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## **Geological Assessment**

This module contains a geological description of the site or area specified by the customer. It is based on currently available 1:10 000 scale geological maps unless otherwise stated, together with other relevant local information such as borehole records.

### **Setting:**

The site is bounded on its northern side by an eastward draining stream and on its eastern edge by a northward flowing stream. They join at the north-eastern corner of the site and the resultant stream flows away to the east..

### **Artificial ground:**

This is an extensively developed site. Made ground is present over much of the northern part of the site and may be up to 3 m in thickness. It is likely to comprise mudstone and siltstone bedrock excavated from elsewhere on the site during construction. There is continuing widespread construction on the site, including cut and fill areas prepared for new buildings.

### **Superficial deposits:**

Alluvium, of Holocene age, is present as a narrow ribbon on the northern and eastern edges of the site. This comprises grey silty clay with lenses of fine sand with thin basal gravel. The deposit is up to 2 m thick. Oadby Member (of the Wolston Formation), Anglian in age, is present in the south-eastern corner of the site. It is a 'Lias-rich' till (boulder clay, diamicton), up to 5 m thick, that comprises stiff grey clay, weathered to yellow-brown in the upper 2 m, with pebbles and cobbles of flint and rare limestone and chalk. Boreholes in the area show the Oadby Member to be locally underlain by a thin sand which is water bearing.

### **Rockhead depth:**

Over much of the site rockhead is at or near surface. Where covered by made ground or alluvium, rockhead is at about 2 to 3 m depth. Beneath Oadby Member, rockhead is from 1 to 5 m depth.



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### **Bedrock:**

The site is underlain by the Branscombe Mudstone Formation and the Blue Anchor Formation. They form the upper part of the Mercia Mudstone Group which is of Triassic Age.

The Branscombe Mudstone Formation comprises red-brown blocky mudstone and siltstone with rare greenish grey lenses and spots. The formation contains common, cross-cutting gypsum veins and lenses up to 5 cm thickness. The mudstones may also contain rare salt pseudomorphs. The formation is about 45 m thick in this area. Elsewhere in the district the formation contains thick beds and lenses of workable gypsum. However, boreholes on the site (e.g. SK63SW/124) prove that these gypsum beds are not present beneath this site either having not been deposited in this area or having been slowly dissolved away over a long period of time by circulating groundwaters.

The Blue Anchor Formation comprises greyish green to yellow-green, blocky, dolomitic siltstone up to 8 m thick.

The area is underlain at depth (about 240 m below surface) by the Pennine Middle Coal Measures Formation, of Carboniferous age. The coal seams have not been worked in this area.

The strata dip gently to the south-east at between 1 and 2°. A north-westerly trending fault occurs in the shallow valley on the eastern edge of the site. This has a down throw of about 15 m to the north-east. It is important to understand the nature of geological faults, and the uncertainties which attend their precise position at the surface. Faults are planes of movement about which adjacent blocks of rock strata have moved relative to each other. They commonly consist of zones, perhaps up to several tens of metres wide, containing several fractures. The portrayal of such faults as a single line on the geological map is therefore a generalisation. Geological faults in this area are of ancient origin, are today mainly inactive, and present no threat to property.