



**FEHILY
TIMONEY**

**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING**

Ground Engineering



DESIGNERS OF SUSTAINABLE SOLUTIONS

Fehily Timoney is an Irish civil and environmental engineering, scientific and planning multidisciplinary consultancy, specialising in the delivery of complex projects for our global clients.

FT offers a total project management solution, acting as consultants from initial project planning and feasibility through to detailed design, construction supervision, commissioning and handover.

CENTRES OF EXCELLENCE CONSIST OF A WIDE RANGE OF SPECIALIST CAPABILITIES INCLUDING:
ENERGY & PLANNING | INFRASTRUCTURE | WASTE & RESOURCE MANAGEMENT | URBAN DEVELOPMENT

PROJECT PROFILES

GALWAY WIND PARK

Location: Galway, Ireland Client: Roadbridge Ltd.

The Scheme Comprises:

The 174MW Galway Wind Park (GWP) was co-developed by SSE and Coillte and is currently the largest onshore wind energy site in Ireland. The development consists of 58 Siemens 3MW wind turbines over four separate wind farms namely Uggool, Lettercraffroe, Cloosh and Seecon. Associated infrastructure constructed during the development included substations, permanent met masts, borrow pits and access tracks.

Key Services:

- Detailed geotechnical design of all access roads, including designs for the geotechnical make-up of the constructed 'founded' and 'floating' road types
- Geotechnical input into the detailed design of the cable route and cable route crossings
- Detailed geotechnical design of the hardstand and turbine sub-formations.
- Detailed geotechnical design of the borrow pits and material deposition areas including peat retaining structures.

During the construction phase of the development, **FT** provided full-time site support in the form of a specialist geotechnical clerk of works. As well as providing full-time supervision and support during construction activities the **FT** clerk of works also undertook a range of site inspection and validation works at key stages of construction.



Photo source: John Flynn

DERRYBRIEN WIND FARM EIAR

Location: Galway, Ireland Client: ESB

The Scheme Comprises:

FT undertook site walkover and geotechnical assessment as part of a remedial EIAR for the Derrybrien Wind Farm site that had experienced a large-scale landslide during construction in 2003.

The key elements of the scheme were:

- A stability analysis of the 2003 landslide scar and debris
- A stability analysis of offsite infrastructure and stabilisation measures originally installed following the landslide

Key Services:

- Site walkover of the site, the landslide scar and debris route, stabilisation measures, overhead lines, access routes and the nearby watercourses
- Production of a number of geotechnical reports relating to the changes in the stability and geotechnical risk profile since the 2003 landslide
- Recommended mitigations of potential environmental impacts due to the landslide
- Provided technical input into the Land, Soils and Geology chapter for the remedial EIAR

DUBLIN AIRPORT ENVIRONMENTAL ASSESSMENT

Location: Dublin, Ireland Client: Roadbridge Ltd.

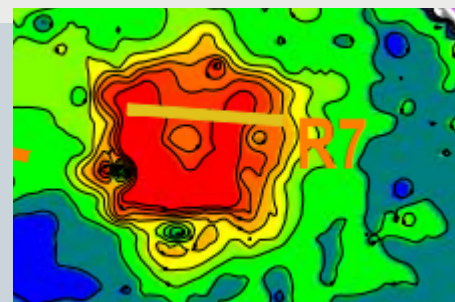
The Scheme Comprises:

FT undertook the procurement and management of a comprehensive site investigation program for the investigation of areas of potential contamination and unregulated waste disposal within the development boundary at the Dublin Airport North Runway project.

- A historical site investigation data over the 261-hectare site
- Application of geophysical survey methods to further investigate potential for areas of unregulated waste

Key Services

- Management and supervision of all aspects of the investigation
- Selection and scheduling of appropriate environmental testing suite
- WAC analysis for material classification
- Identification of material suitable for reuse
- Determining routes for disposal off site when required



GEOTECHNICAL ENGINEERING



FT provides design and consultancy services for a wide range of geotechnical engineering projects in Ireland and the UK. The experience and expertise of **FT**'s engineers enable us to provide a complete inhouse service. This experience includes the design of a variety of geotechnical structures, including shallow foundations, piled foundations, retaining walls (both embedded and gravity walls) and deep excavations (shaft design).

FT also have significant expertise in the geotechnical design of highway earthworks and structures both at construction and during operation. **FT** staff have skills in geotechnical asset management and can assist with efficient management of geotechnical risk.

Having been involved in the design of wind farms since 1999, **FT** have a wide base of experience in this area and can provide a full spectrum of geotechnical support for wind farm design, including turbine base design (both shallow and deep), transformer bases, hard standings and access road design. **FT** can support you in the geotechnical aspects of any civil works.

Forsensic Engineering

FT undertake forensic assessment across the geotechnical sector, including slope stability, upland peat landslide and foundation failures. **FT** mobilise their significant experience in this area to investigation and review to produce an assessment of the root cause of the problem and identify the most cost-effective and efficient solutions for our clients.



