Summer 2019 Newsletter
Roughan & O'Donovan

ROD Offices in Otley

ROD 2019

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Harry Meighan

MANAGING DIRECTOR

Welcome to the Summer 2019 edition of the ROD Newsletter.

My foreword to the Winter '18 edition noted the opening of our North Dublin office in September '18 and anticipated the opening of a UK office this summer. Since then we have established a new operating company, Roughan & O'Donovan UK Ltd, and opened our first UK office at Wharfebank Mills in the town of Otley, which is 4 miles from Leeds-Bradford airport. The office will be headed up by Jim Thorpe and will accommodate up to 18 people.

The opening of the UK office serves several purposes. If facilitates us in servicing our expanding client-group and projects in Great Britain; it serves as a risk management strategy to mitigate potential outcomes of the Brexit process and currency fluctuations that may ensue from that; and at a time when there is growing demand for technical staff in Ireland, the new office allows us to tap in to a much larger pool of potential employees to work on both our Irish and UK projects.

We are delighted that Jim Thorpe can return to his homeland to lead our new venture. Jim is a professional of the highest calibre & integrity, and we couldn't ask for anyone better to head up the development of ROD UK Ltd. It is an exciting period for the company, and, with this ongoing organic growth, we anticipate employee numbers increasing to near 250 in the next 12 months.

This edition includes an article noting the success of the Northern Spire Bridge in winning the ACEI Overseas Project award for 2018 and notes the commencement of our latest project in England, the Great Yarmouth Third River Crossing or GY3RX as it commonly referred to in the office. On GY3RX, our client is BAM Nuttall – Farrans joint venture and we are collaborating with MEICA specialist Hardesty & Hanover, who we have worked with on several past projects. The project is an NEC ECI, which gives us the opportunity to be involved in the Development Consent Order planning process in England for the first time.

On the planning front in Ireland, Barry Corrigan reports on the successful approval of the N5 Ballaghaderreen to Scramoge scheme by An Bord Planeala following a two-day oral hearing. ROD has been working on this scheme for Roscommon County Council since 2014. The planning stage of the scheme (TII Phases 1-4) was led by Jim Thorpe as Project Director who was ably supported by Barry Corrigan and Richard Spencer. I can report at the time of going to press that we have just been awarded the contract for TII Phases 5-7 of N5 Ballaghaderreen to Scramoge to take the project through the Tender, Construction and Handover stages with Roscommon NRRO. The programme for the services schedules the tender consultation period for commencement in Q2 of 2020 and anticipates award of the construction contract in Q4 of 2020.

I am also able to report that in early July we were awarded the contract by Donegal County Council for Phases 6-7 of the N56 Drumbeigh to Inver scheme. This new scheme follows on from the adjacent N56 Mountcharles to Drumbeigh road where we provided similar site supervision and contract administration services. Wills Bros.Ltd is the contractor for both schemes.

Finally, the ROD management systems were audited (surveillance or re-assessment) by NSAI at the end of May. The auditor's findings noted:

- Objectives and targets established to drive improvement in business performance, actively supported by the Senior Management Team.
- Good evidence of the effective implementation of the Quality Management System, Environmental Management System and Occupational Health & Safety Management System
- Very well managed and controlled delivery of the projects audited
- Comprehensive CPD programme to maintain and enhance staff competences.

The ROD BIM processes are integrated with our Quality Management System. Our BIM processes are certified to Level 2 BIM (Building Information Modelling) by the British Standards Institution (BSI) for our full range of engineering services. This year we updated our management systems to adopt the ISO 19650 series – Information Management using BIM. The new ISO series supersedes BS 1192 and PAS 119-2, which are now withdrawn. At the end of June, the British Standards Institution conducted an audit of ROD's BIM systems and capabilities. I am pleased to report that the auditor recommended ROD for certification to ISO 19650.

ROD opens first UK Office in Leeds

Article by Jim Thorpe

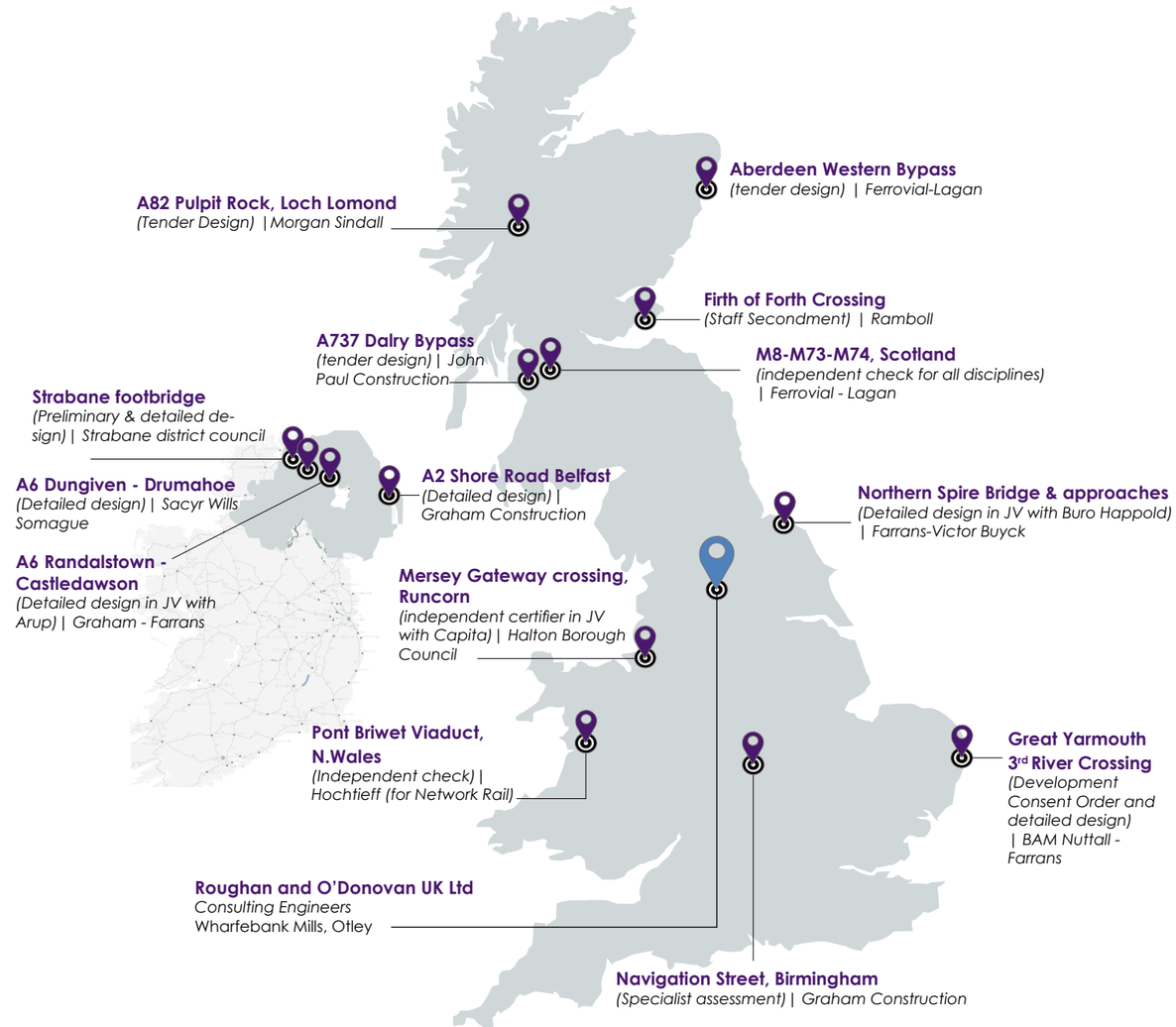
It may have started as a Brexit mitigation plan, but as the reality of the opening of our first UK office now emerges, it is an exciting new venture. Our new office will be located in Otley on the edge of Leeds in northern England. Having successfully penetrated the UK market, and delivered a wide range of projects there in the past (see box opposite) when work was scarce at home, ROD decided in October 2017 to start making plans to secure continued access to the UK market due to the uncertainty of Brexit. Roughan & O'Donovan UK Ltd was formally registered in September 2018 as a wholly owned subsidiary of Roughan & O'Donovan Ltd, and our UK based site staff have since transferred their contracts of employment to the new company. When considering a potential location for a UK office it was decided to look for a central location in Britain, in order to serve England, Scotland and Wales, with Northern Ireland being successfully served from Dublin at present. The final choice was dictated by the quick and convenient airport links to Dublin, settling on Otley, which is 4 miles from Leeds-Bradford airport and only 20 minutes by train to the centre of Leeds and the UK national rail network.

We have signed an initial 5 year lease on the top floor of a refurbished woollen mill, overlooking the River Wharfe. A complex of historic buildings, known collectively as Wharfebank Mill, has been converted into a thriving office complex and business community, occupied by 40 separate businesses covering a wide range of professional and business support services. Supporting this re-purposing of the old mill is consistent with our commitment to sustainability, as well as providing a characterful office environment for our staff. The office also offers ready access to Otley town centre and walking routes along the riverbank, ensuring staff are able to take an active break at lunchtimes.

Units 82-87 of the Pegholme building are being refurbished to ROD's specification to provide a very similar workspace to that in our two Dublin offices. The new office is being equipped for 18 staff, with a video conference equipped conference room and seamless IT integration with the two Dublin offices, such that everyone will be working off the same servers and Michelle will be able to take and allocate phone calls across all three offices.

I am relocating to the Leeds area to head up the new office, while remaining a Director and Company Secretary of both ROD and RODUK. The proximity to the airport means that I will remain available to Irish clients, while co-ordinating staff across the three offices as best suits the needs of each individual project, wherever the client is based. My initial plan is to be in Ireland 25% of the time.

ROD's portfolio of UK projects includes:



ROD wins ACEI Overseas Award

ROD was named the winner of the Overseas - Large Project Category Award 2019 at the annual Association of Consulting Engineers of Ireland (ACEI) Design Excellence Awards in Dublin last April for the Northern Spire Bridge in Sunderland.

The project team included ROD's design partner on the project, Buro Happold, client, Farrans-Victor Buyck, piling contractor Quinn Piling and specialist Fugro-Loadtest.

A bold design

Northern Spire Bridge is 340m long and comprises a 24m-wide deck, supported by a 1,550 tonne, 105m-high A-frame pylon. It carries two lanes of traffic in either direction, with dedicated cycle-ways and footpaths along the full length of the crossing.

The bridge stands apart from traditional cable-stayed solutions in that its central pylon was fabricated in one piece off site and transported by sea to the bridge site, and its deck was assembled in two sections alongside the bridge and launched in two separate phases across the river.

These innovations provided substantial benefits, in terms of construction and whole-life maintenance costs, to the client, Sunderland City Council.

Prefabricated central pylon

The decision to pre-fabricate the pylon in a single piece off site while its foundations, which consist of bored cast-in-place composite piles and pilecap, were constructed onsite was ground-breaking.

It reduced the programme of on-site works by nine months when compared with the traditional form of pylon construction, which follows a linear programme of piles, pilecap and segmental pylon construction.

It also resulted in better quality control, reduced the risk of weather disruption and improved safety.

Raising The 105m High, 1550t Central Pylon

The 105m high, 1550t steel/concrete pylon was raised into the vertical position using cables.

Temporary hinges were provided on top of the concrete 'tusks' at the base of the pylon to facilitate the lift. A temporary back mast was fitted to the pylon and hoisted vertical from a barge using 4 number 450t capacity strand jacks.

Once the pylon had been raised into position, the second section of the bridge was then launched.

Bridge Opening

The bridge opened to the public in August 2018, and it is already an established landmark in the surrounding area.

In addition to reducing congestion and travel time for motorists in Sunderland, the bridge will attract investment, boost the economy and lead to more jobs in the region.

New moveable bridge for Great Yarmouth

Article by Aonghus O'Keeffe

New moveable bridge for Great Yarmouth

ROD and Hardesty and Hanover (H&H) have joined forces with BAM Farrans, a joint venture between BAM Nuttall and Farrans Construction, to deliver the design of the Great Yarmouth Third River Crossing project. The 50m clear span twin bascule bridge will provide a new link road across the River Yare in Norfolk. It will also relieve pressure on the seaside town's existing Haven and Breydon bridges, especially during the peak tourist season. The scheme, which is estimated to cost £120m, is being procured by Norfolk County Council.

Application for Development Consent Order submitted

The council recently applied to the Planning Inspectorate for a Development Consent Order to construct, operate and maintain the bridge and approaches. The application integrates ROD and H&H's successful tender design for the structures with the council's specimen design for the highway works. Subject to Development Consent, construction is expected to commence in late 2020

An exciting opportunity for ROD

With the Northern Spire Bridge in Sunderland complete, the Great Yarmouth project provides another opportunity for ROD to showcase our extensive experience in the design and delivery of river bridges and urban highways to our growing client base in England. We are currently progressing the detailed design of all elements of the scheme with our long-time partners, H&H, who provide global expertise in moveable bridges, and new partners, Pro:works, a Norfolk-based architecture firm.

