

3. Existing Information

3.1 Topographical Information and Site Features

The general elevation of the site has been assessed using satellite data in conjunction with detailed topographical data. The site sits within a generally flat coastal plain context typical of the Worthing area. The satellite data corroborates the topographical survey, indicating a relatively level site with no significant embankments or steep slopes that would necessitate major earthworks retaining structures. Furthermore, the generally flat levels across the wider region potentially minimise the risk of any brownfield or greenfield run-off onto the existing site. Refer to **Figure 3-1** for the regional elevations.

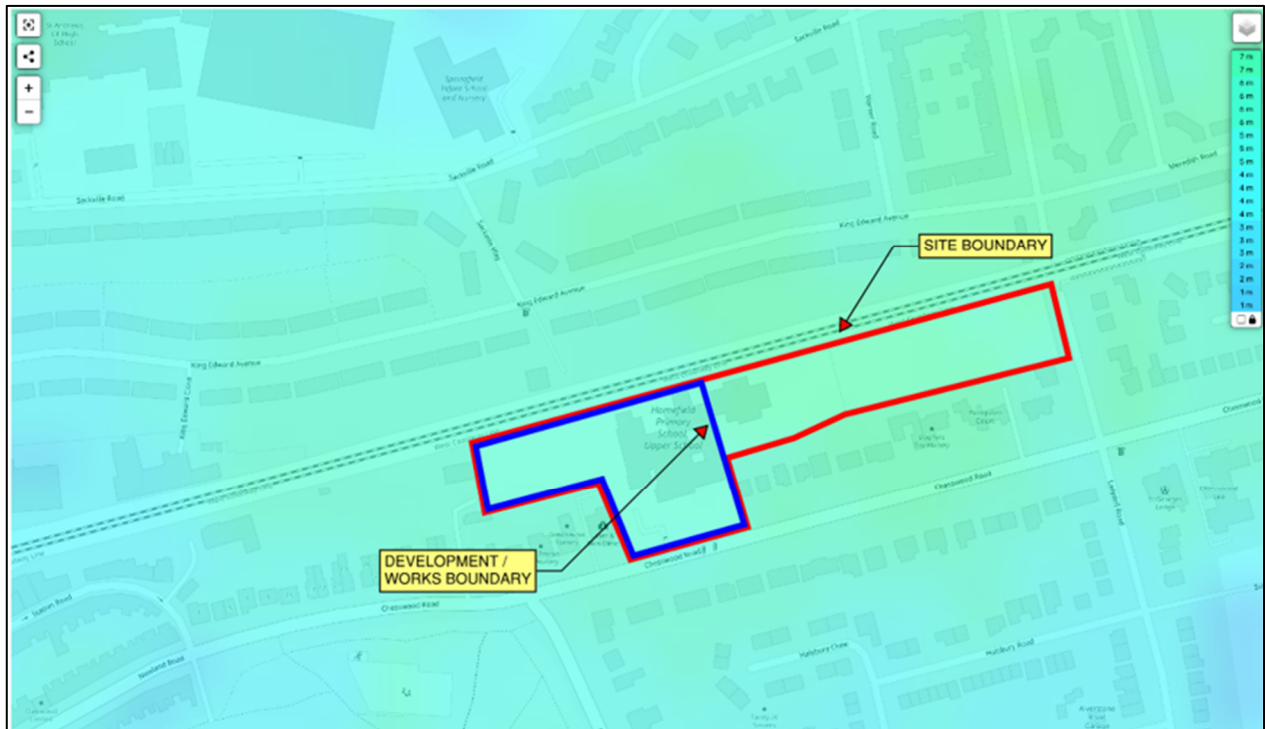


Figure 3-1 - Homefield Primary School - Site Elevations

A detailed topographical survey of the site was undertaken by 1st Horizon on 14/11/2025 (Ref No. AR-HPS12987-01/B to AR-HPS12987-05/B). The topography survey data, processed into surface-level heat maps using Civil 3D, illustrates the existing ground profile across the full extent of the school grounds, revealing a more distinct gradient than initially observed in satellite data.

Refer to **Appendix B** for the Topographic and Utility Survey.

