Case Study

Telecom Towers & Steel Structures With Micropile Foundations

ISCHEBECK TITAN

In Partnership With:

FLI structures

Client: FLI Structures
Design Consultant: FLI Structures
Project Name: Telecom Towers & Steel Structures
Project Location: Various
Asset Owner: Users of telecom and communication towers, pylons, monopoles and other steel structures.

Project Challenges and Background

The current role out of improved communication and signals via 5G, has seen the need for telecommunication towers to be modified, upgraded, and replaced. The improvements are required to accommodate the larger structures, the increased loads and any additional instrumentation used.

Ischebeck TITAN's collaboration with FLI Structures; one of the UK's leading suppliers of towers, platforms and grillages - has resulted in the use of our self drilling micropiles as foundation solutions for these structures. The solutions are being employed on sites and locations where the access is restricted, ground conditions are challenging, and where the certainty of installation is critical to the programme and overall success of the project.

The Ischebeck TITAN Solution

Safe removal of existing foundations can be expensive, especially on sites with restricted access, such as sub stations and telecom towers, with construction often being carried out in hard-to-reach places with minimal plant and materials.

Solution: TITAN self drilling hollow bars (40mm & 52mm diameter) can be used as both vertical and raked micropiles when applied to telecom tower projects. The solution offers assurance and security of installation, especially in overburden and difficult ground conditions. The certainty provided by this solution, coupled with the reduced plant and shorter programmes, proved critical in selecting TITAN micropiles as the solution.

The Ischebeck TITAN system is extremely versatile and can be adjusted to accommodate most loads and types of ground conditions, whilst working under compression and tension loads. The use of Ischebeck TITAN self drilling micropiles allowed the designer to take advantage of the high performance and high yield loads of our bars, and the wide range of drill bits available for varying ground conditions.

On sites where extending the existing foundations was not possible, it allowed the designer to select a piled solution that could be drilled directly through any existing reinforced concrete foundations and into the competent ground below. This reduced the programme of works and the overall cost when compared to other slower, and more expensive alternatives.

Ischebeck TITAN supply a range of hollow bars from 30mm diameter through to 196mm diameter, offering flexible and reliable solutions in many applications.

Additional Services and Support

During the planning stage, Ischebeck TITAN engineers worked closely with design consultants, FLI Structures, engaging with them at an early stage to discuss possible solutions and applications, responding promptly to any design queries and providing technical support when required. The Ischebeck TITAN Ground Engineering team also engaged with the drilling contractor, to agree material logistics and delivery times. The overall scheme was priced in partnership with the drilling contractor and the successful main contractor, ensuring that best value and best practice was maintained.

Results

Design: The client was able to provide a solution that met the loads required, design life of a telecommunication structure and the restricted access onsite.

Construction: A delivery schedule was agreed with the drilling contractor to ensure prompt arrival and unloading in line with the tight road closures and restricted access. This effective planning helped with the good production rates with all piles installed on programme.

Find out more...

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