Article by Christian Smith

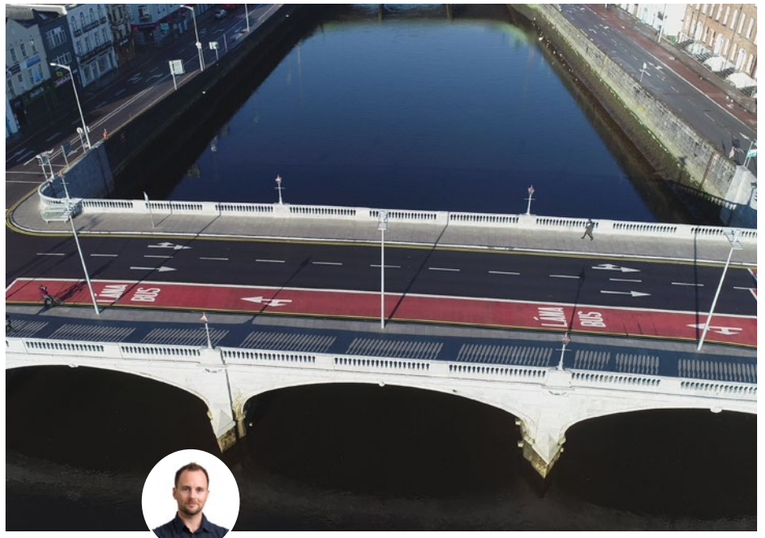
Waterford North Quays

Waterford City & County Council has been given the green light to progress two significant elements of its ambitious Northern Quarter Infrastructure Scheme to construction. The scheme has been devised to improve connectivity between the city and its newly-designated Strategic Development Zone [SDZ] site on the northern banks of the River Suir.

Part VIII Planning applications prepared by ROD for significant road network upgrades in Ferrybank (north of the SDZ site) and 400m of rock engineering works (required to extend the passenger railway onto the North Quays site) were unanimously approved by Waterford's Metropolitan Council in January 2019. The project team is now pushing forward with detailed design for these elements, as well as preparing the relevant environmental screening reports for the remaining elements of the project. These include the planned "European-standard integrated Transport hub" and flood defences along the River Suir's northern banks. Submission of planning applications for these latter elements is planned for Q3 2019 and Q2 2020 respectively.

Substantial progress has been made on the project to date, and enabling works for the Ferrybank road network upgrades are planned to commence in Q4 2019. The main works contract for the road and track related works is planned to commence on site in Q3 2020. The overall scheme completion is envisaged in late 2022 to coincide with completion of the SDZ construction by the private sector.

158-year-old iconic Cork Bridge gets Facelift



Article by Matthew Ryan

Cork city's most famous bridge, St. Patrick's Bridge, has been fully reopened after a major rehabilitation project to secure its future. Built in 1861, the 90m long, three-span, masonry arch bridge links the main street to St. Patrick's Hill. An outstanding example of late 19th century engineering, it is a key landmark in Cork city. The €1.2 million scheme, funded by Transport Infrastructure Ireland, has successfully restored the iconic bridge's limestone fabric and iron features to their former glory for the first time in over a century.

It was important that the rehabilitation project was sympathetic to the bridge's broader cultural bonds as well as to its engineering values. The project team saw the bridge not just as an important technical landmark, but as a significant contributor to the architectural heritage of the city.

The project, which took almost two years to complete from preliminary design to handover, was advanced in two phases. Phase one began onsite in November 2017, with SSE Airtricity Utility Solutions Ltd as contractor. It involved the removal of four cast iron lighting columns on the bridge parapets. The columns, together with four more in storage, were transported for repair and restoration by the renowned Italian lighting restoration specialists, Neri. Four additional replica columns were manufactured in Italy, bringing the total number to twelve.

Phase two began onsite in June 2018, with Cumnor Construction Ltd. as contractor. It involved the cleaning and repair of the original bridge stonework, the re-pointing of missing or defective masonry joints and the installation of the restored lighting columns. Ancillary works included footpath repaving, carriageway resurfacing, new road markings and the upgrading of existing traffic lights, elevation and high-level architectural lighting and new directional signage.

A formal bridge opening ceremony to mark the completion of the project took place on 16 March, with Cork County Council inviting anyone named Patrick or Patricia – in any language - to come along for a special photograph to mark the occasion. The Provincial Grand Master of the Munster Freemasons, Leslie Deane, brought along the spirit level used by the Earl of Carlisle, Lord Lieutenant of Ireland, when laying the original foundation stone on 10 November 1859. The trowel used to lay the bridge's original foundation - on loan from Cork Public Museum - was used by Lord Mayor of Cork, Councillor Mick Finn, to lay the last piece of stonework.

A new chapter for Tírchonaill Bridge in Donegal

Article by Peter Kennedy

When I was appointed Resident Engineer on the Tirchonaill Bridge project in Donegal Town, I was already very familiar with the history of the bridge and its importance to the fabric of the town and the people of Donegal. Although born in Belfast and brought up in Canada, our family visits home to Ireland always involved a trip to Donegal Town to see my uncle and aunt, Terry Woods and his late wife Máiréad, and I remember playing around the castle as a child.

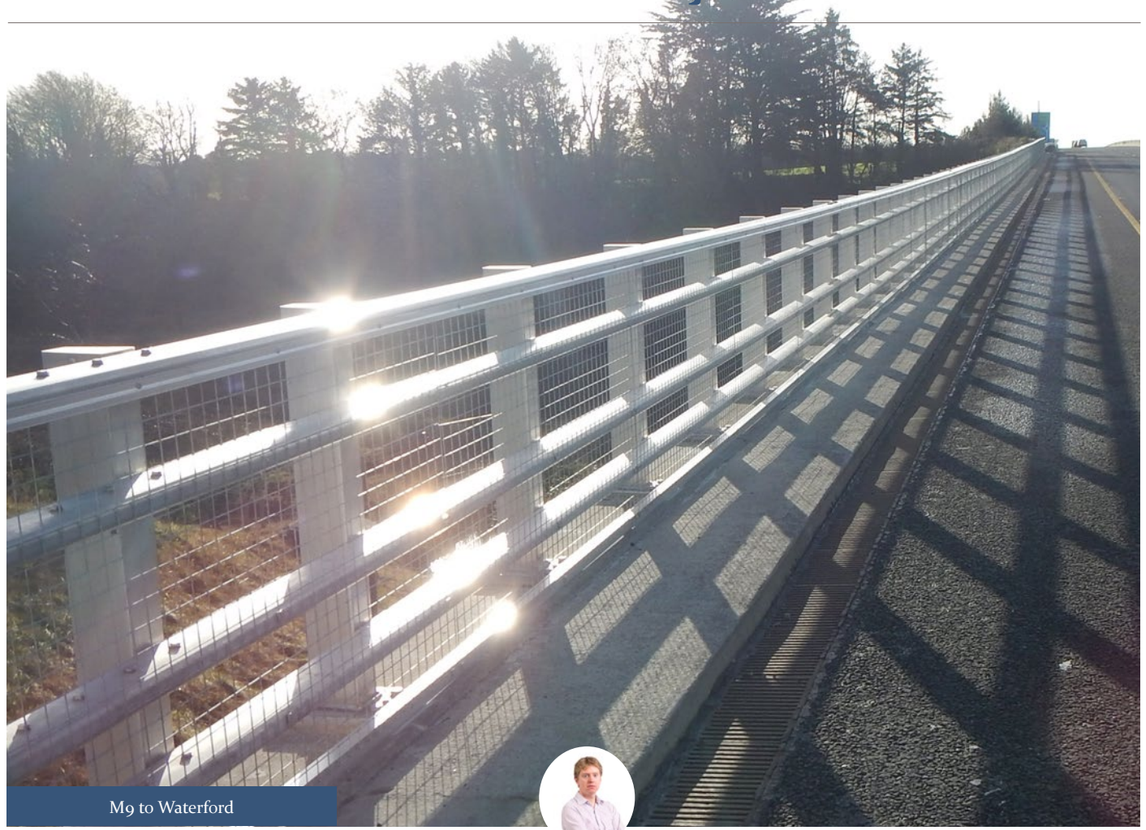
Replacing the 124-year-old bridge

Work on site started in August 2018, and the new bridge, which was fabricated in Tipperary by Mackey Engineering, arrived in December. The stone on the original steel bridge, which was constructed in 1895, was used again in the reconstruction, and the parapet, which was previously low and somewhat hazardous, was raised. The old plaque carrying the name, Tirchonaill Bridge, was retained.

Weather conditions were very much in our favour during construction, and the team of workmen from LM Keating took great pride in their work. The Contractor's project manager Barry Doherty was a local man from Inver. When dismantling the old bridge, we found a spud wrench and a stone mason's chisel embedded in the mortar and in very good condition. The chisel could be as much as 123-years-old, and both it and the wrench are now with the county museum.

I have worked all around the world on major projects, but I have to say that I enjoyed this project more than most and, all going to plan, the bridge will be here for the next 300 years.

Parapet Enhancements along Ireland's motorway network



M9 to Waterford

Article by Peter King

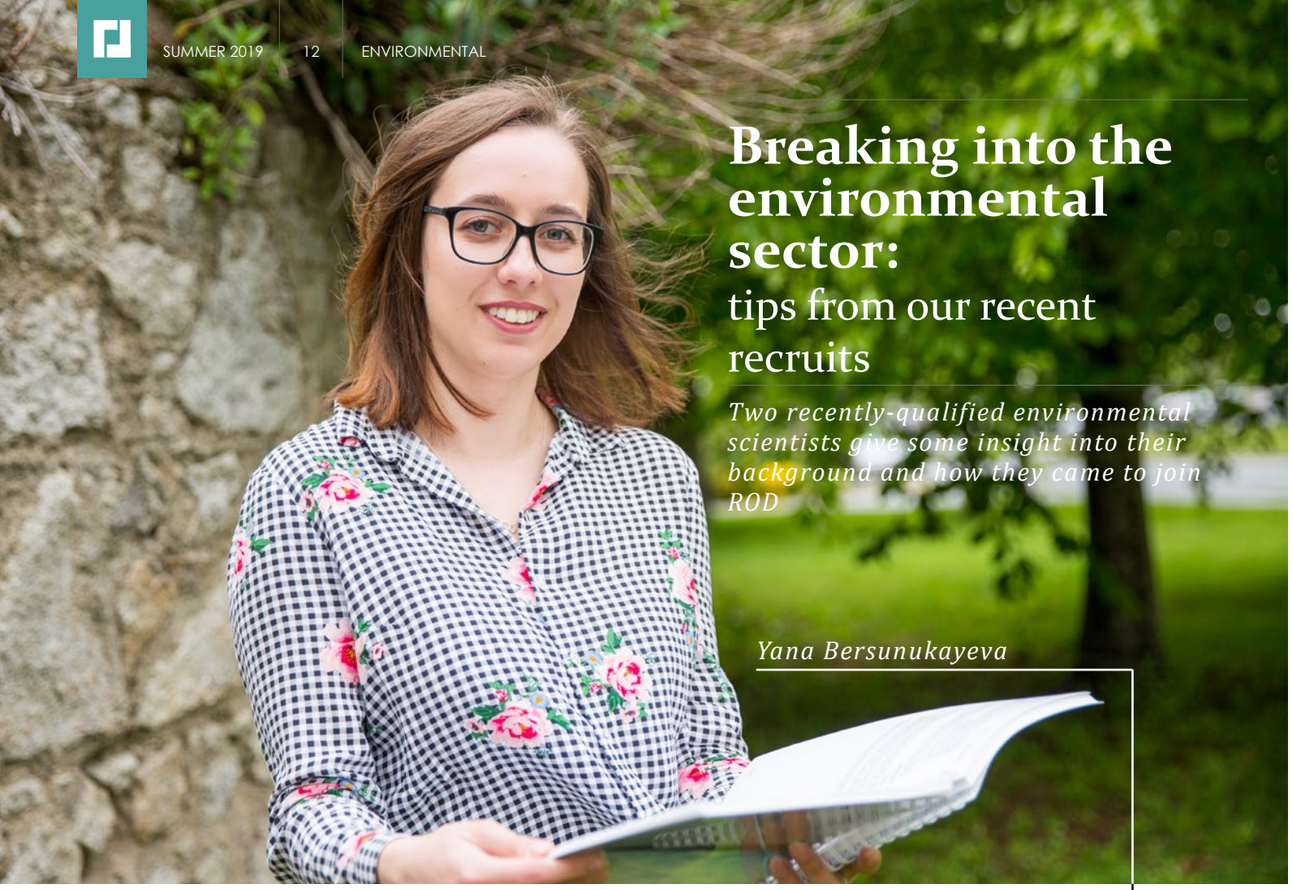
ROD has an ongoing commission to carry out risk-based assessments of bridge parapets on Ireland's motorway network on behalf of Transport Infrastructure Ireland (TII). Our objective has been to identify structures at relatively high-risk of vehicular impact and resultant breach of the parapets.

