

# DRIVEN PILING

## OPEN SITE PILING

**Driven piling is a deep foundation method suitable for a wide range of ground conditions.**

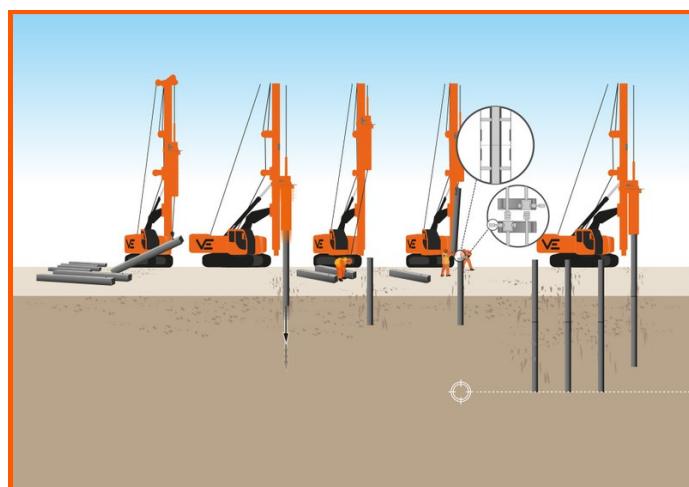
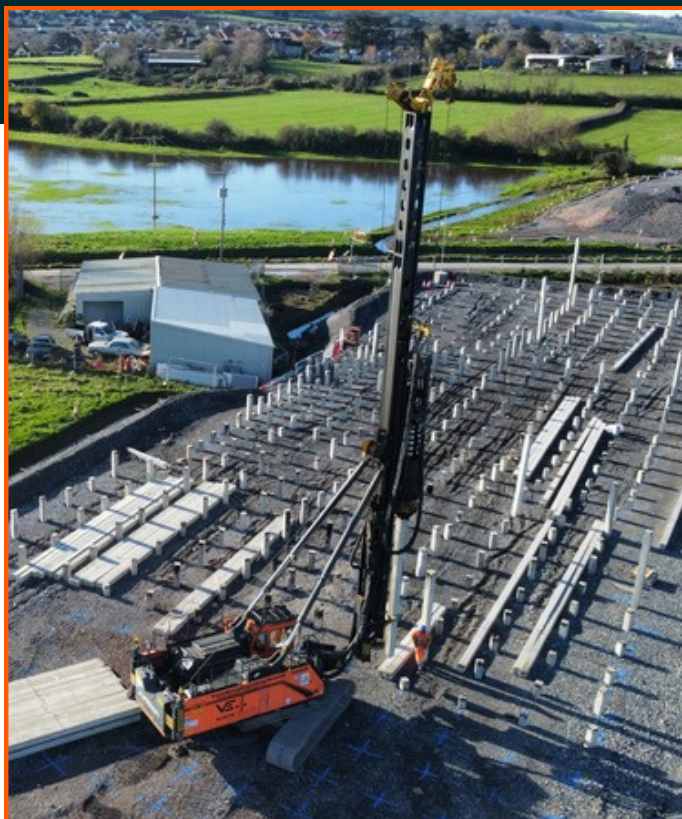
It is particularly effective where soft or weak soils overlie competent strata at depth and can provide an efficient foundation solution in very weak ground.

The displacement installation process generates minimal spoil, making driven piling particularly suitable for contaminated and brownfield sites where soil disposal can be difficult or costly.

## UNDERSTANDING DRIVEN PILING

Piles are manufactured in sections and installed by driving them into the ground using a hydraulic pile hammer, displacing and compacting the surrounding soil as they are driven to depth.

Piles are driven to a predetermined design depth or until the required driving resistance (set) is achieved. Where greater depths are required, pile sections can be joined and driven sequentially to achieve the required load capacity.



We can install both precast concrete and steel piles, providing flexibility to suit project-specific ground, loading and access requirements.

Through our own precast concrete pile manufacturing facility, we have access to an extensive range of square precast concrete piles. Where required, piles can also be provided with bituminous coatings for aggressive ground conditions.

Steel piles, including tubular piles, provide a versatile solution where obstructions may be encountered or piles need to be installed in challenging or restricted-access locations, including over water.

Our fleet of Junttan piling rigs can install driven piles with individual section lengths of up to 14 m.

## PROJECT ADVANTAGES

- Fast, quiet, and virtually vibration-free
- Rapid installation enables immediate follow-on work
- No spoil generated - ideal for brownfield and contaminated sites
- Suitable for a wide range of ground conditions, especially weak strata
- Can be installed to significant depths
- Offsite manufacturing ensures high quality and timely delivery
- Steel tubes can be cut and off-cuts reused, reducing waste
- Unaffected by groundwater
- Available in various sizes and load capacities
- Can be installed at an angle (raked) to accommodate horizontal loads

## EXAMPLE APPLICATIONS

- Ideal for lighter structural loads, including housing and commercial or industrial units
- Used in infrastructure projects, such as bridges, embankments, and rail structures
- Supports turbines, overhead lines (OHL), and substations in the power sector
- Suitable for brownfield sites with contamination, as no spoil is produced
- Preferred for water-based construction, including jetties and wharves
- Effective on sites with variable ground conditions and high water tables, where bored piling is challenging

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### TRU VIADUCT EMBANKMENT

**Sector:** Infrastructure

**Client:** BAM Nuttall

Working under an Early Contractor Involvement (ECI) Framework, Van Elle developed and delivered the driven piling solution for a major rail infrastructure scheme.

The works involved installing 2,233 No. driven piles, totalling approximately 25,000 linear metres, through contaminated and unpredictable backfill.

Precast concrete piles, manufactured at our facility, were selected to minimise contaminated spoil, with contingency measures developed alongside Arup to manage obstructions and early refusals.

Where required, steel tubular piles sourced from recycled oil field casings were installed using the same piling rigs.

The project also required careful protection of extensive underground services and a live railway, with specialist equipment and installation methods used to safely deliver the works.



### BRIDGWATER TIDAL BARRIER

**Sector:** Infrastructure

**Client:** Kier

Van Elle were appointed to install driven pile foundations supporting heavy plant and construction activities.

The works involved installing 835 No. precast concrete piles, reaching depths of up to 14 m, using a Junttan PMX22 rig.

Following four preliminary test piles, the original 300 mm square pile design was optimised to 250 mm square piles, delivering cost savings while maintaining the required structural integrity and load capacity.

Driven piling was selected to minimise ground disruption and maintain site stability.

The project required careful management of environmental risks due to the proximity of the river, as well as sensitive underground monitoring equipment.

Our works included pile installation and subsequent pile cap and enlarged pile head works, providing the foundations required to support heavy plant and the approach to the tidal barrier.