The site levels range from a minimum of 4.84m AOD (Above Ordnance Datum) to a maximum of 5.97m AOD, indicating a total level difference of 1.13m across the campus. The topography exhibits a general fall from the north-east towards the south-west, as shown below in **Figure 3-2**.



Figure 3-2 – Homefield Primary School – Existing Site Topography

Key topographical features identified include:

- **Building Plateau:** The existing school building occupies the higher ground, with external levels immediately adjacent typically ranging between 5.50m and 5.65m AOD.
- **Western SSC Building Zone:** At the location of the proposed new SSC building, the ground level falls away from the existing main block building line (approximately 5.58 m AOD) towards the western boundary (approximately 5.10 m AOD). The finished floor level (FFL) of the SSC building block has been set at 5.58 m AOD to facilitate exceedance flow routes along the south-western boundary, directing flows towards the site entrances from Chesswood Road.
- **Car Park & Access:** The car park area to the south sits lower than the main building, with levels averaging 5.20m to 5.35m AOD, falling towards the site entrance on Chesswood Road.
- **Northern Boundary:** Higher ground is noted along the northern perimeter adjacent to the railway line embankment.

3.2 Geology and Hydrogeology

The content of this section has been informed by the Combined Geotechnical and Ground Contamination Risk Assessment prepared by Ashdown Site Investigation (Report Ref: LW25208, dated August 2014) for the site (formerly referenced as Chesswood Middle School).

A total of nine geotechnical exploratory positions were undertaken across the school grounds. Of specific relevance to the proposed extension and hardstanding works are three positions located at the western edge of the site as shown below in **Figure 3-3**:

- HD1 (Hand Dug Pit): Located in the north-west planter/soft landscaping.
- HD2 (Hand Dug Pit): Located in the western hard play area (proposed extension footprint).
- HA1 (Hand Auger): Located adjacent to the sub-station.



Figure 3-3 – Homefield primary School – Geotech Site Plan

The remaining boreholes (WS1-WS5 and HD3) were distributed across the eastern car park and playing fields, providing broader context for the deep geology and groundwater regime.

Refer to **Appendix C** for geotechnical report extract including borehole logs and infiltration test results.

Geology

In the western zone (HD1, HD2, HA1), the investigation confirms the presence of Made Ground to depths varying between 0.35m and 0.70m bgl. This generally comprises brown gravelly sandy silty clay with anthropogenic inclusions (brick, concrete, clinker).

Underlying the Made Ground, the natural superficial geology consists of River Terrace Deposits, described as firm to stiff orange-brown gravelly CLAY. Across the wider site (WS1–WS5), deep window sampling confirmed that these cohesive clay deposits typically extend to approximately 2.10m bgl, where they transition into the Raised Beach Deposits (medium dense gravelly SAND).

Groundwater

During the investigation, the shallow excavations in the west (HD1, HD2, HA1, max depth 1.00m) were recorded as dry. However, monitoring standpipes installed in the deeper boreholes across the wider site recorded standing groundwater levels between 1.40m and 2.30m bgl.

While shallow strata in the western sector appeared dry during summer testing, data from the wider site suggests a high groundwater table is present within the granular Raised Beach Deposits. This is a critical consideration for foundation depths, deep excavations, and drainage infrastructure.

Given that cohesive clay layers were encountered at approximately 2.10m depth, the recorded groundwater levels are considered at this stage to represent the main water table within the permeable strata, rather than isolated perched water above clay bandings. Regardless of this classification, the presence of shallow groundwater constitutes a critical constraint and must be appropriately assessed during detailed design and construction, including the implementation of any necessary dewatering measures for the installation of the proposed attenuation tank.

External Works & Infiltration

Regarding external works, the In-situ DCP testing undertaken at HD1 (West) indicates that the Made Ground/Clay subgrade is variable but generally suitable for a preliminary pavement design with equilibrium CBR value of 4.5%. This may need to be confirmed by more DCP test samples across the western region of the site.

Soakage testing yielded variable results across the site:

Western Zone (HD2): Testing in the shallow clay deposits yielded a low infiltration rate of 2.7×10^{-6} m/s.

Eastern Zone (HD3/WS2): Testing in the deeper granular deposits yielded faster rates between 3.8×10^{-5} and 5.2×10^{-5} m/s.