ROD prioritised the bridges presenting the greatest overall risk to road users in the event of a collision, thereby identifying the highest-ranking structures to receive parapet upgrades from N2 - normal level of containment to H2 - high containment. ROD also carried out the detailed design of the upgrade works, which included undertaking assessments of the existing bridge decks to confirm they had sufficient structural capacity for the increased loading associated with high containment parapets.

The upgrade works were carried out in tranches of five to ten bridges at a time, starting with the M50 interchange bridges from 2015-2018 and, more recently, the M9 bridges in County Kilkenny. The third tranche of the scheme on the N40 Cork ring road is currently under construction, with ROD providing all site supervision. Parapet replacement works have been undertaken in a live traffic environment and the works to date have been successfully installed without appreciable disruption to traffic.

Breaking into the environmental sector:
tips from our recent recruits

Two recently-qualified environmental scientists give some insight into their background and how they came to join ROD



Yana Bersunukayeva

Gain practical experience in the area in parallel with academic studies

After completing an undergraduate degree in environmental science, I decided to pursue a Master's degree in Global Change: Ecosystem Science and Policy. This course appealed to me because it focused on how environmental protection is translated into European and Irish law. During my Master's, I undertook a two-month internship with a leading engineering consultancy in Dublin, where I gained practical experience in preparing environmental reports, broadened my knowledge of Irish law and learned what life is like working in a busy consultancy. I felt that this internship experience helped me to demonstrate that I had the right combination of professional qualifications and practical, transferable skills when applying for my current role at ROD

Be flexible – embrace new challenges and experience

In my first month at ROD, I definitely felt a little out-of-my-depth because of the sheer volume of new information I had to take in. But, over time, I settled into the role, and I am enjoying the variety of projects here and the experience that comes with managing the different challenges that each one presents. In terms of projects, I have been involved in compiling an EIA Screening and a Part VIII planning application development for Markievicz Bridge in Sligo and helped in writing environmental reports for the Maynooth Eastern Ring Road, Waterford Transport Hub and the Waterford City to Rosslare Harbour Greenway.

Show leadership in pushing environmental issues and know how to communicate your ideas to a non-technical audience

It is an exciting time to be an environmental scientist. Being able to communicate and engage others in environmental issues is key, because we have an important role in encouraging people to think about the long-term impact of development on the environment.

I'm inspired by Greta Thunberg, the 16-year-old Swedish activist, who has helped young people around the world to voice their concerns about how their lives, and the lives of future generations, will be impacted by climate change. Her quiet but powerful speech to MPs in Westminster in April prompted politicians to declare contrition for their failure to act; it was pretty remarkable.

An interdisciplinary perspective is important.

I began my degree in ecology at University College Cork in 2011, and I knew then that I wanted to pursue a career in environmental consultancy. By the time I completed my studies, however, I didn't feel fully equipped for the world of consultancy. I had a strong technical grounding in environmental science, but I felt my practical professional skills needed development.

I decided to pursue a Master's degree in Environmental Management and Policy at Lund University in Sweden, and it provided me with a practical, interdisciplinary perspective on how environmental issues relate to private enterprise, public policy and economic development. I felt that the knowledge and skills I gained during my postgraduate degree stood to me when applying for my role at ROD, and they've certainly been of great use in my first few months at the company.

Voluntary work provides excellent opportunities for networking and skills-building.

While undertaking my Master's degree in Sweden, I worked as a volunteer on several environmental consultancy projects for companies including Volvo Trucks; a small Swedish business with a 'circular business model'; and a Portuguese semi-public wine certification authority. In addition to being a lot of fun, working on these projects really boosted my confidence when dealing directly with clients, and reinforced my desire to work in consultancy.

Last year, while working on my Master's thesis, I volunteered with Cork Nature Network (CNN), a local eNGO that organises ecology-related educational events and runs conservation projects in Cork city and county. I put together the organisation's newsletter and helped out at public events. Working with CNN provided me with insights into the operation of environmental NGOs and gave me a chance to make some contacts in the sector.

My voluntary work has given me a better appreciation of the opportunities and challenges facing environmental scientists working in consultancy and eNGOs.

The environmental field is a fast moving one, so it is important to stay up-to-date with the latest thinking.

My favourite Irish environmental news site is GreenNews.ie, and I have contributed several articles on environmental policy developments to the site over the years. Reading this and other industry publications, such as the Irish Wildlife Trust's Irish Wildlife Magazine, helps me keep abreast of developments in environmental affairs in Ireland and elsewhere. Twitter is also a surprisingly useful resource for keeping me in the loop on Irish environmental happenings as they unfold.

Read up on the company before the interview.

It may seem obvious, but the value of knowing your facts about a prospective employer cannot be understated. I read ROD's website thoroughly before my interview. Not only is this important interview prep, but it will also give you an insight into the operation and culture of the company and help you to establish whether this is the place for you.

I was personally attracted by ROD's emphasis on CPD [Continuous Professional Development]. Being part of an organisation that assigns a mentor to every staff member and invests so much in its team's professional development really appealed to me. I started working with ROD last January, and feel I have already benefitted from the programme.

Lorraine Guerin

Article by Barry Corrigan

Full steam ahead on N5 Ballaghaderreen to Scramoge scheme

Last January, Roscommon County Council [RCC] and Transport Infrastructure Ireland [TII] received approval from An Bord Pleanála for the upgrade of the N5 national primary route between Ballaghaderreen and Scramoge in Co. Roscommon. 'We were delighted to see the project team, including Roscommon NRRO and the Environmental Impact Assessment experts, rewarded for their huge efforts in bringing this highly complex scheme forward,' said Jim Thorpe, Project Director for ROD-AECOM. 'The road development will boost economic, social and tourism development in the region by significantly improving connectivity between towns such as Ballina, Castlebar and Westport and the east of the country.'

A challenging scheme

The archaeological sensitivity of the area presented a significant challenge for the team. The Rathcroghan Archaeological complex, a candidate UNESCO World Heritage Site with 240 recorded monuments (RMPs), is at the centre of the Study Area. Further east of Rathcroghan, the route also passes through the former Strokestown Park demesne – an architecturally sensitive site and home to the National Famine Museum.

ROD-AECOM developed a road design to avoid or minimise effects on the archaeological site following extensive consultation with the key stakeholders; archaeological surveys, investigations and studies. The photomontages presented in the Environmental Impact Assessment Report (EIAR) clearly illustrate that the proposed road development will be barely discernible from the Rathcroghan Archaeological Complex and will not affect the significance; setting; or views to and from individual sites or the complex as whole.

The oral hearing

Despite the board having received over 70 submissions and engaging its own expert hydrogeologist, the oral hearing itself was completed in just two days. The Client commended the quality of ROD-AECOM's work on the EIAR, Natura Impact Statement (NIS) and the scheme design to achieve this remarkable result.

A compressed programme

ROD-AECOM is currently providing assistance to RCC for the procurement and site supervision of advance works contracts. These include contracts for advance fencing and hedgerow clearance; a detailed ground investigation; and a detailed topographical survey. The advance works contracts will run concurrently with diversion works for overhead ESB high voltage powerlines and advanced archaeological investigation works. ROD-AECOM will also be undertaking invasive alien species surveys and agreeing landowner accommodation works.

Planning Approval Granted for a new bridge over the River Moy at Cloongullane

Article by Owen O'Keefe

In December 2018, An Bord Pleanála [ABP] granted consent for the realignment of the N26 at Cloongullane. This project will enhance road safety and reduce journey times between Foxford and Swinford. It comprises the realignment of 1.8 km of the N26, and requires the construction of an 83 m clear-span bridge over the River Moy.

Background

In 2015, ROD-AECOM was appointed by Mayo National Roads Office to provide engineering and environmental services for the project. While an Environmental Impact Assessment was not required, the risk of significant effects on the River Moy Special Area of Conservation (SAC) meant that an Appropriate Assessment (AA) under the Habitats Directive was required. As a local authority development, Section 177AE of the Planning and Development Act required the AA to be carried out by ABP.

In order to assist ABP in making its AA, ROD prepared a Natura Impact Statement (NIS) for the project. The purpose of the NIS was to assess the project, both individually and in combination with other plans and projects, in terms of its implications for the River Moy SAC. Following an Oral Hearing and the submission of further information, ABP requested that the NIS be augmented to account for:

- The presence and extents of alluvial woodland habitat corresponding to the type listed on Annex I to the Habitats Directive;
- Implications of artesian groundwater conditions at the location of the southern bridge abutment;
- Change from a box culvert to a bottomless culvert over the Swinford River; and,
- Potential for impacts on Freshwater Pearl Mussels.

Solution

To assist in addressing the issues around woodland habitats and Freshwater Pearl Mussel, ROD engaged the expertise of Dr John Cross, a former National Parks & Wildlife Service woodland expert, and Dr Eugene Ross of Freshwater Bivalve Investigations Ltd. Dr Cross confirmed the precise extents of Annex I alluvial woodland, and this necessitated some minor design changes around the southern abutment of the new bridge. The redesign and extension of the works exclusion zone made it possible to avoid impacts on this habitat.

Dr Ross's survey found that Freshwater Pearl Mussel, which is not a qualifying interest of the River Moy SAC, is not present in the vicinity of the project. His assessment concluded that the mitigation prescribed in the revised NIS would prevent significant effects on any mussel population further downstream.

Advanced works for the project got underway in April 2019. These works include tree felling, archaeological testing and services diversions. The main works are currently programmed to commence in the first quarter of 2020.

Peter Hynes, Chief Executive Mayo County Council:

'It is great news. This is an important stretch of road between Swinford and Ballina, and the works will improve access from east Mayo through to the north of the county.'

Outreach to Primary Schools on International Women's Day

Barbara Padel talks to students about being an engineer

Article by Debbie Chiu

To mark International Women's Day on 8 March, I set out with two of my colleagues, Barbara Padel and Anthea Gombart, to visit two all-girls primary schools in Dublin to talk about what it means to be an engineer. My colleagues and I wanted to open the girls' eyes to what engineering is, challenge their expectations about what an engineer does, and encourage them to explore the exciting and diverse career opportunities available to engineers today.

Our first school visit was to the Holy Spirit Girls National School in Ballymun, where we were met by a class of twelve-year olds. We spoke to the class about the stimulating career options available to women in modern engineering, from designing roads and bridges that help people travel faster and more safely, to devising new technologies to help people work on the go, to developing medical equipment that saves lives.

We talked about how the out-dated 'man in hard hat' stereotype can hold girls back from pursuing a career in engineering, and explained that most of our time is spent in creative problem solving – drawing and sketching out ideas, and shaping the world in which we live. We then used various puzzles and challenges we had brought with us to challenge and encourage their spatial awareness and their ability to visualise things in three dimensions. These proved to be a real hit.

Before we left, the girls wanted to know where our own interest in engineering began, and we explained that we each had a curiosity for how things work and a desire to solve problems and to make a difference in the world.

Our second school visit was to St. Raphaela's Primary School in Stillorgan, where we were met by an enthusiastic group of 5th class girls. We talked about what the word 'engineering' means and discussed the different types of work engineers do – from designing bridges and engines, to developing IT systems and cosmetics. We also discussed the fact that only 12% of engineers in Ireland are women, compared with 20% in Spain, Italy and China, and how important it was for us personally to have teachers, parents and grandparents with the vision to encourage and support us to follow our chosen path into engineering.

When our time was up, we packed up our things, happy that our talk had had a positive effect on the children and optimistic that, with encouragement, some of the girls we met that day could follow our lead into engineering.

TII's motorway operations centre extension moves to site

Article by Andrew Thomson

The new extension to the motorway operations control centre (MOCC) at the Dublin Port Tunnel building is currently on site. This marks significant progress for ROD-AECOM, who have been engaged by Transport Infrastructure Ireland (TII) to deliver consultancy services for the enhancing motorway operation services (eMOS) project. The motorway centre extension is one of the first steps in the larger eMOS project, with further contracts providing for enhanced M50 traffic flow managed by overhead signage.

The expanded building will house an upgraded server and control room with a state-of-the-art video wall control system providing real-time feeds from the motorway CCTV camera network. The new system will allow operators to set variable speed limits on the M50 motorway and monitor the health and status of the network.

ROD-AECOM has worked closely with TII and the current operator, Egis Road and Tunnel, to develop the project with minimal disruption during construction and a seamless operational transition to the new facility. John Paul Construction is constructing the extension, and the first phase of the works is expected to be completed this summer. Refurbishment works will be undertaken to the original structure in early 2020, after the new facility is operational.

Article by Andrew Thomson

First scheme opening for National Children's Hospital Project

The first phase of the new national children's hospital project, one of two satellite centres, has been completed at Connolly Hospital in Blanchardstown and is due to open to patients on 31st July 2019. This marks a significant milestone for ROD, who have been providing civil and structural engineering services for the development of both this centre and the second satellite centre at Tallaght Hospital since 2014. The new satellite centre will provide urgent care and secondary acute outpatient services, including a rapid access general paediatric clinic. It will also house a dental centre and state-of-the-art medical equipment.

This is our first large buildings project to have been designed and constructed through a full BIM (Building Information Modelling) process. It was delivered at Level 2 BIM – distinguished by collaborative working aligned with standardised information exchange, with all parties using their own 3D models. By taking a collaborative approach with Coady Architects and Ethos Engineering (M&E Consultants) at design stage and later with the contractor, BAM during construction, many of the traditional clashes and issues on site were avoided.

