



Drainage Strategy Report
23 & 24, Vernon Drive, Harefield
Inspired Design & Build Ltd
9th February 2021

1. SURFACE WATER DRAINAGE STRATEGY

1.1 General

G30 Consulting Ltd have been commissioned by Inspired Design & Build Ltd to undertake the surface water drainage design to satisfy Planning Condition 9 in relation to the proposed residential development at former garages site to the rear of 23 & 24 Vernon Drive, Harefield.

The development comprises the construction of a 2no. residential properties which are to be accessed via a new private access road off Vernon Drive. 5 car parking spaces are to be provided at the end of the private access road.

In accordance with Building Regulations Part H - Drainage and Waste Disposal, surface water runoff generated by a site should look to discharge to one of the following listed in order of priority:

- An adequate soakaway or some other adequate infiltration system; or, where that is not reasonably practicable,
- A watercourse; or where that is not reasonably practicable,
- A surface water sewer; or where that is not reasonably practicable,
- A combined water sewer.

1.2 Infiltration System

At the time of producing this report an intrusive ground investigation report had not been undertaken to confirm ground conditions on site. In the absence of an intrusive ground investigation British Geological Survey (BGS) 1:50,000 scale geology mapping was reviewed to confirm the geology on site. The details of the underlying geology can be found below and in Figure 1 below:

Bedrock Geology: London Clay Formation - Clay, Silt and Sand. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas. These sedimentary rocks are marine in origin. They are detrital and comprise coarse- to fine-grained slurries of debris from the continental shelf flowing into a deep-sea environment, forming distinctively graded beds.

Superficial Deposits: Langley Silt Member - Clay and Silt. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by windblown deposits (U). These sedimentary deposits are aeolian in origin. They are detrital, comprising medium- to fine-grained materials, forming lenses, beds (and locally) dunes.

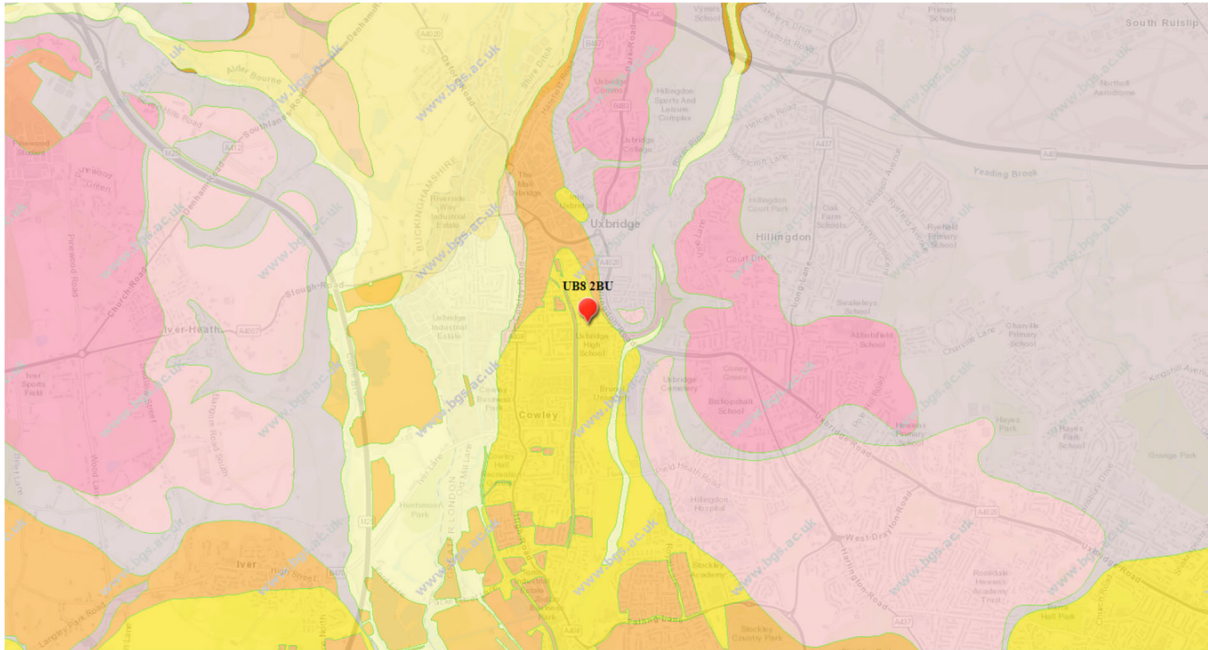


Figure 1 – British Geological Survey (BGS) 1:50,000 scale geology mapping

Due to the local geology on site and the proximity to the adopted highway / other residential properties infiltration drainage techniques have been discounted as the primary method of surface water disposal.

1.3 Watercourse

The nearest watercourse to the site is the Grand Union Canal which is located approximately 1.30km West of the site. Due to the distance from the site a direct discharge cannot be achieved.

1.4 Surface Water Sewer

Thames Water are responsible for adopted drainage assets in Uxbridge. Adopted surface water drainage assets are located in Vernon Drive.

Surface water runoff from the site is proposed to discharge to the surface water sewer at a restricted rate **1.2l/s** for all storm events up to and including 1 in 100 year + 40% climate change.

Surface water runoff from the residential properties (120m²) and the private access road / parking spaces (520m²) shall discharge to a new private onsite surface water drainage system.

Approximately 21.7m³ of cellular crate attenuation is to be provided on site to attenuate surface water runoff from the residential property and the private driveway for all storm events up to and including 1 in 100 year + 40% climate change.

Operation and Maintenance Requirements for Piped Drainage Network		
Maintenance Schedule	Required Action	Typical Frequency
Regular	Inspection of manholes for debris and sediment build-up	Annually (and following poor performance)
	Cleaning of manhole chambers and removing any debris and sediment build-up.	Annually (and following poor performance)
Occasional Maintenance	Jetting of pipes between manholes to flush any debris and sediment build-up down the pipes. Debris and sediment build-up to be collected at the downstream manhole and removed from the piped network.	Three monthly (or as required)
Monitoring	Survey pipes for any signs of root ingress, cracking or collapse and undertake remedial work to replace pipe runs as necessary.	Every 5 years or as required following poor performance.

Operation and Maintenance Requirements for Proprietary Treatment System (Gullies)		
Maintenance Schedule	Required Action	Typical Frequency
Routine Maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation.	Six monthly
	Remove sediment, oil, grease and floatables.	As necessary - indicated by system inspections or immediately following significant spill.
Remedial Actions	Replace malfunctioning parts or structures.	As required.
Monitoring	Inspect for evidence of poor operation	Six monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies.	Monthly during first half of operation, then six months.

Operation and Maintenance Requirements for Rainwater Harvesting (Water Butts)		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspection of the tank for debris and sediment build-up, inlets / outlets / withdrawal devices, overflow areas, pumps and filters.	Annually (and following poor performance)
	Cleaning of tank, inlets, outlets, gutters, withdrawal devices and roof drain filters of silts and other debris.	Annually (and following poor performance)
Occasional Maintenance	Cleaning and / or replacement of any filters.	Three monthly (or as required)
Remedial Actions	Repair overflows erosion damage or damage to tank	As required
	Pump repairs	As required

Operation and Maintenance Requirements for Attenuation Storage Tanks		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance).	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockages by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays.	Annually, or as required.
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows and vents.	As required.
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required.