

MEMO **GROUND CONDITON NOTES**

PROJECT EES 23.098.4
 Beeston WWTW

CLIENT Quinn Estates Ltd

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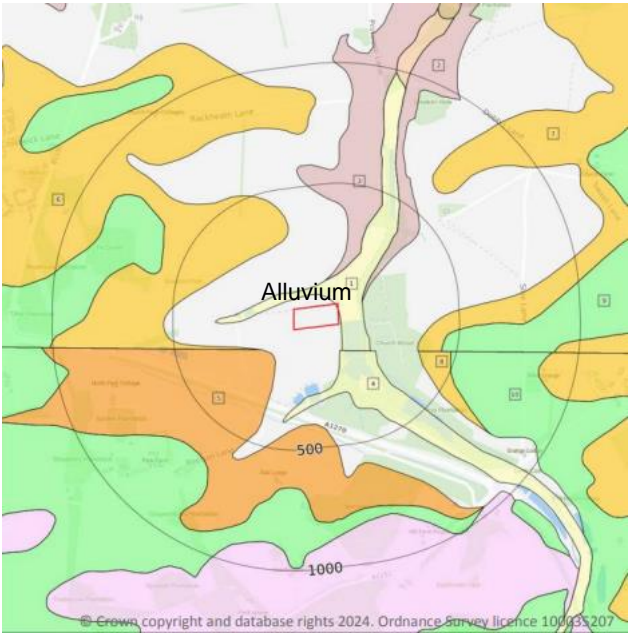
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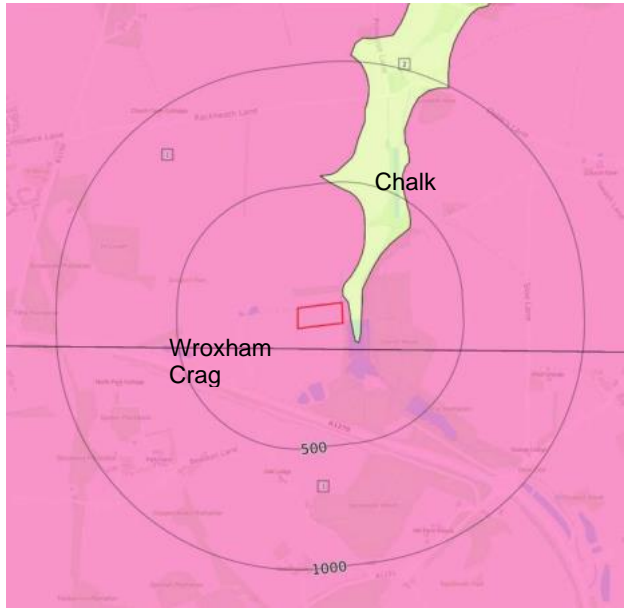
At present a Phase 2 Geo-Environmental Assessment has been completed for the overall site area. This has identified the following underlying geology:

Superficial	Alluvium	WS-04 – North east of site
Bedrock	Wroxham Crag Formation	All Locations
	Lewes Nodular Chalk Formation	All Locations

Superficial



Bedrock



The following table advises the geology encountered during the investigation. Boreholes were advanced to a maximum of 15.00 metres below ground level (m bgl).

Group / Formation		Lithology	Encountered Depth Range (m bgl)	Approximate Thickness (m)
Topsoil		Loosely compacted brown gravelly sand	0.00 - 0.50 (BH-01)	0.50
		Loosely compacted brown silty gravelly sand	0.00 - 0.40 (WS-01, WS-04)	0.40
Superficial Deposits	Alluvium	Loosely compacted dark brown clayey sand	0.4 – 1.30 (WS-04)	0.90
		Soft to firm light brown sandy clay	1.30 – 3.45 (WS-04)	>2.15
Bedrock	Wroxham Crag Formation	Loose light brown clayey gravelly sand	0.50 – 6.50 (BH-01)	5.00
		Loose brown silty gravelly sand	0.40 – 1.30 (WS-01)	0.90
		Loose light brown gravelly sand	1.90 – 5.00 (WS-01)	>3.10
		Loose brown sand	0.90 – 2.00 (WS-01, WS-02)	2.00
		Loose brown, dark brown and pale grey clayey sand	1.50 – 2.00 (WS-02)	0.50
	Lewes Nodular Chalk Formation	White clayey sandy gravelly chalk.	6.50 (BH-01)	>8.95

The associated Uncorrected SPT Values are detailed in the table below;

Geology	Uncorrected SPT Values
Alluvium	8-11
Wroxham Crag Formation	4-41
Lewes Nodular Chalk Formation	0-8

Groundwater was encountered in BH-01 at 6.0 m bgl, which rose to 2.5 m bgl after 30 minutes.

Groundwater strikes occurred in WS-01 to WS-04 at 3.9 m bgl, 4.5 m bgl, 2.0 m bgl and 2.1 m bgl, respectively.

Various ground hazards have also been identified across the site (including shrinking and swelling clays, running sands, collapsible ground and ground dissolution) which may have implications on the foundation design.

It is understood the following building types are proposed:

Building Type	Assumptions	Location
Commercial	Waste water treatment works	Central

Summary

Waste water treatment works

Ground conditions consisted of topsoil, Alluvium, Wroxham Crag Formation and then Lewes Nodular Chalk Formation. The Wroxham Crag Formation and then Lewes Nodular Chalk Formation are considered potentially viable strata for foundations, depending on structural loads required. The Alluvium was only observed in WS-04 in the north east of the site. The granular Wroxham Crag Formation had variable strength, but is considered suitable for shallow foundations, depending on the load required for the Waste water treatment works. Any foundations within the Wroxham Crag Formation should take into consideration the lower strength profile of the underlying Lewes Nodular Chalk Formation, and any potential consolidation of this chalk.

The above is very preliminary and ground investigation information as well as building structural loading information will be required to determine the suitability of foundation design.