The new building comprises a three-storey concrete frame building, with concrete flat slabs spanning between beams and columns on pad foundations. All the works were carried out within a live hospital campus, with the construction of deep drainage in close proximity to existing buildings posing a particular construction challenge. Work on the second satellite centre at Tallaght Hospital began on site last February, and is expected to be completed in 2020.

Proudstown Road, Navan, Co. Meath
This 4-unit development was completed in April by J Davis Construction Ltd., on behalf of Meath County Council.

Sheapheard's Lodge
Phase 2 of the Sheapheard's Lodge development in Meath, which consists of 16 units, began on site in Q1 2019.

Cherry Court, Summerhil, Co. Meath
This 19-unit development was completed in early March by Kilcawley Construction.

ROD Housing Update

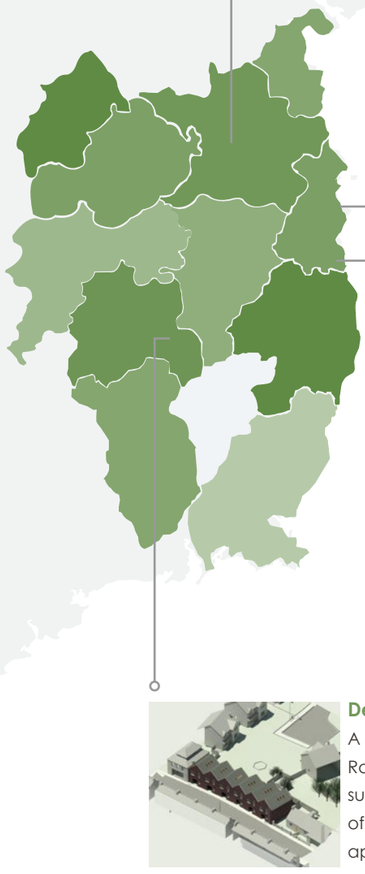
Article by Kieran O'Riordan

In the first six months of the year, ROD's buildings team has overseen significant progress on our portfolio of housing projects:

- Three projects achieved substantial completion, with a fourth due in July;
- Two projects commenced construction on site and one was submitted for approval prior to tender;
- We have over 600 residential units working at various stages of planning process at present.

One sample project at Cherry Court, Summerhill, Co. Meath was completed in early March by Kilcawley Construction. The 19 unit development was ROD's first housing project to be designed entirely using Revit software. The development consists of a mix of single and two-storey houses, and the majority of its units have already been occupied. Ancillary works on the site include an attenuation pond for surface water storage and the relocation of an ESB substation. As well as structural design, ROD's responsibilities included the assessment of potential flooding issues; the enhancement of the existing site drainage infrastructure, and measures for temporary access road for residents.

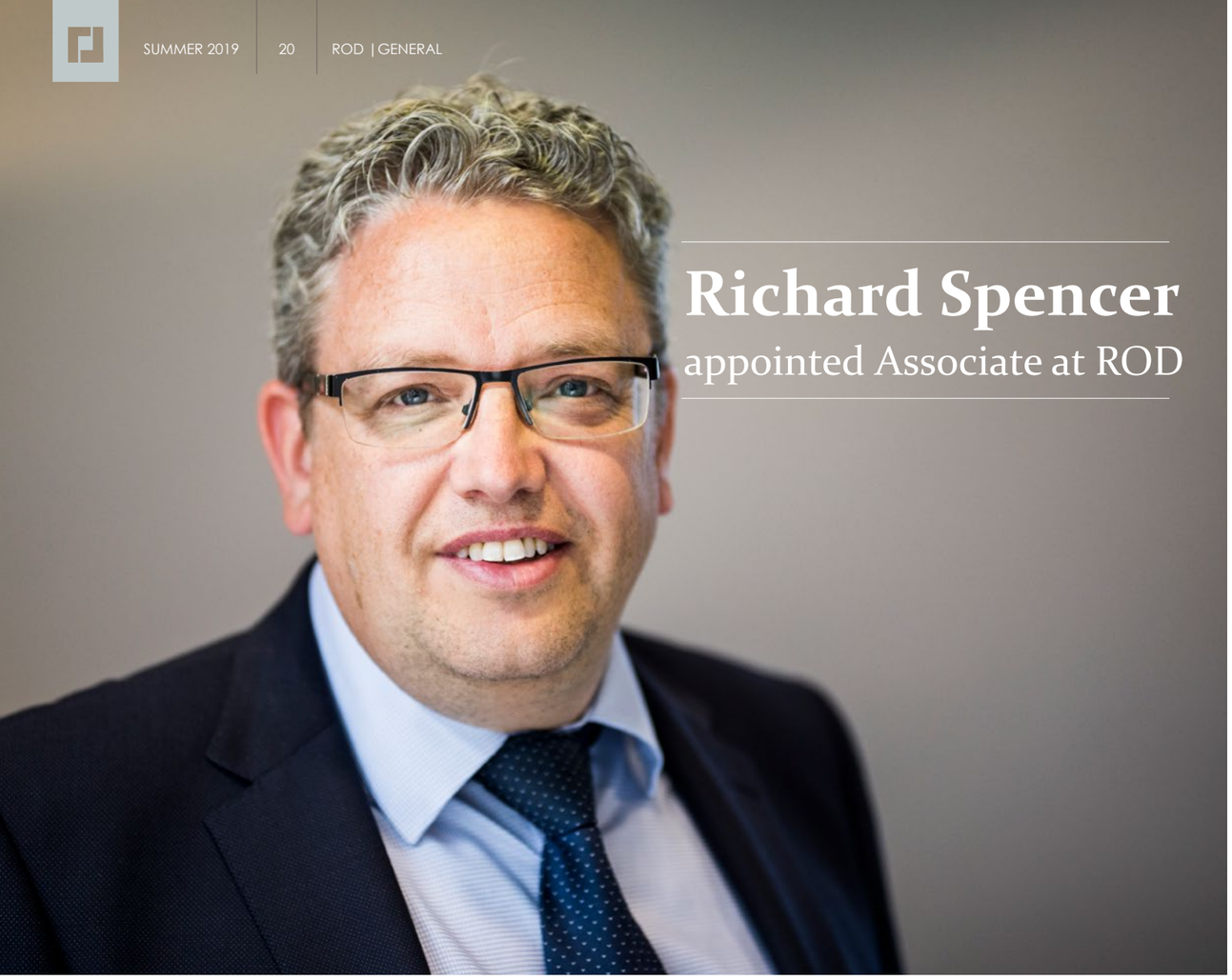
ROD's experience of the BIM process through all stages of this project has enabled us to fully embrace the powerful capabilities of this approach on various substantial projects since.



Construction Stage
A 10-unit development at Rafters Lane, Dublin 12.

Fitzgerald Park, Dun Laoghaire
This 50-unit development was completed in May by Geda Construction, on behalf of Dun Dún Laoghaire-Rathdown County Council.

Design Stage
A 6-unit development in Rathdowney, Co. Laois, was submitted to the Department of the Environment for approval.



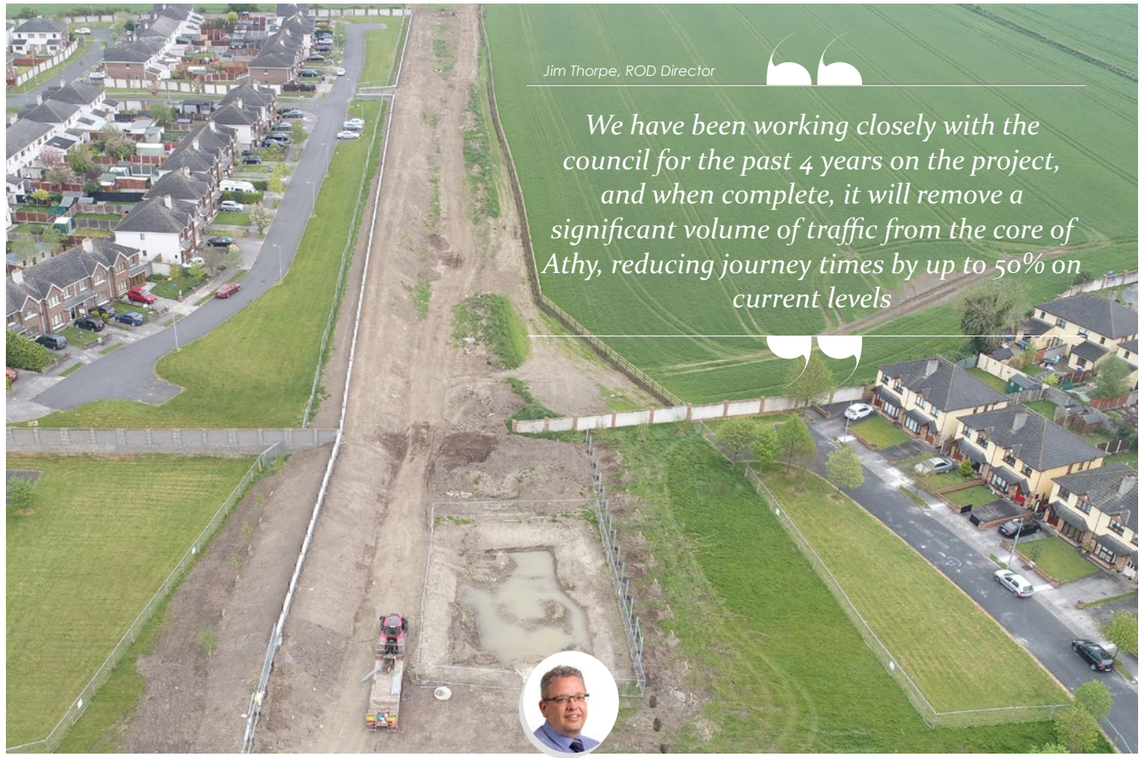
Richard Spencer
appointed Associate at ROD

Richard Spencer joined ROD in 2015, and was appointed an Associate in January 2019. A Chartered Engineer, Richard is a significant addition to our roads team, with extensive experience in roads design and construction, and particular expertise in the geometric design of roads.

Since joining, Richard has worked on a variety of roads projects at various stages of project delivery. Richard worked closely with Jim Thorpe on the Athy Distributor Road and N5 Ballaghaderreen to Scramoge schemes, both of which were planning stage schemes, and both of which were granted approval by An Bord Pleanála following Oral Hearings where Richard acted as Expert Witness. Richard has also been heavily involved in the detailed design of the A6 Dungiven to Drumahoe Dualling Scheme in Northern Ireland, and the Great Yarmouth Third River Crossing in Norfolk. Richard also keeps a watching brief across a number of other roads projects, drawing on his considerable experience to guide and assist our more junior personnel.

Richard has been instrumental in the roll-out of ROD's BIM compliant naming conventions and workflows, which led to the company achieving BSI Level 2 BIM certification in 2018. He continues to promote the use of BIM on projects, applying his expertise in 3D road modelling software to the roll out of OpenRoads Designer on ROD's major road schemes.

Prior to joining ROD, Richard spent 15 years working for AECOM-URS-Scott Wilson. During that time, he was highways team leader on several major projects in Scotland and Ireland, including the detailed design of the M80 Stepps to Haggs DBFO (Design – Build – Finance – Operate); the detailed design of the A5 Western Transport Corridor – Section 3; and the route selection, preliminary design and statutory procedures of the N8/M8 Cullahill to Cashel.



Article by Richard Spencer

Work advances on the Athy Distributor Road

Work advances on the Athy Distributor Road

In October 2017, An Bord Pleanála granted planning consent and CPO approval for the Athy Distributor Road, a 3.4km single carriageway arterial road that will alleviate significant congestion in the historic core of Athy. The scheme incorporates a new 80m single span crossing of the River Barrow; refurbishment and repurposing of an existing disused railway bridge; and a new crossing of the Dublin-Waterford railway. The decision cleared the way for the scheme to proceed to detailed design and, according to ROD's Jim Thorpe, this provided a welcome opportunity for the ROD-AECOM alliance to continue its association with the project team in Kildare County Council: 'We have been working closely with the council for the past 4 years on the project, and when complete, it will remove a significant volume of traffic from the core of Athy, reducing journey times by up to 50% on current levels.'

Advanced works contract

To minimise the impact of the main works construction on residents of nearby properties, a section of the main works has been separated into an advance construction works contract. Works consist of boundary fencing; walling; hedging; site clearance; and the construction of an offline 5.1m x 2.4m precast concrete culvert. This will allow the diversion of the Bennetsbridge Stream to be undertaken during the instream works season of August to September, in accordance with the commitments provided within the Environmental Impact Statement. The advance works contract is being undertaken by Clonmel Enterprises, with ROD-AECOM providing Employer's Representative and site supervision services.

N61 Ballymurray to Knockcroghery Road project

Article by Richard Spencer

ROD-AECOM has been appointed to the N61 Ballymurray to Knockcroghery Road project, which extends from Newtown townland, south of Roscommon town, to Galey townland, south of Knockcroghery village. The team will take the scheme from feasibility through to statutory consent, in accordance with Transport Infrastructure Ireland's management and appraisal guidelines.

