



TRITECH
GROUND ENGINEERING
A E YATES GROUP



SERVICES
GUIDE



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TRITECH GE GROUND IMPROVEMENT

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Ground Improvement by vibrodisplacement (stone columns) is an extremely economical means of enhancing ground bearing capacity and limiting settlements in geotechnically difficult and problematic soils. The technique can elevate the site soil conditions to a level that will perform satisfactorily for the engineering requirements of the proposed structure.

It has been recognised and used effectively in the UK for more than 30 years. The vibrodisplacement technique displaces the ground laterally therefore producing no arisings to dispose of at the surface. This is doubly beneficial if contaminated soils are involved.

The technique allows buildings to be supported on relatively simple and lightly reinforced foundations at shallow depths below ground level with values of differential and total settlements within acceptable limits. Programme periods onsite can be dramatically reduced allowing follow on trades to be introduced much earlier.

Depending on the ground conditions and performance requirements the technique can be appropriate to support foundations for residential, low rise and industrial buildings. It can also be utilised for treatment to floor slabs, tanks and embankments.

Upon completion of the treatment foundations may be constructed at normal depths while floor slabs or areas of hardstanding may generally be constructed after proof rolling of the surface. The technique can be used in a wide range of natural soils or in made ground provided that there is not excessive organic content, high silt content or degradable materials.





Precast Concrete Piling

Precast Concrete Piles are versatile and suited to most ground conditions. They are reinforced concrete sections which are manufactured off site in discrete standard lengths which are connected by designed joints to achieve the required length. They are moulded in various sections but are generally supplied in square sections up to around 400mm. Precast concrete piles are cast and cured in a casting yard and then transported to site for driving by a rig mounted hammer.

This is a displacement technique which results in little or no spoil arisings requiring disposal. Speed of installation is rapid and the piles are not affected by the presence of groundwater. Piles are driven to the required design length and any excess can be cut off with purpose designed cutters allowing follow on trades to commence.

We supply piles in 200mm, 250mm and 275mm square sizes in sections from 3m to 9m in length to suit the design loading requirements. Piles are generally spigot jointed but full moment joints are available.

Steel Tube Piling

We supply top driven heavy walled piles between 140mm and 244mm in diameter in sections from 3m to 12.5m long. The sections are API grade steel and recycle material from the oil and gas industry. Due to their slim cross section and low displacement steel tube piles can be driven in noise and vibration sensitive situations where other pile types would not be suitable.

Driven in lengths up to 14m, the high strength of the steel section provides the advantage of being suited to aggressive and complex ground conditions containing natural stone obstructions, sloping rock head or contamination. The piles are continuously driven using a threaded coupler joint where required and any off cuts are used on subsequent piles minimising wastage. Trimming of the piles is generally undertaken by flame cutting eliminating the risk of hand arm vibration.

Driven steel tubular piling is a displacement technique resulting in no arisings that would require disposal. This, and the resistance to chemical attack of the material, makes them ideal for use in contaminated ground conditions. Once trimmed the piles are immediately available for follow on trades.





TRITECH GE INTEGRATED FOUNDATIONS

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Tritech Integrated Foundations are complete foundation solutions tailored to each project. They are ideal for residential applications up to four storeys, light commercial developments and other buildings such as medical centres or schools. The precast system of piles and beams provides a complete foundation ready to support your structure. Traditional, timber frame, modular, or steel frame construction can all be accommodated complementing lean build aspirations by manufacturing components off site to minimise waste on site and improving programme certainty.

Our integrated packages include full pile and ground beam design and installation for projects ranging from single buildings to large scale developments. We have a team of experienced engineers who utilise your architectural drawings with wall line loads to design the optimum configuration of piles and precast concrete ground beams to suit each project. The ground beams are designed for use with our Driven Pile or Restricted Access services.

Project specific design allows the system to accommodate a broad range of applications with allowances for specific details such as angled walls, bay windows and porches. Drainage runs can also be accommodated with predesigned penetrations through the beams. We use factory manufactured components, ensuring consistent quality and performance, installed by our experienced site teams.

Our single source solution for foundations delivers programme and cost benefits managed safely and efficiently on site. Additional customer assurance is provided through compliance with all current NHBC and LABC standards.





TRITECH GE RESTRICTED ACCESS

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Our Restricted Access team has been set up to deal with unusual, difficult or tight situations not covered by our other services. Typical conditions for Restricted Access piling include limited headroom, constrained footprints, close proximity of existing structures or where heavy rig loadings cannot be supported. We have an array of techniques including but not restricted to;

- **Bottom driven mini piles - crimped bottom casing that is driven internally and then filled with concrete when depth achieved**
- **Rotary percussive piles - used when piling in rock**
- **Sectional Flight Auger (SFA) - short sections of auger screwed together to achieve the design depth**
- **Continuous Flight Auger (CFA) - the most common method where concrete is delivered through the hollow stem of the auger**

The purpose designed and built rigs and ancillary equipment are generally physically smaller and lighter than traditional piling rigs but can construct piles with similar loading capacities to their larger counterparts. This smaller physical size allows the specialist rigs to access any site. To simplify this, if you can walk to the area to be piled we can get a rig to it, including inside buildings and deep basements.



THE COMPLETE FOUNDATION SOLUTION

We are currently the only contractor providing a complete solution to 'hybrid' sites where more than one method is required due to the ground or loading conditions. Our integrated design philosophy means that we consider a site or a building holistically for optimum technique usage to produce the most economic design. Installation can also be carried out using the same rig and crew saving the cost of bringing other rigs to site and time in the induction of new crews.

The techniques we provide each offer other advantages. All techniques we offer are displacement methods producing no arisings which incur disposal costs. Precast concrete, steel tubes and stone columns require no curing time and are ready to load immediately after installation. In the case of precast concrete and steel tubes the rig carries out the dynamic testing during installation negating the cost and time involved in static load testing. Precast and steel tubes can also be driven to resistance to accommodate varying ground conditions incurring less waste.

Stone columns are installed very quickly, are tested using the latest data logging equipment prior to our demobilisation, and can use suitably graded recycled aggregate or crushed concrete. They are a ground improvement technique to improve the load bearing capacity and reduce the settlement of the soil.



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Tritech Ground Engineering is a member of the A E Yates Group. The stability and strength of the group, combined with a diversified offering across the construction sector, gives our customers extra confidence in project delivery.

- A E Yates Civil Engineering** - Civil engineering contractor operating predominantly in the North West
- A E Yates Directional Drilling** - horizontal directional drilling contractor
- Combined Soil Stabilisation** - Soil Modification and stabilisation contractor
- SPI Piling** - Steel Piling Contractor

The group companies add value to customers not just in their specialism but also, when working together. An enhanced single source offering, resource sharing, the elimination of interfaces with potential co-ordination, management and programming issues involved are just a few examples.