Given the poor infiltration rates recorded specifically in the western extension zone (HD2), combined with the high groundwater table across the wider site, shallow infiltration (soakaways or permeable paving with infiltration) is not recommended for the new SSC building and surrounding hardstanding areas. The drainage strategy will prioritise attenuation and controlled discharge in the western region.

While soakage testing suggests feasible infiltration rates in the deeper Raised Beach Deposits (3.8×10^{-5} m/s) across the eastern region of the site, the high groundwater table poses a significant constraint to gravity infiltration systems, as a minimum 1m separation is required between the base of any soakaway and the water table.

Contamination

Chemical analysis of samples taken from both the western zone and the wider site identified no significantly elevated concentrations of metals, PAHs, or petroleum hydrocarbons above Soil Screening Values for a school end use. No asbestos was detected in the screened samples. Gas monitoring classifies the site as Characteristic Situation 1 (CS1), requiring no specific gas protection measures. Consequently, the site is considered suitable for the proposed use with no specific remediation required

3.3 Existing Utilities

A full underground utility survey was undertaken by 1st Horizon on 23 January 2026 to verify the location and depth of subsurface infrastructure across the site and particularly those crossing the footprint of the proposed canopy. The survey was conducted in accordance with PAS 128:2022 specification levels, utilising a combination of electromagnetic location (EML) and Ground Penetrating Radar (GPR) to validate statutory record data.

The survey mapped a complex network of buried services traversing the site, including gas, water, low-voltage (LV) electricity, telecommunications, and extensive drainage networks. Of particular significance to the proposed development is the identification of a high-voltage (HV) electrical corridor running longitudinally through the western sector of the site between the proposed SSC and the main block. This directly impacting the proposed footprint of the new SSC extension.

While statutory records from UK Power Networks (UKPN) indicated the presence of six cables, the GPR survey highlighted discrepancies between the recorded and actual alignments. Further intrusive verification was therefore required, through vacuum-excavated trial trenches, to confirm their exact location.

Initial GPR testing, together with vacuum excavation carried out at the upper and lower extents of the HV cable corridor where the GIS and GPR information appeared to coincide, confirmed that the HV cables had been installed on a different alignment. The confirmed alignment is shown in red in **Figure 3-4**.