The project will upgrade the route between Ballymurray and Knockcroghery in Co. Roscommon, where the existing road is substandard in terms of horizontal and vertical geometry, sight distance, cross section, leading to an unforgiving roadside, in combination with a high number of junctions and accesses.

The N61 is a strategic corridor that links the Sligo and Athlone Regional Centres and the N4, N5, and N6 national primary routes all of which form part of the EU TEN-T Comprehensive road network. The N61 is also a key strategic corridor linking Roscommon Town and its hinterland to the Athlone Regional Centre.

The National Secondary Road Needs Study (2011) identified the N61 from Roscommon to Knockcroghery (which includes the Ballymurray to Knockcroghery section) as a priority one scheme in need of attention.

The study area contains several constraints, including the:

- Dublin-Westport railway, which traverses the centre of the study area and crosses the N61 at two locations with at-grade level crossings; and
- Lough Ree Special Area of Conservation (SAC) and Special Protection Area (SPA) to the east of the existing N61.

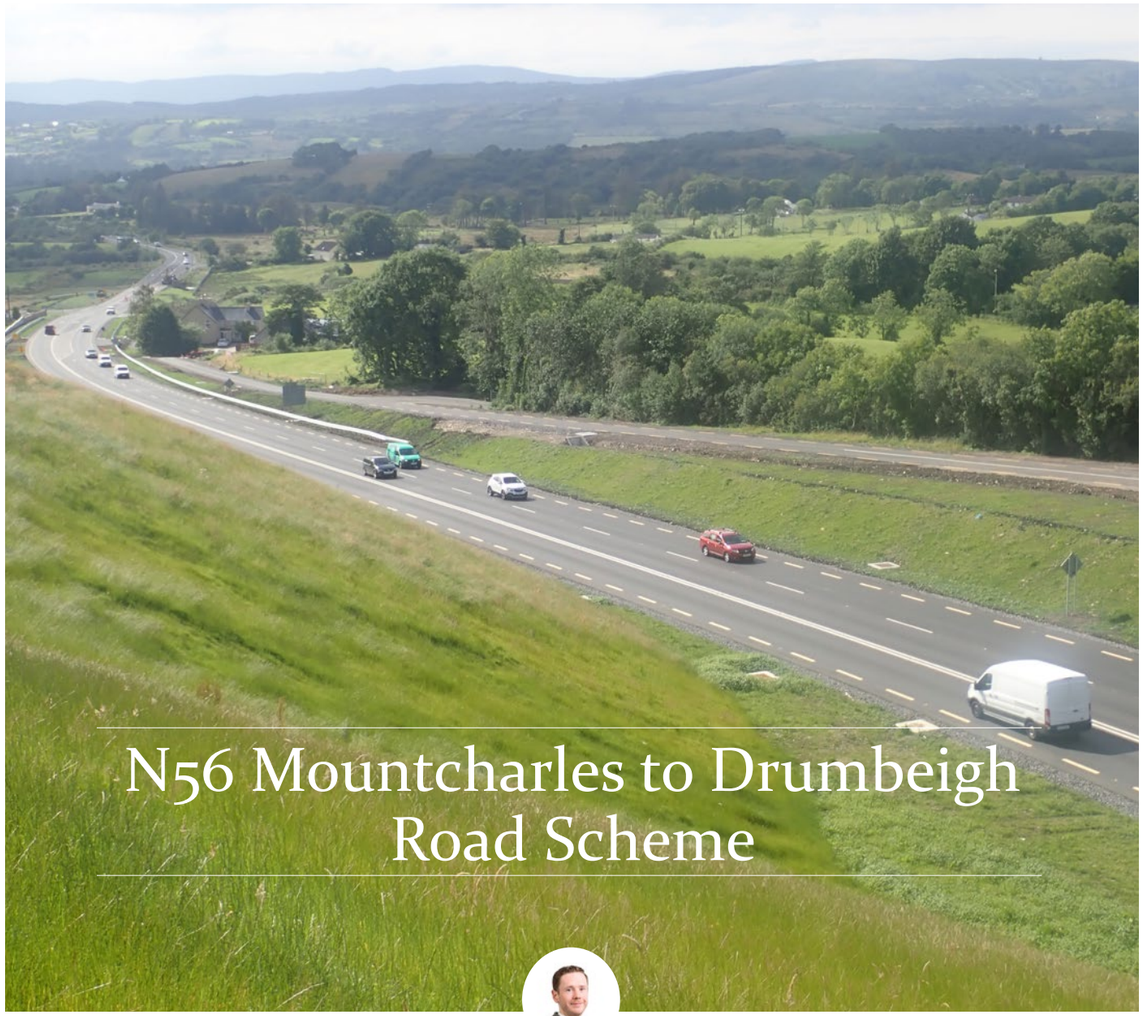
The N61 provides an opportunity for us to continue our association with the project team in Roscommon National Roads Regional Office (NRRO) and build on the success of the N5 Ballaghaderreen to Scramoge Road project, which was recently approved by An Bord Pleanála.

ROD Engaged on N60 Oran Road Project

Article by Daire O'Riagain

ROD has been engaged by Roscommon County Council for the construction stage of the N60 Oran Road project. The scheme was designed by Roscommon National Roads Regional Office (NRRO). It involves the realignment of approximately 3.4km of the N60 national secondary route, including 2.1km of offline construction and 1.3km of online single carriageway widening. The new alignment of the off-line section of road avoids the site of the 11th century Carroweighter Round Tower, where St. Patrick is said to have founded a church and appointed St. Cethec as the first bishop.

ROD will provide consulting engineering services for the contract administration, construction supervision and handover of the scheme. The project commenced on site in May 2019. Wills Bros Ltd. has been contracted to undertake the works on a 68-week programme.



N56 Mountcharles to Drumbeigh Road Scheme

Article by Daire O'Riagain

As part of its capital expenditure programme to improve the safety and efficiency of the national road network, Transport Infrastructure Ireland [TII] identified the Mountcharles to Drumbeigh section of the N56 for improvement. The improvement scheme improves access to south Donegal and Killybegs port. The existing N56 Mountcharles to Drumbeigh Road has sub-standard geometry and numerous junctions and accesses, but nevertheless is signposted as a 100km/hr speed limit zone.

Donegal County Council National Roads Office (NRO) completed phases one to five (planning through to tender). The council subsequently appointed Roughan & O'Donovan (ROD) to provide construction and handover stage consulting engineering services for the scheme. ROD's team consists of Patrick Grennan, Employer's Representative; Martin Brown, Project Manager; and Gerard Ward, Senior Resident Engineer.

The interface between the construction works by Wills Bros Ltd. and the existing N56 had potential to cause major disruption to traffic accessing Killybegs and north-west Donegal. However, the construction stage ran smoothly, and the project was open to traffic in July 2019

Continuous Greenway completed between Athlone and Maynooth

Article by Rachel Harney

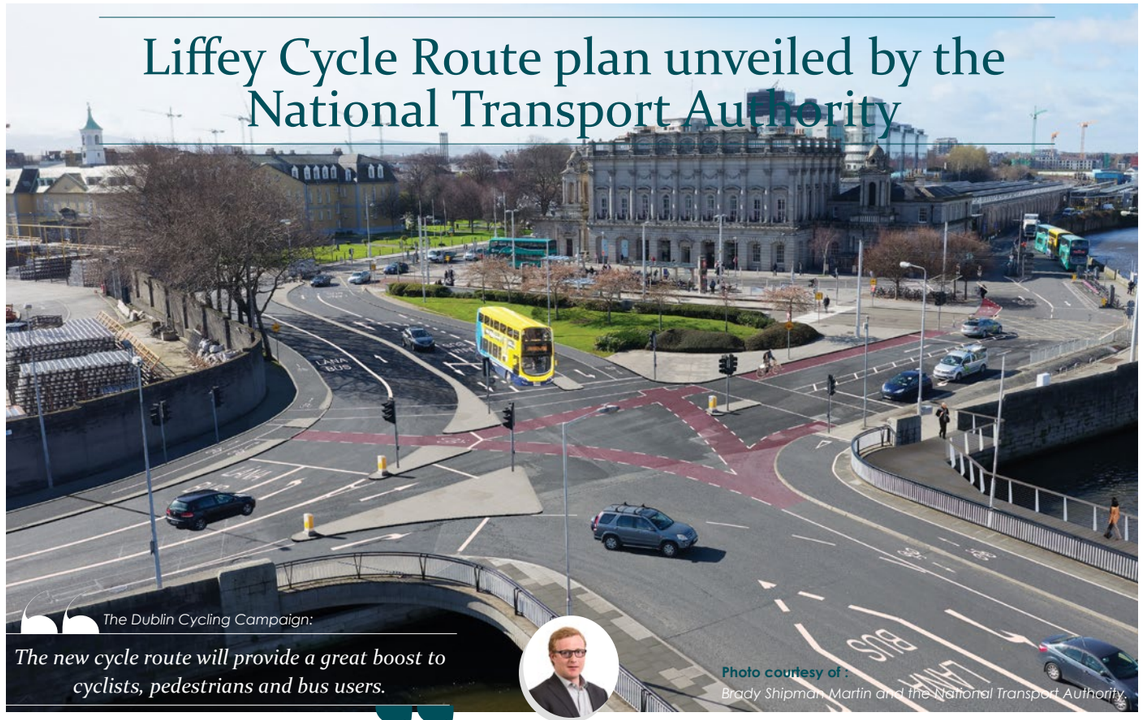
Since 2012, ROD and AECOM have been working on the development of the Galway to Dublin Cycle Route as part of the National Cycle Network and international EuroVelo Route 2. We are pleased to report that it will be possible later in Summer 2019 to cycle across half the country from Maynooth to Athlone on the greenway trail fully segregated from traffic. June 2019 saw the completion of the Moyvally Ramp, a short bridge to complete the cycle route along the Royal Canal at Moyvally in Co. Kildare. The structure is located between the canal and the Dublin-Sligo railway and connects towpath under the existing R148 road bridge to the old masonry canal bridge beside Furey's Bar.

The ramp construction is a lightweight steel superstructure, with steel piers with concrete plinths supported by mini-piles through the canal embankment. The light grey deck and darker grey parapet colours suit the tones of the existing concrete and masonry bridges at the site. The deck was fabricated in two sections for transport to the site. It was lifted into place during a night possession of the railway on Friday the 3rd May. Final finishes took place on site during the month of July, bringing the project to completion.

Some short lengths of remaining works on the cycle route along the Royal Canal are scheduled for completion in Summer 2019.

The overall completed greenway route is 110km long between Maynooth and Athlone, which is by far the longest continuous cycleway to date in Ireland. Ultimately the objective is to extend the route eastward to Dublin and westward to Galway to complete a total route of 270km in length that will compare with many of the most famous international cycle routes such as the River Danube Bike Trail through Germany, Austria and Hungary.

Liffey Cycle Route plan unveiled by the National Transport Authority



The Dublin Cycling Campaign:

The new cycle route will provide a great boost to cyclists, pedestrians and bus users.

Photo courtesy of : *Brady Shipman Martin and the National Transport Authority.*

Article by Eoin Ó Catháin

In April, the National Transport Authority and Dublin City Council unveiled plans for a 5km segregated cycle route along the River Liffey in Dublin. The proposed route will provide a safe, continuous and segregated cycle facility in both directions between Phoenix Park in the west and the Tom Clarke East Link Bridge in the east.

Background

The need for the Liffey cycle route was first identified in the Greater Dublin Area Cycle Network Plan (2013), and it has since become an important objective of Dublin City Council (DCC) and the NTA. In 2017, ROD was engaged by the NTA to carry out a review of the proposed route and to prepare an options assessment report.

