

# Pembroke College Oxford

## Drainage Statement For North Quad ASHP Enclosure

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Date	Revision	Notes/Amendments/Issue Purpose
March 2024	1	For information

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# 1 Introduction

Price & Myers have been commissioned to undertake the drainage design for a new enclosure for an air source heat pumps, located within Pembroke College's North Quad. This statement summarises the approach taken to deal with surfacewater discharge from the enclosure.

The enclosure measures approximately 8.8m x 4.0m in plan. It is situated at ground level adjacent two existing walls. The site is currently used for a gardeners equipment shed and compost bins. There is no positive drainage on the site, however there is drainage to a ramp to the west.

The enclosure is open at the top and sits on a concrete slab. A central gully will drain the enclosure.

The site is in flood zone 1.



Figure 1: Flood Map ([www.gov.uk](http://www.gov.uk))

## 2 SUDs Approach

The local geology taken from BGS data shows the site is underlain by a variable thickness of Made Ground, between 4.3m and 5.5m deep. If this thickness is present in North Quad then due to the potential for contamination and variability in porosity infiltration will not be viable.

### 2.1 Surface Water SUDs Strategy

#### 2.1.1 Rainwater Used as a Resource (e.g., Rainwater Harvesting)

Rainwater harvesting promotes the storage and re-use of rainwater collected from roofs and hard surfaced areas. This type of system contributes to the reduction of runoff rates and volumes within a development.

The capacity of rainwater harvesting systems to attenuate rainwater depends on the water use within the development. There is no activity in the development so if the harvester is full, no attenuation will be provided during a subsequent storm event. In the worst case scenario, the rainwater harvester will provide no attenuation.

#### 2.1.2 Rainwater Infiltration to Ground at or Close to Source

The local geology taken from BGS data shows the site is underlain by a variable thickness of Made Ground, between 4.3m and 5.5m deep. If this thickness is present in North Quad then due to the potential for contamination and variability in porosity infiltration will not be viable.

However we intend to carry out trial pits to establish depth of Made Ground and the porosity of the underlying gravels if found within shallow depth (less than 1.5m deep). Given the scale of the development a visual inspection of the granular soils will be undertaken and a conservative value estimated for infiltration rates.

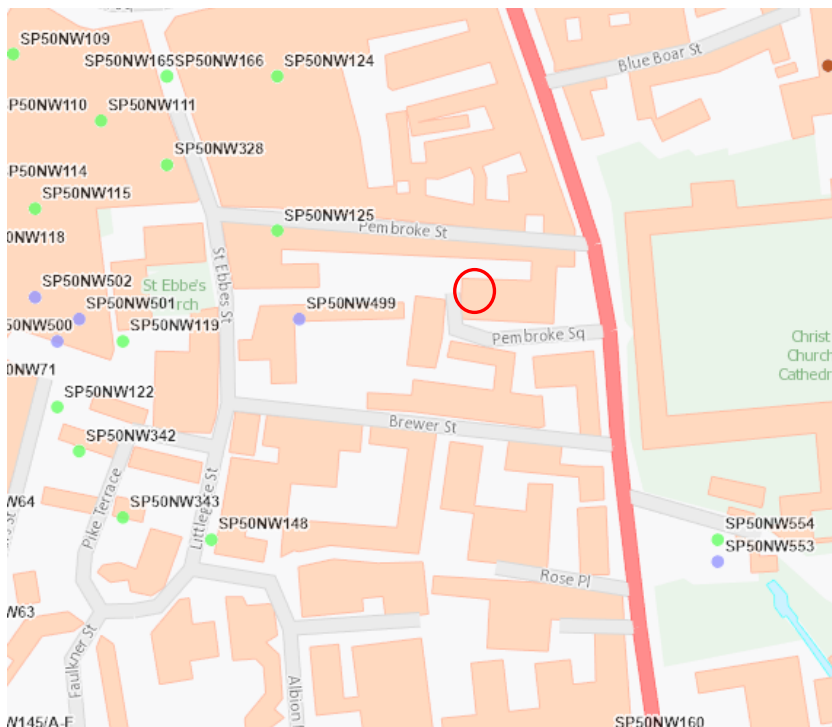


Figure 2: BGS Borehole Plan - Central Oxford ([www.ac.uk](http://www.ac.uk))

