TO **ALL** THE OTHER WINNERS OF THE SPOTLIGHT AWARDS. **WELL DONE.**





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