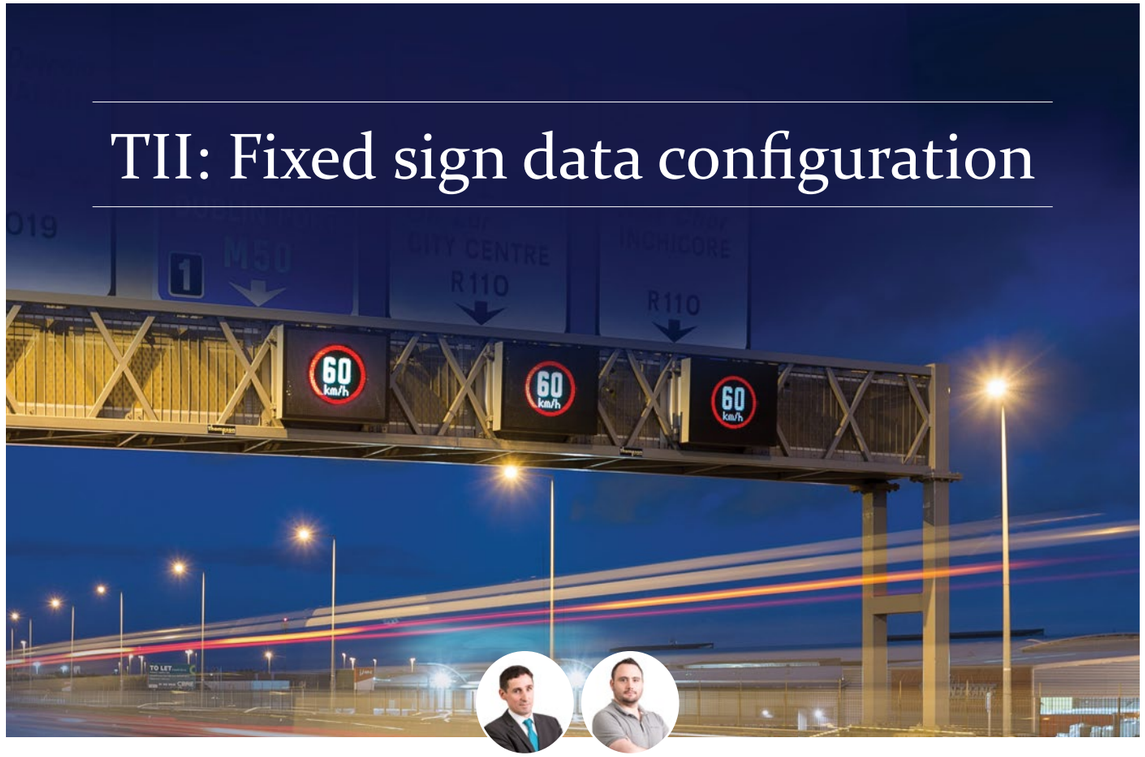
ROD's study considered route options across an area spanning from Parnell Street in the north of the city, to Thomas Street/Dame Street in the south. It considered a variety of cycle facility types, including one-way and two-way options. Following consultation with DCC and the NTA, a scheme comprising the following was recommended:

- In the western section of the route, over a length of 2km, one-way cycle tracks will be located on the buildings side of the traffic lanes.
- In the busiest central section, over a length of 1.2km, one-way cycle tracks will be located on the river side of the traffic lanes to avoid very busy bus stops on the buildings side of the road.
- In the eastern section, over a distance of 1.8km through the Docklands, two-way cycle tracks will be provided alongside the river on both sides.

The scheme includes proposals to overcome specific pinch-points along the River Liffey Quays, notably at the Liam Mellowes and James Joyce bridges, through sensitive interventions that are mindful of the historic and protected the nature of the city's quay walls and bridges. It also includes new boardwalks to improve capacity for pedestrians and the quality of the walking environment along the corridor whilst also enhancing the river environment as a public realm.

I believe that this scheme provides a once-in-a-generation opportunity to reimagine the Liffey corridor and improve the environment for all road users. In its response to the NTA's plan, Dublin Cycling Campaign said it was 'wonderful to see a potentially acceptable design proposal at this stage which has something for all route users.'

TII: Fixed sign data configuration



Article by Ed Warren & Ciaran Carey

Transport Infrastructure Ireland (TII) is currently enhancing the management of its fixed sign assets by adding them to their asset and fault management systems (AFMS). Moving the fixed sign assets to the AFMS will deliver centralisation and will allow TII to improve asset information delivery and contract performance measurement, while also providing potential for a better understanding of asset longevity and resilience over time.

With enhanced oversight on asset condition and task completion status, maintenance contractors will be able to improve their practices, and TII will have an opportunity to further refine the optimisation of its equipment maintenance strategies. The project underscores TII's recognition that effective asset management relies on evidence-based, data-driven decision making, founded on sufficient, current and accurate data.

Why ROD?

'Having overseen the implementation of the AFMS as part of two previous TII contracts, and with the data capabilities of ROD-IS to draw upon, our team was well-placed to support TII in the delivery of the project,' said ROD's Ciaran Carey. 'Our expertise is based on data science proficiency; civil engineering capabilities; and research experience on projects such as PREMiUM, where we were responsible for the creation of road equipment asset data indicators, and Interlink, which examined the use of BIM for civil infrastructure asset management,' he added.

ROD's approach

ROD began by interrogating the 26 datasets (180,000+ total records with +110,000 assets), and developed algorithms to systematically identify missing, incorrect and inconsistent text, image and geo data. The results were then outputted into separate contractor reports for rectification. After some direct manipulation, ROD's data wrangling resulted in standardised datasets optimised for the transfer to the AFMS, which took place earlier this year.

In addition to the data configuration work, ROD also provided advice on user and stakeholder driven functionality additions and improvements to the AFMS, and the development of processes to manage both the system and the multi-level stakeholder involvement required.

Retro-fitting new variable message signs on the M7/M18

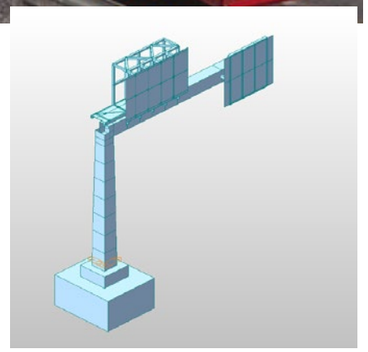
Article by Daire O'Riagain

Transport Infrastructure Ireland (TII) recently commissioned ROD to propose an optimal means for the deployment of variable message signs (VMS) along the M7 and M18 motorways where, in recent years, occasional and sudden freak weather conditions – in particular hailstorms, have resulted in several multi-vehicle collisions.

As part of an initial study, ROD used incident heat mapping of incident hotspots to identify eight locations on the M7/M18 route for the deployment of the new VMS signs:

- Three signs have been deployed between Junction 22 Roscrea and Junction 24 Nenagh in the westbound direction;
- Three signs have been deployed between Junction 27 Birdhill and J23 Moneygall in the eastbound direction;
- One sign has been deployed at J15 northbound for Crusheen on the M18; and
- One sign has been deployed at Junction 16 southbound for Gort on the M18.

Drawing on lessons learned from previous pilot studies on the deployment of VMS in rural areas, ROD developed a lightweight, structural steel frame, access ladder and gantry walkway that clamps to existing Directional Signs. These signs are generally located at the diverges to junctions. The VMS and access structure are self-supporting from the existing sign structure. This removes the need to deploy traffic management on the network for maintenance works. After completing the initial study and determining the significance of the additional loads generated by retrofitting the new frame and the rear opening VMS, ROD carried out all structural design, ITS and electrical design for the project.



ROD is working with TII, Atkins, Colas Roadbridge JV and the sign supplier, Daktronics, to deliver the project.

Galway to Dublin Cycle

Article by Eoin O'Cathain

The Galway to Dublin Route will ultimately form part of a trans-European network of Euro-Velo routes, and will ultimately link to Moscow. The section between Maynooth and Mullingar will be completed in summer 2019. To celebrate this milestone towards the completion of the Galway to Moscow Route, a hardy team of ROD and AECOM personnel, along with some family members and a guitar (!) cycled from Galway to Dublin on the 7th and 8th June this year. The team was led by Séamus MacGearailt, who was ROD-AECOM's project director for the project.

Blessed with good weather, the cyclists managed to make good progress, and even managed to work in a number of hospitable eateries and watering holes along the way. The range of ages present spanned 15 to 55, and the experience range of the cyclists varied significantly. Some had never cycled further than 40km in a day, and yet managed the 260km journey over two days, proving the accessibility of the route to cyclists of all ages and abilities.

The team left the Spanish Arch in Galway, following greenways, pleasant lightly trafficked housing estates, and quiet country roads to Clarinbridge. From there, we followed more quiet roads to Loughrea, startling some locals by asking were we on the right road to Dublin. We were nearly scuppered at one point by a collapsed bridge, but managed to find a detour. Loughrea to Aughrim (lunch) via Ballinasloe involved following the hard shoulder of the old N6, and this continued until the outskirts of Athlone, where we switched onto quite bog roads for the last stretch to the town centre.

The second day was an altogether different experience. We headed from our hotel to the old railway line, which we followed for 40 peaceful kilometres to Mullingar, with a pleasant coffee stop en route. At Mullingar, we switched onto the Royal Canal, which we followed to our lunch stop at Killucan. Then onwards to Furey's Bar at Moyvalley before the last 2 hour stretch towards Dublin. A pit stop at the Strawberry beds was followed by the last few kilometres home.

The benefit of the dedicated infrastructure east of the Shannon was evidenced by the much increased usage along the corridor. Nevertheless, the quiet rural roads of the west of Ireland are brimful of character and relatively untrafficked, which also provides a safe route for more experienced cyclists or those with a guide. We are confident the completion of the ramp at Moyvalley will facilitate the continued increase in usage of the canal towpaths by walkers and cyclists, and hope that TII and the local authorities along the route will continue their diligent efforts to complete this wonderful amenity route between the two cities.

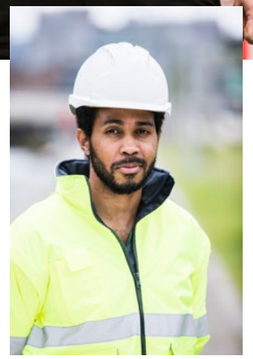
Why site experience matters to graduate engineers

Ed Warren

ROD's two-year graduate programme is designed to develop well-rounded graduates whose work can make a positive difference to our clients, our partners, our team and the wider community. We believe that good engineering skills can be taught, but unless those who possess them also have the ability to communicate effectively, their value is limited.

Over time, and through a certain amount of trial and error, we have developed our graduate programme, and it has been positively received. As our experience of the initial guinea pigs has enabled us to further strengthen the programme, we have included the option of a period on a construction site into the rotation. This gives graduates the opportunity to develop the communications skills they need to work in sometimes confrontational environments, grapple with the practical challenges faced on site, and deal with clients, contractors, and communities.

Here, two of our recent graduate engineers, Ernest and Miguel, discuss how the site rotation has given them a lot more than just a chance to get out of the office.



Ernest Etim, Assistant Resident Engineer, N56 - Mountcharles to Drumbeigh scheme

I spent the past nine months working as an ARE [Assistant Resident Engineer] on the construction stage of the N56 - Mountcharles to Drumbeigh scheme in Donegal. The experience has given me a better appreciation of the central role engineers play in all phases of a roads project - from design to handover - and just how much our work impacts on society.

During my site rotation, I learned how important teamwork is in terms of keeping a project on programme. The timeframe for addressing requests from the contractor tends to be quite short, particularly when decisions are needed to solve a construction or design problem. The ER's [Employer's Representative's] team has to get together, identify the key issues and delegate tasks to various team members within the time available. These decisions can have an immediate impact on the construction process and the general public.

I was given responsibility in my role on site, but I also got a lot of support from the more experienced team members, including the Senior Resident Engineer. He supervised my work on, for example, collating as-built documents. I reviewed as-built data from the contractor, which I cross-referenced to the site team's own records. I also maintained records of personnel and equipment on site during the construction of the many elements of the scheme, as well as recording testing and carrying out site inspections.

I was encouraged to ask questions to understand what was required of me, particularly when it came to dealing with the public and communicating with the Contractor and the Employer. For example, when carrying out inspections and assessing requests for information, I sought clarification from the Senior Resident Engineer before engaging with the Contractor or landowners.

Over the course of my site rotation, my understanding of how to implement ROD's Quality and Safety Management Systems [QMS and SMS] improved. For example, the ROD QMS requires the preparation and maintenance of a Project Manual for the site, which addresses procedures for site correspondence, site inspections and maintenance of as-built documentation.

Now that I am back in the office, I have a clearer understanding of the health and safety implications of my designs. I am also giving far greater consideration to the constructability of my designs arising from my site experience.

Miguel Angel Hidalgo – Assistant Resident Engineer, Royal Canal Premium Cycle Route

I am working on the site of the Royal Canal Premium Cycle Route Phase 2 at present. ROD has been appointed as the detailed designer and Employer's Representative for the scheme, as well as providing resident engineering services. My role on site requires me to assist the Resident Engineer in completing the daily tasks, including keeping records of site works, writing weekly reports, undertaking site inspections and solving the day-to-day construction issues.

At an early stage in my time on site, I participated in supervising the installation of steel sheet piles and bored CFA piles. The experience helped me to understand the construction sequencing of both steel sheet piles and bored CFA structural foundation components and furthered my knowledge of how to design for the safe and efficient construction of such works.

My colleagues in the office, Andrew O'Connell and Thomas Leonard, have been a great source of day-to-day support, which has made my work much more manageable. Also, I get to work alongside one of the technical directors at ROD, Patrick Grennan as well as liaising with Dublin City Council personnel, so I am not short of experienced engineers to learn from. I have also learned a lot about contract documents and construction methodology.

I am looking forward to being on-site for the construction of the foundations, the approach embankment and the lifting in place of the new Royal Canal Viaduct, which will connect to the ROD-designed Newcomen Bridge and effectively extend the cycle path to Guild Street. I am hoping the experience will help me decide on whether to make the bridges team my home when I complete the graduate programme.