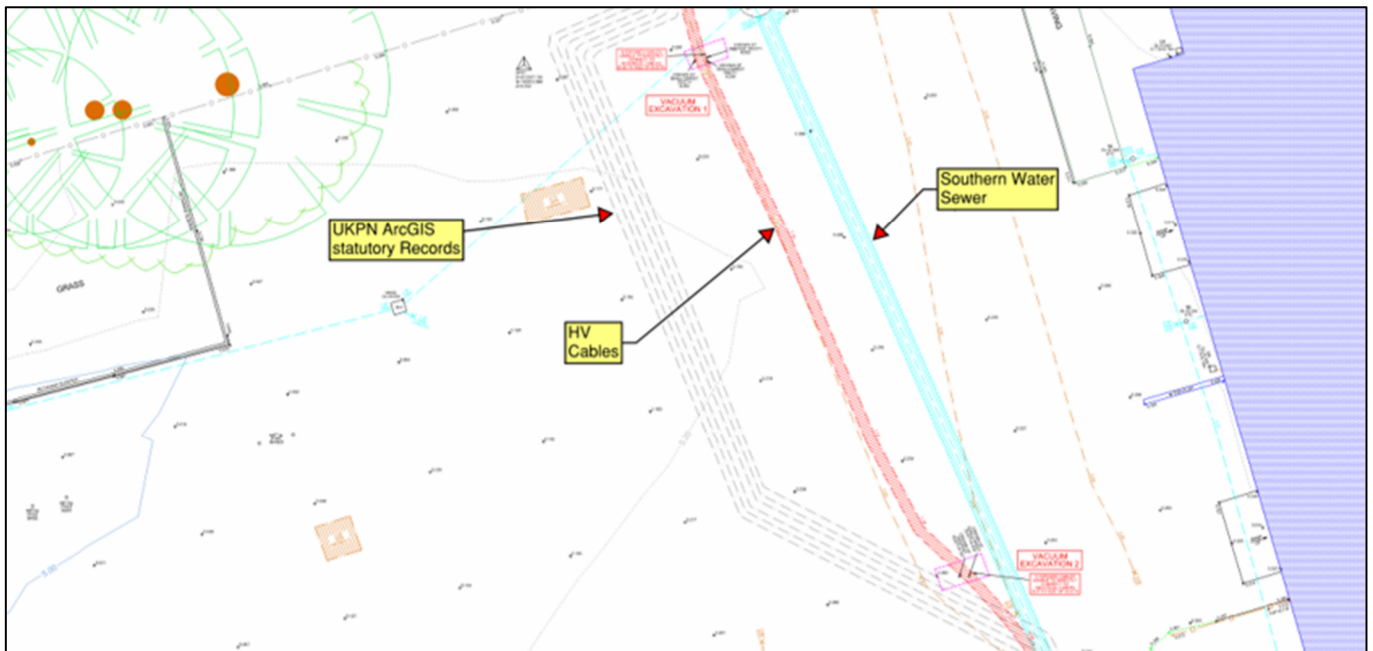


Figure 3-4 - Homefield Primary School – HV Cables and Surface Water Sewer

Furthermore, the survey confirmed the presence of a significant 675mmØ public surface water sewer (Southern Water) crossing the school premises between the proposed SSC location and the main block at an approximate depth of 2.83m BGL to crown of pipe (IL 1.838m AOD @ MH20).

The survey also identifies key features including existing drainage channel drains, manhole covers, and the location of significant trees, all of which directly influence the positioning of the new extension and the levels strategy for external works.

3.3.1 Vacuum Excavated Trial Trenches (Jan 2026)

Following the identification of the HV cable corridor via GPR and mismatch with statutory records, targeted vacuum excavated trial trenches were instructed to physically verify the depth and configuration of the electrical anomalies detected near the proposed extension. Two specific trial trenches were excavated along the utility corridor to the east and south of the proposed SSC area.

The investigation exposed a bank of six distinct High Voltage cables/ducts running in parallel. The survey confirmed the crown levels of the shallowest ducts typically range between 4.45m AOD and 4.25m AOD. With existing ground levels in this vicinity recorded at approximately 5.40m to 5.50m AOD, the depth of cover to these critical assets is generally between 1.00m and 1.20m.

This finding presents a primary constraint for the structural and drainage design as building over HV cables is generally prohibited by the Distribution Network Operator (DNO). Coordination and correspondence with the wider design team confirms that diversion of these HV cables is not currently proposed. Instead, the building foundation layout is to be developed to maintain a minimum offset clearance (typically 1.50m) from the verified cable positions to ensure safety and accessibility for future maintenance.

3.3.2 Desktop Public Utilities Search (06/03/2024)

A desktop statutory utility search was conducted in March 2024 to collate asset records from all relevant statutory undertakers. The search results have been overlaid with the topographical survey by 1st Horizon to highlight potential conflicts.

The search confirmed the presence of public assets owned by:

- **Electricity (UK Power Networks):** Records indicate a High Voltage network traversing the site from North to South, alongside a Low Voltage distribution network serving the school buildings. An electrical substation is located at the south-western edge of the school.
- **Gas (SGN):** A low-pressure gas main enters the site from Chesswood Road, feeding the boiler room located in the south-western quadrant of the main building.
- **Water (Southern Water):** Public surface and foul water mains are recorded within Chesswood Road. The site is served by a private distribution network. Notably, the sewer records indicate a significant public surface water sewer (675mm sewer) crossing the site.
- **Telecommunications (Openreach / Virgin Media):** Underground ducting and overhead lines serve the school administration areas, primarily entering from the southern boundary.

3.3.3 Existing Drainage

The surface water runoff generated on the existing main school building, eastern and southern areas of the site are drained via soakaway manholes as indicated on the Topographic and Utilities survey. However, the western area, where the new SSC building is proposed the tarmacked area is positively drained via a road gully in the low point and its 150mm dia. outlet connected to the Southern Water surface water manhole (ref. 3551 Cover Level: 5.82m ; Invert Level 1.92m AOD) to the north of the site. From this public manhole a 675mm dia. surface water sewer runs across the site in southerly direction.

The foul flows are discharged via a private gravity foul drainage network which 150mm dia. outfall connects to the southeast into the Southern Water foul manhole (Ref 4401; Cover Level: 5.04m ; Invert Level: 3.23m AOD) located in Chesswood Road.

