Seasons Greetings to all our readers, we wish you a prosperous and happy 2019!

KGAL assesses new outlet gates for BC Hydro

KGAL has been appointed by BC Hydro to carry out a Reliability Assessment for the new low level outlet gates at Strathcona Dam in British Columbia, Canada.

We carried out an initial visit to conduct the HAZOP Workshop with BC Hydro at the end of November in order to get the process underway. You’ll hear more about this project in the next issue of Fluid.

North Glasgow Integrates Water Management Scheme

KGAL is working with McKenzie Construction to deliver a design for automatic sluice gates for the Forth & Clyde Canal, which forms part of a wider scheme to enhance surface water drainage in the Glasgow area.

The canal, opened in 1790, crosses central Scotland, providing a route for the seagoing vessels of the day between the Firth of Forth and the Firth of Clyde at the narrowest part of the Scottish Lowlands.

The summit pound of the Forth & Clyde Canal is 24km long, representing a linear reservoir whose level can be controlled to create capacity to absorb surface run-off during major weather events. Our scope is to ensure that the lock flights below the summit pound remain fully watered up when the water level is lowered.

Kariba Dam Refurbishment

KGAL has been retained by Swiss consultants, Stucky, to complete further works associated with the refurbishment of the Kariba Dam spillway on the Zambezi River on the border between Zimbabwe and Zambia.

The scope includes a Hazard Operation study on the hoists that operate the six spillway gates, which control releases of up to 9,000m³/s.

Kariba Dam was impounded in 1959 and still holds the world record for the largest stored volume of water behind a man-made dam.
Keady Pumping Station
Improvements

Located at the end of a complex network of rivers and pumping stations within the low-lying Isle of Axholme, Keadby Pumping Station has undergone a number of modifications since being built in 1939. The pumps, which transfer water into the River Trent during high tides and at times of high rainfall, operate every day to keep the Isle of Axholme dry. The need for improvements to the pumps, having become old and costly to maintain, was identified in the Environment Agency’s Axholme Flood Risk Management Strategy.

The existing pumping station contains six gravity culverts and six pumped culverts and drains the Isle of Axholme catchment from the Three Rivers into the tidal reach of the River Trent. Of the original six pumps only five are currently operational and these are all diesel driven.

The Environment Agency is currently preparing to refurbish the existing pumping stations; an undertaking that will encompass complete replacement of the pumps with modern variable-speed, fish-friendly electric pumps, together with all new auxiliary systems and controls to facilitate automatic operation of the new pumps. Extensive civil works will also be carried out on the River Trent Outfall structure to create better culvert isolation and maintenance access.

KGAL is currently providing independent technical advisory services on the MEICA scope of work, helping to take the project from the concept and options phase through the specification and contract documentation preparation, and on to the commercial launch of the project in early 2019.
**NI Control Structures**

KGAL has been selected to undertake an inspection and assessment of all the water control structures under the management responsibility of DFI Rivers, where we will examine all structural, mechanical and electrical components at each of the structures. We are to supply detailed reports on their condition and provide recommendations for the costs of repairs, along with a maintenance plan.

DFI Rivers is responsible for a number of water control structure throughout Northern Ireland. These range in size, design and age, so require different repair and maintenance regimes. Under the Lough Neagh and Lower Bann Drainage Navigation Act, DFI Rivers is obliged to maintain the lower level of Lough Neagh within prescribed upper and lower statutory limits. The levels in Lough Neagh and along the Lower Bann are controlled using sluice gates at Toome, Portna and The Cutts near Coleraine (see image).

**BDS Workshop**

KGAL attended the biennial British Dam Society Conference held at Swansea University in September. Having been invited by the BDS committee to present one of the newly-structured technical workshops, our Ken Grubb and Russ Digby provided up to date guidance on all things MEICA during two lively and interesting sessions that were well received by all who participated.

**Ffestiniog**

KGAL has been appointed to inspect, survey and condition assess the two intake control gates and intake bulkhead gates at the 360MW Ffestiniog pumped storage scheme in North Wales, owned and operated by Engie.

The scope includes assessing the suitability of the four gates for a further 25 years of life, which will coincide with a forthcoming major overhaul of the generating plant that was commissioned in 1963.

The works took place during a power station outage over successive weekends in September.
KGAL once again shared an exhibition stand with Whessoe Sdn Bhd at HYDRO 2018 in Gdansk in October. Dave Griffiths and Nick Crosby attended, with Mike Simcock from Whessoe. Nick and Dave also co-authored a conference paper about hydropower on navigable waterways, which Nick presented. We plan to exhibit again at next year’s event which is taking place on 14-16 October in Porto, Portugal.

Sixty7 PR

Our thanks go to Sixty7 PR Ltd for their invaluable exhibition services, making exhibiting at events like this easy and ensuring we stand out.

Flood & Coast 2019

We will be returning to exhibit again at Flood & Coast on 18-20 June in Telford. This three-day exhibition and programme of workshops presentations, debate and panel sessions aims to advance the debate about flood and coast erosion risk, resilience and response in the UK – an area where we can contribute our expertise.
KGAL has become a member of I-Storm, the network of professionals that build, manage, operate and maintain storm surge barriers, with the aim to continuously improve standards and performance in order to reduce the risk of severe flooding around the world by facilitating knowledge exchange amongst members.

Our purpose for joining is to ensure we are aware of advances in the planning, design, construction, operation, and maintenance of storm surge barriers and their associated civil works. One particular area of expertise that we hope to share comes from our involvement in dam safety through the I-COLD Committee. Where we encourage the consideration of reliability engineering in the planning, design, construction and operation of tidal surge barriers.

**KGAL sponsors Medway Girls rugby team’s new marquee**

KGAL is proud to have sponsored the brand new marquee for Medway RFC Girls rugby team, which will make a huge difference when they are at tournaments and on tour.