Simple steps towards a sustainable future

Article By
Deirdre Neff & Christine Murphy

Sustainable transport

Promoting sustainable transport is very much embedded in our culture, not least because our team is actively engaged in solving critical transport challenges, such as 'How can we better manage mobility on the road network?' 'How do we make transport safe and efficient?' 'How can we shape the future of mobility?' We encourage our people to consider cycling and walking as a means of commuting - both to and from work and, where practicable, to client meetings – and provide lockers, showers and cycle parking. We also participate in the NTA's annual Smarter Travel Cycle and STEP challenges and ROD sponsors internal prizes to encourage uptake.

Eliminating the need for travel is also central to our philosophy. With increasing reliance on e-conferencing, remote working and hot-desking, we have reduced the need for our staff to travel and co-locate to work together. This increased flexibility is also pivotal in allowing us to expand to new locations, including our new Leeds office described in this newsletter.

Workplace Travel Plan

To help staff overcome the barriers – sometimes perceived, sometimes more challenging – to more sustainable commuting, we have developed our own 'Workplace Travel Plan' [Mobility Management Plan]. The plan provides information on the non-driving options available for those commuting to our Sandyford and Northwood offices and provides information on, for example, tax saver tickets, the Cycle to Work scheme, bus routes and car sharing options.

We have found that many of our new recruits find it difficult to appreciate the better, albeit less obvious, alternatives to driving to work. Our plan is designed to answer the simple questions, such as "Where do I get the bus? Where is the nearest Luas stop? Where do I transfer? How much does it cost?" We have found that many of our new recruits from abroad are more inclined to opt for the sustainable modes once the practicalities are clearly set out.

Sustainability Week

Our second annual Sustainability Week will take place during the summer. This presents an opportunity for all staff to look at the ways we can reduce the quantity of plastics we use as a company, improve waste management and encourage greater community engagement. To secure staff buy-in to our workplace sustainability strategies, we are planning interactive games with a sustainable element; a site visit and a presentation series aimed at promoting sustainable transport; waste recycling; sustainable energy use; and environmental design. Ultimately, we believe that if engineers don't lead the way in terms of environmental sustainability, who will - so it is incumbent on us to think and be sustainable in our everyday lives, in order that others will see the enjoyment and benefits it entails.

Caitríona de Paor competes for Ireland in the Touch Rugby World Cup

Dr. Caitríona de Paor, research manager with ROD-IS, has just returned from Malaysia, where she was one of over 100 players representing Ireland at the 2019 Touch Rugby World Cup. Irish expectations coming into the tournament were high, particularly for Caitríona's Mixed 30s team, who were gold medal winners at the 2018 European Touch Championships in Nottingham, England.

With 116 national teams, including teams from traditional rugby countries like Australia, New Zealand and Fiji, and 2,400 of the world's best Touch players taking part, the competition was tough. Adding to the challenge was the heat – the temperatures were in the high 30s, and the humidity exceeded 80%, and the intense schedule required two 40-minute matches a day for six days.

Caitríona's team got off to a confident start on the first day, with a win over Singapore in their first match and a 7-7 draw with a strong Chile side in the second. Victories over Scotland and the UAE followed on the second day. These early wins gave way, however, to losses against Australia and New Zealand - the two highest ranked teams – on day three, and then draws against South Africa and England on day four.

A loss to the Cook Islands (the eventual silver medallists) and a draw with France on day five left Ireland with a play-off for 5th place on the final day of the tournament. In a hard-fought final match, it was the French who edged ahead with a final score line of nine touchdowns to Ireland's seven.

'A 6th place finish in a field that included the best teams in the world was a great achievement for us,' said Caitríona. 'I'm very grateful to ROD for sponsoring our team and for supporting my participation in the tournament – I've taken some great memories home with me,' she added. Ever keen to get back out on the playing field, Caitríona will be competing in an international women's tournament in Paris in June and in the Irish national league over the summer.

About the 2019 Touch World Cup

- While sharing some features with other codes of rugby, Touch is a distinct and unique sport, and has grown rapidly since its founding in 1968
- The Federation of International Touch has 41 affiliated member nations, with millions of men, women, girls and boys taking part in formal and social competitions across the globe
- The Touch World Cup is held every four years
- All matches last 40 minutes with a five-minute half-time
- 11 categories featuring both fully mixed and single gender teams, including Women's Open, Men's Open, Mixed Open, Women's 27s, Men's 30s, Mixed 30s, Women's 35s, Men's 35s, Men's 40s, Men's 45s, Men's 50s
- 116 teams from 26 nations took part this year

ROD-IS News Update – Summer 2019

As part of our activities under the CEDR funded DIRIZON project (advanced options for authorities in light of automation and DIgitalisation hoRIZON 2040), ROD-IS recently completed a series of interviews with:

- Representatives from European national road authorities;
- European Transport Ministries;
- Road operators from the UK; the Netherlands; Sweden; Finland; Czech Republic; Ireland; Italy; Germany and Austria.

The purpose of the interviews was to gather information about current practices and future trends in the areas of digitalisation and automated driving. In general terms, the responses from the interviews identified that the current levels of digitalisation and automated driving varies between countries, and different countries are at different stages of deployment and implementation. Participation in projects and platforms is seen as critical, not only for validating the technologies and services developed, but also to develop collaborations with third parties and provide confidence to the public (i.e. the user) that these technologies and services can have a positive impact on traffic flow and safety.

The main barriers or risks to achieving full digitalisation of the road network and Automated Driving are for the most part identified as being similar and include:

- financial barriers;
- a lack of clarity on roles and responsibilities;
- legal/regulatory issues;
- insufficient collaboration between actors;
- data issues (privacy, cybersecurity, sharing etc.);
- insufficient interoperability, both at national and European level;
- technical issues; and
- public acceptability.

ROD-IS also hosted a meeting of the project consortium in Dublin in April. It was attended by our partners from Germany, the Netherlands and Austria. For further information on the project, including project reports, see www.dirizon-cedr.com

As part of our work on the H2020 funded SAFE-10-T research project, ROD-IS recently completed a system-based probabilistic analysis of a 50-year old steel girder railway bridge. This is the first known practical example of the application of real train loading data to system-based analysis, which is an analysis method that allows probabilistic consideration of inherent redundancy in bridge structures.

ROD-IS also investigated the potential impacts of connected autonomous vehicles on bridge structures. Long-run simulations were applied, together with in-house Finite Element software, to investigate the impact of truck platooning on vertical load and dynamic amplification.

ROD-IS is currently developing probabilistic virtual fatigue monitoring software to provide stress signals at various points throughout a bridge structure, including points for which there is no structural health monitoring currently in place. The software aims to evaluate the failure probability at the fatigue limit state.

The next phase of the project will involve a case study simulation of the Suurhoff Bridge in Rotterdam Port. By applying probabilistic fatigue software to the bridge's orthotropic steel deck, ROD-IS aims to provide optimised decision support for the maintenance of this critical node in the Ten-T network.

Classification of C&E Assets

The operational railway network in Ireland is approximately 1,700 km long, with around 3,400 km of earthworks (cuttings and embankments). The current Irish Rail asset register includes 3,472 classified earthworks on operational lines, totalling 1,230 km in length. In January 2019, ROD-IS was commissioned to investigate the remaining portions of the rail network to identify previously unclassified earthworks.

ROD-IS used point cloud (.xyz) data and topological surveys (.dxf) recorded by LiDAR to automate the process of extracting cross sections from the network at 10m intervals. The data was read into MATLAB, which allowed geometric investigation of the railway cross sections. Sections containing potential unclassified earthworks were subsequently defined according to the slope height and angle on each side of the track.

The project output is a new database, which will include previously undocumented earthworks. This will permit a more detailed risk analysis for failure of slopes to be undertaken on the Irish railway network.

Conferences

ROD-IS recently hosted the 30-month meeting of the GoSAFE rail project in Dublin, with our fellow consortium members and infrastructure managers in attendance. A two-day workshop took place, during which the maintenance options and hazard scenarios to be investigated in the case study simulation for this Shift2Rail research project were defined.

ROD-IS' Lorcan Connolly and Marko Duranovic attended the 24-month meeting of the SAFE-10-T project at the Technology and Innovation Campus at TU Berlin. The aim of the workshop was to progress work on the case study simulation of the Port of Rotterdam.

Congratulations to Lorcan Connolly on winning the Best Presentation Award at the 8th International Conference on Weigh-In-Motion, which took place in Prague, Czech Republic in May. Lorcan presented two papers at the conference which focused on the application of railway and road weigh-in-motion to advanced bridge analysis. A stimulating discussion followed his presentation involving experts across the industry, including WIM manufacturers, vendors, users, and academic experts. The paper was entitled "Application of WIM Data for Probabilistic Assessment" and was co-authored with Lorcan by Roisin Donnelly, Prof. Alan O'Connor and Prof. Eugene O'Brien.

5 minutes with.. ..Jim Thorpe

Jim has been a Director of ROD since 2008. Here, he tells us about the opportunities and challenges he faces in leading the establishment of our first UK office in Leeds.

Why did you first move to Dublin?

I moved here from the UK in 1999 because there was a road building boom in Ireland, and everything had gone very dead in civil engineering in the UK.

We were thirty people in ROD at that time – now, of course, we are up on 180 people. We've had the opportunity to deliver some fantastic projects, including major motorway projects and some big bridges.

With things picking up in the UK, it is brilliant that Irish engineers have the recent experience of all that motorway building to take to the UK as a service we can offer.

ROD was involved in the independent check for the motorway network between Glasgow and Edinburgh; we were involved in the Northern Spire Bridge in Sunderland; and we're also doing tender designs for various contracts for different projects.

So, it is really great that we have much fresher, more relevant experience for the roads that are now wanted in the UK than I would have had, had I stayed in the UK.

Coming from South London, did you find Dublin a big change?

Moving here from London was just a delight because suddenly we found that here we were in south Dublin - we were 20 minutes from the middle of the capital city; 20 minutes from the coast; 20 minutes from the mountains with 50 miles of Wicklow Way to walk.

I came over when was my eldest son was three and my youngest was six months, and now I have an Irish man as well, and it has just been such a great place to bring a family up.

What do you enjoy most about ROD?

I am thirty years in the business now, more than half of that here in ROD, and the great delight is that every day there is a new challenge, you are always learning something new here, and there's a great team of people both to learn from or to learn together. There's always a new challenge and that's what keeps me going as an engineer.

The other great thing here is that you can get to the top of ROD and you are still engineer – it doesn't matter what your role is – I'm project director, I'm company secretary – there are management tasks I have to do but, first and foremost, I'm an engineer and I'm the project director leading a project and, secondly, I'm an engineer developing young engineers and staff to be able to service those projects.

Tell us about your upcoming move to the UK

My family and I are moving to Esholt near Leeds so I can lead the establishment of the new ROD-UK office in nearby Otley. This is a new and exciting opportunity for me, and one which I am relishing. However, I will of course retain my position as Director and Company Secretary of ROD, and I will be in Dublin every other week to continue my involvement in running projects and company duties.

Why Esholt?

Esholt has been strategically chosen to allow me to get to and from Dublin with ease – it is located 10 minutes south of Leeds-Bradford airport. It is best known as the village "Emmerdale" from the TV soap. I am not a pub-goer myself but, for Emmerdale fans, I will be within 5 minutes' walk of the 'Woolpack'.

What have been your work highlights over the last 20 years?

Project-wise, I am most proud of the development of the NRA DMRB and the subsequent update of both the NRA DMRB and MCDRW to implement the EuroCodes and EuroNorms. Those two commissions have influenced the whole of the Irish national road network. Leading the tender and detailed design of the Naas Road Widening scheme, and getting it open ahead of the Ryder Cup at Straffan, was another significant achievement. More recently, achieving five An Bord Pleanála approvals in five years is a satisfying record. These include the N5 Westport to Turlough, M7 Widening, Athy Distributor Road, N26 Cloongullane and N5 Ballaghaderreen to Scramoge scheme.

What is next for you on the work front?

I am looking forward to seeing the N5 Westport to Turlough, N26 Cloongullane and Athy Distributor Road delivered on the ground, and getting the advance works for the N5 Ballaghaderreen to Scramoge and the route selection for the N61 Ballymurray to Knockroghery established. I will also be busy building a team in Otley to support ROD's Irish projects, as well as fronting UK projects backed-up by ROD's Sandyford and Northwood based team.

ROD Social Committee News

IStructE Annual Gala Dinner

The Institution of Structural Engineers (IStructE) annual black-tie evening gala took place in Christ Church Cathedral on Friday, 1st March 2019. This year's gala was particularly special, as it celebrated Joe Kindregan's inauguration as the 2019 President of the institution. A consulting engineer from Kildare, Joe is the first member of the Republic of Ireland Regional Group to serve as President of the Institution.

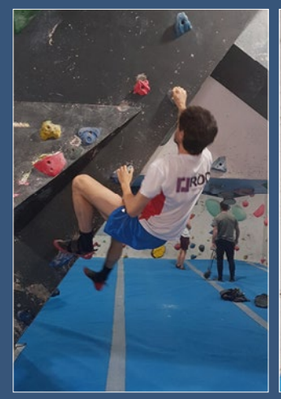
For the ROD engineers who attended the event, it was a wonderful opportunity to experience the historic cathedral's beautiful interior by candlelight, at a dinner sponsored by ROD. A memorable evening was had by all.

