## **New NHBC Chapter 4.6 - Engineered Fill**

In January 2024, the National House Building Council (NHBC) unveiled its latest Standards for the year, marking a significant milestone in the construction industry. Among notable updates was the introduction of a new chapter dedicated to the utilisation and technical requirements for Engineered Fill (Chapter 4.6), designed to support residential development sites.

This addition signifies a pivotal shift in construction practices, acknowledging the crucial role that filling or earthworks play in various aspects of development, including flood prevention, drainage enhancement, road planning, ground profile establishment, and ground improvement techniques.

In essence, the new guidance document outlines specific steps that developers are required to undertake to ensure the effective implementation of the construction of a development platform on engineered fill.







**Ground Investigation:** First and foremost, it is essential to ensure the completion of a comprehensive ground investigation tailored to the proposed development. This investigation should consider site conditions, soil composition, and the intended use of filling or earthworks.

**Geotechnical Ground Models**: Based on the findings of the ground investigation, specialist consultants are tasked with developing a geotechnical ground model(s). These models should encompass the proposed development and the underlying ground conditions, including groundwater levels and off site features and constraints to provide a holistic understanding of the site's geotechnical makeup.

**Foundations and Infrastructure**: The new guidance provides must needed, detailed information in respect to the engineering performance requirements for a number of economic ground engineering solutions that will ultimately facilitate the safe construction of foundations to structures and infrastructure. Chapter 4.6 includes detailed requirements for preparatory works for Vibro Stone Columns, as well as the engineering of fill for rafts and reinforced foundations.

Chapter 4.6 also provides clarification and guidance for settlement allowances to external areas such as private driveways and infrastructure



Engineered Fill Placement to an Earthworks Specification: Once the ground investigation and geotechnical ground models are established and understood by the engineering consultant and developer, the works must adhere to a suitable earthworks specification for the placement of engineered fill. This specification ensures that the fill material is placed and engineered correctly and in accordance with industry standards to achieve the desired outcomes for the development

Chapter 4.6 clearly defines the Eurocode classification for earthworks operations and engineering of fill materials and the key requirements of a Geotechnical Design Report or Specification.

A key consideration of any earthworks where materials are placed as fill is the long-term consolidation of materials and potential settlement. E3P are able to complete predictive settlement analysis which is verified by in-situ geotechnical monitoring.

Testing and Documentation: To verify the quality and suitability of the engineered fill, consultants and developers are required to undertake both geotechnical laboratory acceptability testing and in situ compliance testing. These tests assess various properties of the fill material, such as density, compaction, and permeability, to ensure it meets the necessary standards for use in development.

Finally, developers are responsible for verifying compliance with relevant authorities, such as the NHBC. This verification process demonstrates that the engineered fill has been placed and tested in accordance with the prescribed guidelines, ensuring accountability and regulatory compliance.

In conclusion, the introduction of NHBC Chapter 4.6 Engineered Fill represents a significant advancement in construction standards, emphasising the importance of proper planning, testing, and documentation in the use of filling or earthworks on residential development sites. By diligently following the outlined steps, developers can ensure the successful implementation of engineered fill, contributing to safer, more resilient, and sustainable built environments for future generations.

