



SPEEDECK
FOUNDATIONS LIMITED



Chadwell Road

Grays, Essex

CLIENT TYPE	Residential Housing
LOCATION	Grays, Essex
NO. OF UNITS	3

Project Overview

Mostrim Groundworks asked SPEEDECK to review the proposed foundations for an apartment block, house and garage block and to consider whether a piled foundation solution could provide a more suitable alternative.

The original engineering scheme called for trench fill foundations, with excavation depths of up to 1.35m. However, the shallow ground conditions were predominantly loose granular soils, making conventional strip foundations less attractive due to the depth of excavation required.



Essential Design and Engineering

SPEEDECK proposed a non-voided piled raft foundation solution across the three areas of the development. The solution comprised approximately 373m² of piled raft foundations. Rather than relying on deep trench fill foundations within the variable shallow ground, the piled raft transferred structural loads through the poorer near-surface soils to stronger bearing strata at depth. The rafts were designed with thicknesses ranging from 225mm to 300mm, providing a foundation solution tailored to the individual areas of the development.

Ground Conditions

The site investigation identified a thin layer of sandy topsoil, up to approximately 0.60m thick, overlying Boyn Hill Gravel. The Boyn Hill Gravel was found to comprise a variable mixture of clay, sand and gravel. Although clay bands were present, they were thin, infrequent and of low volume change potential, meaning the shallow soils were predominantly granular.

The ground conditions also included Thanet Sand and Chalk at greater depth. Tree influence zones covered several areas of the development, but following assessment, the clay was not considered to present a significant heave risk. This meant that a non-voided piled raft solution could be adopted.

By combining the piling and raft design within a single foundation solution, SPEEDECK was able to provide Mostrim Groundworks with a foundation strategy designed specifically around the site's ground conditions rather than simply following the deeper conventional foundation approach.