Refer to **Appendix D** for the Southern Water Sewer Records.

3.4 Flood Risk Assessment

A Flood Risk Assessment has been undertaken by AtkinsRéalis. Refer to the Homefield Primary School Flood Risk Assessment (document reference: 100124937_FRA) for a detailed review and the associated flood risk mitigation measures.



4. Surface Water Drainage Strategy

4.1 Design Standards, Constraints and Assumptions

The following design standards, and guidance have been used to aid in the development of the RIBA Stage 3 drainage design in conjunction with policies and guidance in Section 2:

- Sewerage Sector Guidance, Water UK - Appendix C, Version 2.3 – 2023.
- The Building Regulations 2015 - Drainage and Waste Disposal - Approved Document H
- CIRIA C753 The SuDS Manual 2015
- National Standards for Sustainable Drainage Systems (SuDS) (July 2025)
- West Sussex County Council Local Flood Risk Management Strategy: 2025-2030 (July 2025)
- BS EN 752:2017 Drain and sewer systems outside buildings. Sewer system management
- BS EN 16933-2:2017 Drain and sewer systems outside buildings Hydraulic Design
- BS EN 1295-1 Structural design of buried pipelines under various conditions of loading – Part 1: General requirements, 2019
- BS EN 1610 Construction and testing of drains and sewers, 2015.

As outlined in the National Standards for Sustainable Drainage Systems standards (NSSuDS), the key design requirements for the drainage strategy are as follows:

- As stated in NSSuDS Standard 3.19, 'the peak allowable discharge rate from the development to surface waters or sewers for the 50% AEP (QBAR) event shall be limited to the equivalent 50% AEP greenfield runoff rate, or 3 l/s/ha, whichever is the greater.
- Urban creep will not be considered for the site due to the intended educational site usage, which does not fall within NSSuDS Standard 3.33 requirements for urban creep.
- The latest climate change allowance has been taken from the upper end allowance (NSSuDS Standard 3.8) in accordance with the Environment Agency's 'Climate change allowances for peak rainfall' dataset. The site falls under the Adur and Ouse Catchment, hence peak rainfall allowances are as follows (**Figure 4-1**):
 - Upper end allowance for 1 in 30-year storm is 40%.
 - Upper end allowance for 1 in 100-year storm is 45%.

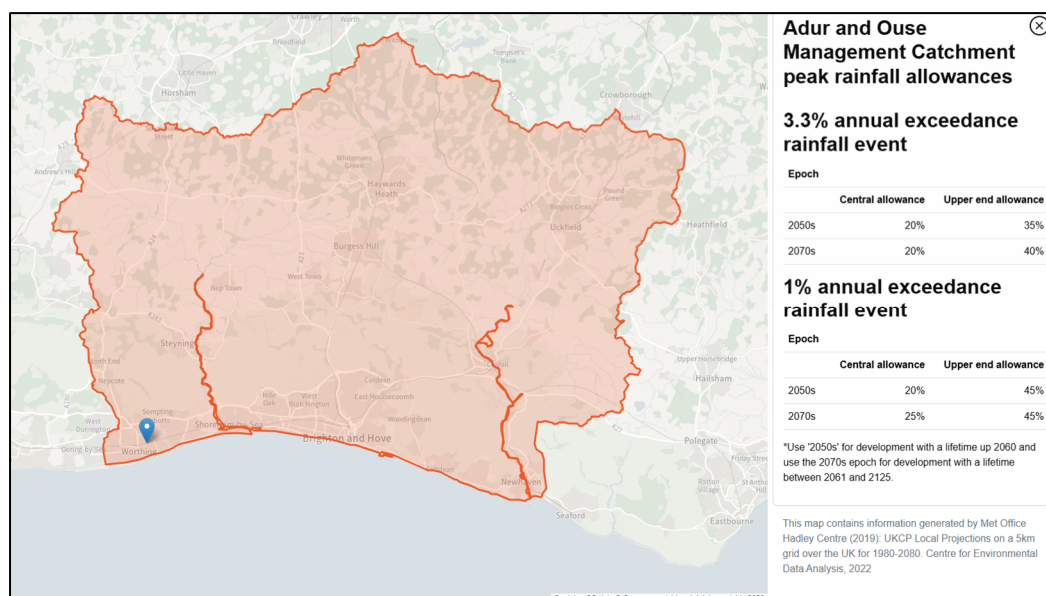


Figure 4-1 - Environment Agency Peak Rainfall Allowance (Source: Environment Agency)