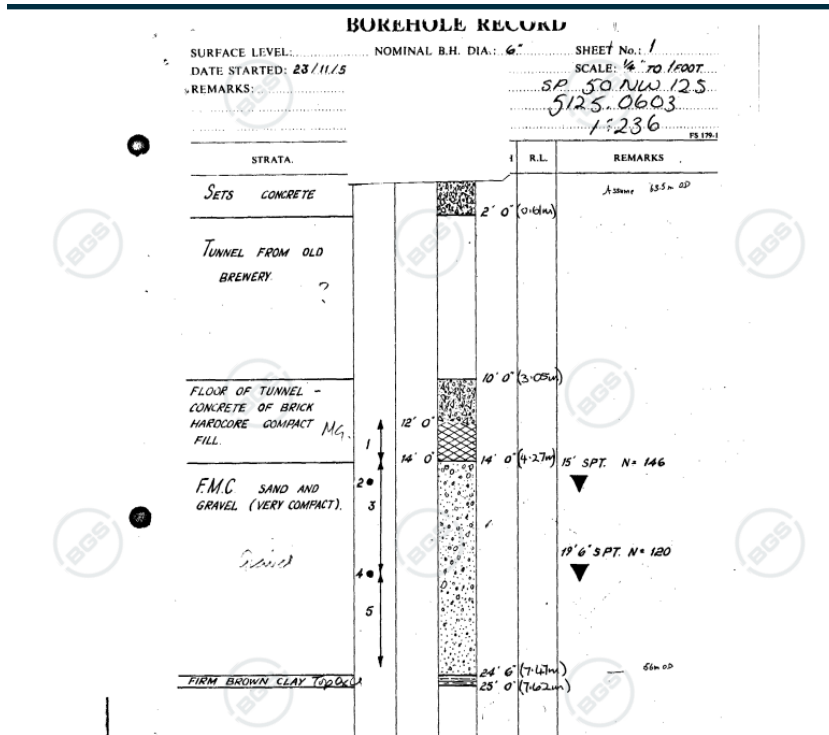


Figure 3: Borehole SP50NW125 (www.bgs.ac.uk)

**British Geological Survey**  
 BGS ID: 15949504 : BGS Reference: SP50NW499  
 British National Grid (27700) : 451260,205990

**SP 50 NW**  
 Institute of Geological Sciences  
 RECORD OF SHAFT OR BOREHOLE

Name and Number of Shaft or Borehole: Deaf Lane Oxford

Town or Village: Oxford County: Oxford

Exact site (reference to a fixed point on 1-in or 1:50 000 Map): Building site 20 m east of St. Ebbes

Purpose for which made: Pile holes

Ground level at shaft relative to O.D. 61.3 m. If not ground level give O.D. of beginning of shaft 61.3 m.

Made by: Report by JH Collinson Date of sinking: Feb 1953

Information from: Report by JH Collinson Examined by: JHC

Specimen Numbers and Additional Notes

Geological Classification	Description of Strata	Thickness metres	Depth metres
	Made ground (sic)	1.8	
	Thames gravel	1	5.8
MOC	Residual clay	1	
	Unresidual clay	2	6.7
	Lambeth Zone, kerriest subzone		

Figure 4: Borehole SP50NW499 (www.bgs.ac.uk)

2.1.3 Rainwater Attenuation in Green Infrastructure Features for Gradual Release (for example green roofs, rain gardens)

The proposed development does not have an enclosed roof. A rain garden may be viable subject to finding a suitable location within college grounds.

2.1.4 Rainwater Discharge Direct to a Waterbody

There is no watercourse present within the North Quad.

2.1.5 Controlled Rainwater Discharge to a Surface Water Sewer or Other Drainage System

An attenuation tank may be viable if a suitable location can be established within college grounds. We propose to install an attenuation system with a flow control outlet limited to greenfield rates, minimum 3l/s, into the college's drainage network which ultimately discharges into the public sewer system..

2.1.6 Controlled Rainwater Discharge to a Combined Sewer

We do not intend to directly discharge into the public sewer.

## 3 Conclusions

This is a small development and where practicable infiltration techniques will be adopted. In the event that Made Ground is found to be deep then a raingarden or attenuation tank will be used.