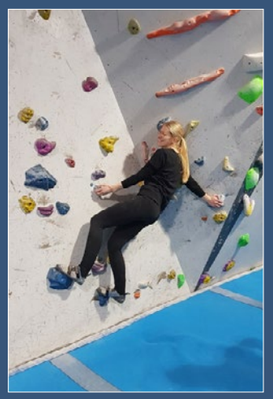
Left to Right: Daniel Coleman, Miguel Angel Hidalgo, Gavin McNamara, Marcin Nikonowicz, Michael Conroy, Kieran O'Riordan, Marko Duranovic

Climbing 'The Wall' in Sandyford

With bouldering set to make its Olympic debut at the Tokyo Olympics in 2020, ROD's social committee decided it was high time for the team to embrace climbing as a new challenge. An evening at the local bouldering gym, 'The Wall', in Sandyford was duly organised, and more than 25 staff members signed up in the event.

Using their ace problem-solving skills, the team figured out the correct sequences to climb the bouldering wall – just in time to enjoy the pizza and refreshments we had organised for everyone.





Meet the New Recruits..

Lorraine Guerin: Lorraine joined ROD as a graduate environmental scientist last February. She holds a bachelor's (honours) degree in ecology from University College Cork (UCC) and earned a master's degree in Environmental Management and Policy from Lund University in Sweden. In her spare time, Lorraine enjoys hiking, wildflower identification, reading, cooking and live music.

Daniel Ahern: Daniel joined our buildings team as a senior technician last February. He holds a postgraduate certificate in BIM & Integrated Design from Salford University, Manchester, and has worked in CAD management in Ireland, UK, Australia and Qatar. His hobbies include art, photography and holistic health. He is a keen cyclist, practices yoga and enjoys watching rugby, football and hurling.

Marcin Nikonowicz: Marcin joined our bridges team as a senior engineer last January. A chartered engineer, Marcin spent the past 15 years working on infrastructure and building projects in Ireland and Poland. His experience encompasses design, assessments, inspections of bridges, buildings and other structures, as well as project management. He likes reading, cooking, baking and playing badminton.

Ines Domingues: Ines joined our bridges team last January. A graduate of Lisbon University and Politecnico di Milano, Ines spent a year working with an engineering consultancy in Lisbon before moving to Dublin. She enjoys travelling, concerts and alpine skiing.

Niall Murphy: Niall Murphy joined ROD as a resident engineer last March. He is currently working on the Dublin Port Road Network Improvement Project. Niall recently took up Brazilian jiu-jitsu and is a one strip white belt.

Ilaria Mazza: Ilaria joined our bridges team as a CAD technician last October. She moved to Dublin from Rome, where she had completed an undergraduate and master's degree in civil engineering. In her spare time, Ilaria teaches DIY and, in addition to running training courses, she has written a book, appeared on television and developed a YouTube channel with almost 50,000 subscribers!

Zhenzhen Xu: Zhenzhen joined our bridges team as a CAD technician last April. She holds a B.Eng. in Electrical Engineering and Automation from Tianjin University and has three years' experience working in the civil, architectural and construction sectors. Zhenzhen enjoys reading, hiking and watching horror films.

Triona Thomas: Triona joined ROD last September. She holds a Bachelor of Business and a Bachelor of Science (honours) in Human Nutrition and has 17 years' experience in administration. Working in our print room, Triona has come to love the smell of fresh stationery and the gentle back and forth of a happy plotter. She is also handy with a needle and thread.

Dorothy Murphy: Dorothy joined ROD as an assistant accountant in April 2018. She holds a Bachelor of Business (honours) degree and is currently undertaking her ACCA examinations. Prior to joining ROD, Dorothy worked in the financial sector in Australia and Germany. Her hobbies include horse riding, travelling and reading.

Martin Miles: Martin joined ROD as a trainee technician last November. He is currently undertaking a part-time course in civil engineering at Technological University Dublin (TUD). His hobbies include football and travel. He also enjoys live music.

Alison Baker: Alison joined ROD's HR team last September. She graduated from the National College of Ireland with a BA (Hons) in Business and an award in employee relations and employment law. She plays camogie for her local club and has just started boxing.

Yana Bersunukayeva: Yana joined ROD as a graduate environmental scientist last February. She completed an undergraduate degree in environmental science in 2017, before pursuing a master's degree in Global Change: Ecosystem Science and Policy in 2018. In her spare time, Yana enjoys hiking, travelling and eating food while watching Netflix.

Catherine Yates: Catherine joined ROD as a CAD technician last November. She has 11 years' drawing experience, mainly precast structures, and joined ROD to gain a wider knowledge of buildings processes and procedures. Catherine is undertaking a part-time course in civil engineering at Technological University Dublin (TUD) and, in her spare time, she likes to walk up the mountains with her two children. She has a big interest in photography and plays a little piano.

Peter Kennedy: Peter joined ROD in July 2018. Since then, he has worked on several projects, including Tyrconnell Bridge in Donegal, the Navan N51/R147 Junction upgrade and Barrow Street Utility works. Prior to joining ROD, Peter worked on a broad spectrum of projects in Ireland, Canada and the United Kingdom, including infrastructure works, tunnelling, road construction, residential developments and a substantial energy project. In his spare time, Peter enjoys sports and family time. His favourite saying is: 'All is copasetic, flexible as steel and hard as concrete.'

Ken Heffernan: Ken joined ROD's transportation team as a senior technician last January, having previously worked on a wide range of civil infrastructure and building projects including, highways, rail, tunnelling, SuDS drainage and commercial building projects. Ken studied at DIT and holds a diploma in civil/structural engineering and a postgraduate diploma in Building Information Modelling and Management. In his spare time, he likes to watch football, play basketball and read.

Ryan Gillespie: Ryan joined ROD last April and is currently working as a site inspector on the A6 Dungiven to Drumahoe road scheme. A graduate of Ulster University, Ryan has 14 years' experience working on road and building projects throughout the UK and Ireland. In his spare time, he enjoys golfing, football and jogging.

Paul McCaffery: Paul joined ROD as an assistant DSR on the A6 Dungiven to Drumahoe dualling scheme last October. He has over 6 years' experience working on major schemes in Ireland and the UK, including the Peace Bridge in Derry, the A2 Shore Road to Greenisland upgrade in Carrickfergus and the London Luton Airport re-development. In his spare time, Paul's hobbies include playing gaelic football, watching sports and travelling.

Lee Burton: Lee joined ROD last December and is currently working as a structures' inspector on the A6 Dungiven to Drumahoe project. He comes from a main contractor/subcontracting background and has worked on a variety of projects, including bridges, high rise structures and utility plants. In his spare time, Lee enjoys travel and has a great interest in local cultures, the origins of local cuisine and modern history.

Liam Keeney: Liam joined ROD as a resident engineer last July. He is currently working on the N56 Mountcharles to Drumbeigh Road scheme. Prior to joining ROD, Liam worked on a broad range of projects from roads to commercial buildings to dredging schemes. He is a big sports fan and enjoys rugby, soccer and GAA.

Eamon Crowe: Eamon joined ROD as a highways' inspector last July and his first project was the A6 Randalstown to Castledawson dualling scheme. He is now working on the A6 Dungiven to Drumahoe dualling scheme. Eamon has over 25 years' experience working as a site engineer/inspector on various projects in Ireland and Scotland. In his spare time, he follows most sports, especially GAA, soccer and rugby, and he enjoys a round of golf when time allows.

Sean Martin: Sean joined ROD last March, working as a member of the Employer's Representative's team on the N56 Mountcharles to Drumbeigh Road Scheme. He is now working as a site inspector on the A6 Dungiven to Drumahoe Dualling Scheme. Prior to joining ROD, Sean spent 6 years working in a variety of roles on some of Ireland's largest civil and building projects. Sean is about to start work on his biggest challenge to-date… building his own home in rural Donegal.

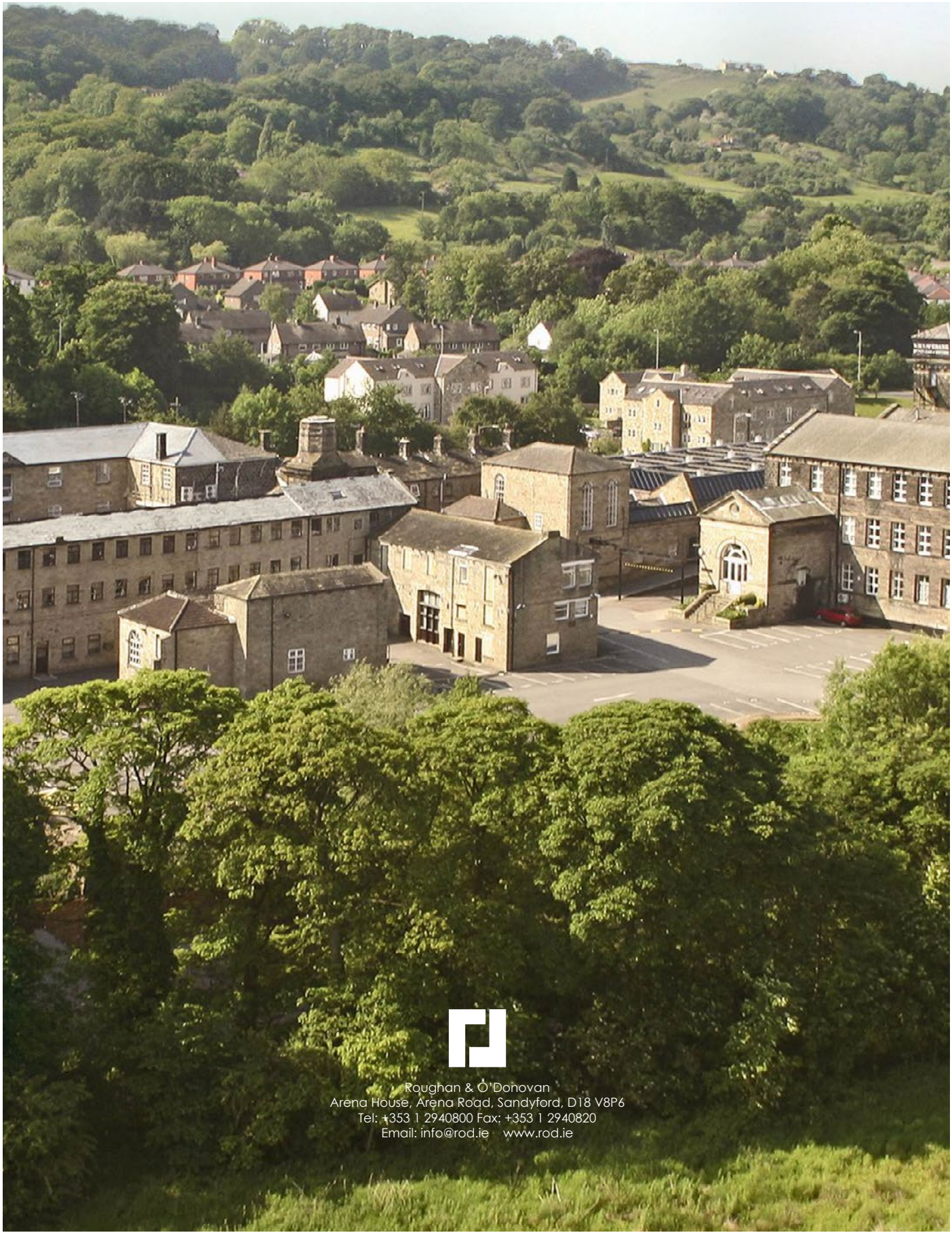
Roberta Keaney has recently been appointed marketing and communications manager at ROD. For the past three years, Roberta has been working as a consultant for ROD and led the redevelopment of our website in 2018. Prior to this, she held management roles at Engineers Ireland and ICL Computers. A graduate of Trinity College Dublin, where she read English, Roberta enjoys cooking, reading and going to the theatre.

Ernesto Picardi: Ernesto joined ROD as a Graduate Engineer in June 2019. He's a recent graduate of Politecnico di Milano with a Master's Degree in Civil Engineering and he joined the transportation team. Ernesto is a railway and aviation passionate and he loves trekking, traveling and winter sports.

Gary Lawlor: Gary has just completed 3rd year of Civil Engineering in UCD. He is on a three-month summer placement at ROD to gain some experience before entering into his Master's programme next year. He is working in the Bridges group. Gary enjoys hurling for his club, county and college with several accolades to his name. Other hobbies include soccer, Gaelic football and travel.

Charlie Johnston: Charlie Johnston has joined ROD's IT Department as a technical support assistant. His hobbies include Scotch, Classical Guitar, and Linux. He spends as much of his time in the sea as possible.

Rory Meighan: Rory has joined us for the Summer as a Student Intern. He has recently completed his first year in Engineering at Trinity College Dublin. He is undertaking his internship in our ITS Group, working on the various eMOS projects. He is a big live music fan and is looking forward to The Cure, Bob Dylan & Neil Young and Electric Picnic this summer.



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