- No internal flooding on-site for any part of the proposed buildings (including basements) and any utility plant during all events up to and including the 1% AEP plus an allowance for climate change (NSSuDS Standard 3.36).
- No above ground flooding on-site, other than designated to store or convey water as part of the drainage design, during all events up to and including the 3.33% AEP, plus an allowance for CC (NSSuDS Standard 3.35)
- No increased flood risk off-site for all events up to and including the 1% annual event probability (AEP) plus an allowance for climate change (cc),

4.2 SuDS Assessment

A full suite of the SuDS options was evaluated for the surface water drainage system. The evaluation considered the following:

- Attenuation, amenity, biodiversity, and treatment properties of each SuDS element.
- Site spatial constraints.
- Health and Safety risks associated with each SuDS element.

The result of the evaluation is summarised in **Table 4-1** below.

Table 4-1 – SuDS Assessment

Colour	Meaning
✓	Viable - Proposed
	Viable
	May be insufficient.
	Not Appropriate
×	Inappropriate. No further consideration

SUDS Component Type & Description	Design Criteria						Appropriate for Design Consideration	Suitability for Use
	Peak Runoff Rate	Water Quantity		Water Quality	Amenity	Biodiversity		
		Runoff Volumes						
		Small Events (Interception)	Large Events					
Rainwater Harvesting Systems Rainwater is collected from the roof of a buildings or from other paved surfaces in an above ground or underground tank for use on Site. Depending on its intended use, the system may include treatment elements. The system should include specific storage provision if it is to be used to manage runoff to a design standard.								Viable – Not Proposed. (Water butts are not recommended for a primary school due to health and safety risks. Full scale rainwater harvesting not viable due to limited development demand.)
Green/Brown Roofs A planted soil layer is constructed on the roof of a building to create a living surface. Water is stored in the soil layer and absorbed by vegetation.							x	Not Appropriate. (The proposed development usage and arrangement present challenges for the maintenance of green/brown roofs.)
Blue Roofs Constructed on the roof of a building to store water at roof level.							x	Not Appropriate. (Roof design of proposed structures may not support physical requirements for blue roofs. Not considered due to cost and maintenance/structural requirements.)
Infiltration Systems These systems collect and store runoff allowing it to infiltrate into the ground. Overlying vegetation and underlying unsaturated soils can offer protection to groundwater from pollution risks.								Not Appropriate. (Geotech borehole testing indicates that the superficial soil type is clayey with poor drainage properties and a high groundwater table)

SUDS Component Type & Description	Design Criteria						Appropriate for Design Consideration	Suitability for Use
	Water Quantity			Water Quality	Amenity	Biodiversity		
	Peak Runoff Rate	Runoff Volumes						
		Small Events (Interception)	Large Events					
Proprietary Treatment Systems These subsurface and surface structures are designed to provide treatment of water through the removal of specific contaminants							✓	Viable- Proposed. (A silt filtration system is proposed downstream of the flow control, before the connection into the existing storm water network.)
Filter Strips Runoff from an impermeable area is allowed to flow across a grassed or otherwise densely planted area to promote sedimentation and filtration.								Viable – Not Proposed. (Filter strips do not offer greater quantity, quality, amenity and biodiversity benefits including space constraints.)
Filter Drains Runoff is temporarily stored below the surface in a shallow trench filled with stone/gravel, providing attenuation, conveyance, and treatment (via filtration).							✓	Viable – Proposed. (A filter drain has been proposed to collect runoff along the western boundary.)
Swales A vegetated channel is used to convey and treat runoff (via filtration). These can be “wet”, where water is designed to remain permanently at the base of the swale, or “dry” where water is only present in the channel after rainfall events. It can be lined, or unlined to allow infiltration.								Not Appropriate. (Swales are not suitable as there is limited space in the landscaping design to accommodate them. They also pose the hazard of standing water, which is not appropriate as young children will be using this site.)