

# Avonmouth Plot 3 Case Study

Ground improvement and piling works for an industrial, logistics and office space.

The Avonmouth Plot 3 Matrix 49 project involved ground improvement and piling works for an industrial, logistics and office space. The project was divided into three key areas: superstructure and internals, which required driven pre-cast piles; an external concrete yard, which utilised rigid inclusions; and an external asphalt access road, car park, and fire track, where hybrid inclusions were installed.

The scope of works included extensive driven piling with a total of 2447 No. 250mm<sup>2</sup> DPC piles and 574 No. 300mm<sup>2</sup> DPC piles. Testing was a crucial part of the process, involving four static load tests and sixty dynamic load tests. Additionally, rigid and hybrid inclusions were installed, totalling 841 traditional rigid inclusions and 1260 hybrid inclusions. This scope of works also involved a high frequency of verification testing of the installed DPC piles and inclusions.

The hybrid inclusions consisted of a concrete lower portion with a vibro stone column upper portion and an intermixed zone. This approach was used to reduce differential settlement in areas with light-duty topping structures such as roads and parking areas. The bottom section was installed first using displacement tooling, with concrete left 1.5m below the surface. A bottom-fed vibration probe compacted stone to a depth of 2m, creating a 0.5m intermixed zone where the two materials combined.

The project faced several challenges, including a tight seven-week program, high production targets, and unexpected obstructions. Despite these difficulties, the team excelled in production.



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Implementing a multi-rig, multi-disciplinary contract on site produced a number of logistical challenges, including managing inclusion installation across the only site entrance, sequencing DPC and Inclusion installation to prevent vibration damage to the fresh concrete, as well as maintaining exclusion zones for rigs, and coordinating with follow on trades. These were addressed through strategic planning, ensuring continuous haul road access, effective sequencing of works, and collaborative communication between supervisors. A shared on-site office facilitated seamless coordination, and weekly progress meetings with McLaren helped integrate other trades and monitor changes effectively.

Client feedback was highly positive, particularly regarding the team's proactive approach to design reviews.

The Avonmouth Plot 3 Matrix 49 project demonstrated outstanding problem-solving, efficient installation, and technical proficiency in both piling and ground improvement works. The team's proactive approach ensured high production rates, effective logistics, and client satisfaction. The success of this project has led to strengthened relationships with McLaren, resulting in early engagement on other schemes.



## Data

2447 No. 250mm<sup>2</sup> DPC piles and 574 No. 300mm<sup>2</sup> DPC piles.  
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## Client

McLaren Construction

## Challenges

Tight seven-week program, high production targets, and unexpected obstructions.

# Contact

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