Key Services:

- Shallow foundation design
- Piled foundation design
- Geotechnical asset management (earthworks)
- Slope stabilisation (including soil nailing, reinforced earth, retaining walls etc.)
- Earthworks (including mitigation measures for settlement)
- Basement assessment and design
- Pipeline and trench design
- Radon protection
- Category III checking
- Retaining walls
- Deep excavations (shafts)
- Wind farm geotechnical design
- Temporary works design



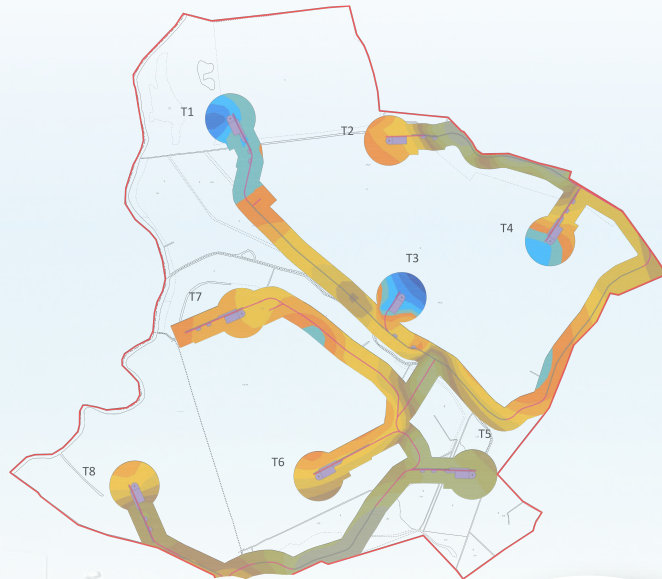
ENGINEERING GEOLOGY



FT have in-house expertise in the engineering geology field and can provide both desk and field-based assessments of various geohazards which may affect your development. Comprehensive geotechnical investigation reports are written based on the results of the ground investigation — for the full package, **FT** offers the full ground investigation package of specification, procurement, supervision and interpretation services.

FT have significant experience in peat stability and uses a probabilistic approach to identifying potential instability based on fieldwork, desk study and remote sensing.

FT also have significant experience in slope stability assessment in several applications, including landfills, embankments and cuttings and natural slopes. As part of our specialisation in wind farms, **FT** are also able to identify borrow pits and assess the viability of soils for use as fill for various applications, including structural fill, capping and general fill.



Key Services:

- Desk studies
- Peat stability assessment
- Site investigation scoping & planning
- Procurement and supervision of ground investigation
- Borrow pit assessment
- Haul road design
- Interpretation of geotechnical investigation & Interpretative reporting
- Hydrogeology



SITE INVESTIGATION



The procurement, management and supervision of ground investigation is a crucial aspect of the formative stages of new development and provides key information which informs all stages of the design of development on any scale.

Staff at **FT** have worked previously for site investigation contractors and consultants specifying and using site investigation data daily.

FT plan a site investigation based on your requirements and procure a ground investigation contractor based on a tender process. Once a contractor is procured, **FT** provide a supervision service to ensure you get the maximum benefit from the investigation.

FT provide a full interpretative report identifying any geotechnical hazards associated with your site in the context of your development needs.

FT also have significant experience in both geotechnical and contaminated land investigation and interpretation and can guide both areas.

FT provide a full service to get you the information you require to progress through feasibility and detailed design to construction.



Key Services:

- Scoping and planning of site investigation
- Preparation of tender documentation
- Procurement of a site investigation contractor
- On-site supervision and management of the contractor
- Preparation of interpretative reports
- Preparation of risk registers
- Assessments of any risks relating to contaminated land
- Contaminated land and Geo-environmental investigation & assessment

PROJECT PROFILES

DUNKETTLE INTERCHANGE UPGRADE SCHEME

Location: Cork, Ireland Client: John Sisk & Son Ltd

The Scheme Comprises:

- A series of direct road links between the N8, the N25 and the N40 and links to the R623 Regional Road in Little Island and Burys Bridge in Dunkettle
- 1 grade-separated junction arrangement at the existing N25 to the east of the existing Dunkettle Interchange
- 4 roundabouts – 2 at grade-separated junctions and 2 at grade tie ins with the existing road network
- 12 major structures of various forms with 24 gantries
- 9 culverts where the scheme crosses watercourses of intertidal areas
- Intelligent transport systems
- Pedestrian and cyclist facilities

Key Services:

Sisk appointed **FT**, Ramboll UK and Clandillon Civil Consulting (FTRC) to carry out the design for the scheme. **FT** is the Lead Consultant and a partner in the geotechnical team with Ramboll UK. **FT** Geotechnical team provided key elements of the geotechnical scope of works.

- Jointly scoping the site investigation and producing specification documents
- On-site supervision of site investigation contractor – including trial pitting, cable percussion, rotary boreholes, geophysical investigation and geo-environmental assessment
- Groundwater monitoring
- Joint interpretation of ground investigation data and production of a Ground Investigation Report
- Liaison with external experts for peer review of design
- Foundation design for all structures on the scheme (bridges, retaining walls & gantries), including pile design on soft ground
- Detailed design of earthworks and ground improvement on the scheme, including piled embankments, controlled modulus columns, band drains, dig and replace solutions and complex earthwork/structure transitions



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