

Pioneer House High School – New Build

Proposed Drainage Strategy

Introduction

It is proposed to construct a new building within existing campus of Pioneer House High School to provide additional teaching facilities. The building is to be located within an area which is presently a hard standing games area / playground.

A new MUGA pitch is proposed to replace the existing games area.

Existing Drainage

From the drainage investigation works undertaken to date the existing school, including the hard standing games area within the proposed development areas, is drained by a combined system in term outfalls into combined public sewer in Yew Tree Lane

Proposed Drainage

The National Planning Practice Guidance sets out the Hierarchy of Drainage to promote the use of Sustainable Drainage Systems.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

1. into the ground (infiltration);
2. to a surface water body;
3. to a surface water sewer, highway drain, or another drainage system;
4. to a combined sewer.

1 Infiltration

Intrusive ground investigation works including percolation test have been undertaken

A summary of the finding is detailed below:

Site Works

- 6 No. windowless sampling boreholes (WS01 to WS06) were drilled to depths between 1.65m and 3.45m bgl using a Dando Terrier window sampling rig.
- Soil percolation testing was carried out at two locations (SuDS1 and SuDS2) at depths of 1.3m and 1.6m bgl.

Surfacing

The surfacing of site generally comprised two main strata:

- *Dark brown slightly clayey sandy topsoil with minor constituents of brick, concrete and glass (WS04 to WS06, SuDS1 and SuDS2 to depths of between 0.2m and 0.25m).*
- *Tarmac was encountered within WS01 to WS03 to 0.1m bgl.*

Made Ground

Made Ground was recorded in all exploratory holes to depths of between 0.7m and 1.4m bgl and generally comprised three main populations:

- *Dark grey slightly gravelly occasionally ashy sand with minor constituents of tarmac and concrete was encountered in WS01 to WS03 from a depth of 0.1m to depths of between 0.3m and 0.8m bgl.*
- *Red brown sandy gravel of brick was present in WS01 to WS03 from depths of between 0.3m and 0.8m bgl to depths of up to 1.3m bgl.*
- *Orange brown / black slightly ashy gravelly sand with minor constituents of brick, concrete, coal, chert, glass and occasional clinker was present in WS04 to WS06 and SuDS1 to SuDS2 from depths of between 0.2m and 0.25m bgl to depths of between 0.6m and 1.4m bgl.*

Locally in WS02 and WS06, firm gravelly clay with minor constituents of brick, chert and coal was observed from depths of between 0.6m and 1.3m bgl to depths of between 0.7m and 1.65m bgl.

Natural Strata

The natural strata comprised two main stratifications:

- *Medium dense to very dense light brown clayey occasionally very clayey slightly gravelly becoming gravelly Sand with minor constituents of chert and quartzite was encountered within all exploratory holes from depths of between 0.7m and 1.4m bgl to depths of between 1.65m and 3.0m bgl.*
- *Soft slightly gravelly Clay was encountered within WS04 at depths of between 1.2m and 1.8m bgl.*
- *Stiff dark brown Clay was present within WS04 at depths of between 3.0m and 3.45m bgl.*

Bedrock

Bedrock was not encountered during the Ground Investigation.

Groundwater

Groundwater was encountered in WS04 at 3.0m bgl at the base of the natural sand deposits.

Observations

No evidence of olfactory contamination was noted during the Ground Investigation.

Visual evidence of contamination was recorded across the site in the form of ash and rare clinker.

Ground Engineering

Evidence of very poor infiltration rates were observed during soil percolation testing and SuDS drainage is not likely to be considered feasible.

In view of the ground conditions encountered infiltration as a drainage option is not considered to be feasible

2. Surface Water Body

The nearest water body is an open watercourse in excess of 250m (as the crow flies) to the north west of the site within land to the north of Lindwall Close. To reach this watercourse directly by shortest distance would require crossing private land and numerous gardens. Given the distance and the likely route required to reach the watercourse it is not considered to be a viable drainage option

3. Surface Water Sewer, Highway Drain, or another Drainage System

A review of sewer records reveals the nearest surface water sewer is located within Lindwall Close approximately 250m to the east of the site. Given the extent of the development works involved this is not considered to be an economically viable option.

4. Combined Sewer

The majority of the area proposed for development is covered in hardstanding which drains positively via gullies into the combined drainage system which serves the existing school. This existing system discharges into a 2250mm diameter combined sewer located in Yew Tree Lane immediately outside the site. A new connection into the existing school drainage system appears to be the most practical option.

As the development area is classed as brownfield – the proposed drainage system to serve the new building and MUGA pitch will incorporate attenuation to restrict the maximum surface water discharge rate for all storms events up & including the 100 year (with 40% allowance for climate change) to 50% of equivalent predevelopment rates or 5l/s which ever is greater.