GeoSmart Information

SuDSmart Design

Sustainable Drainage Assessment

Site Address

265 Swakeleys Road
Ickenham
Uxbridge
UB10 8DR

Grid Reference

506315, 185770

Report Prepared for

Bajit Singh Takhar

Date

2024-05-01

Report Status

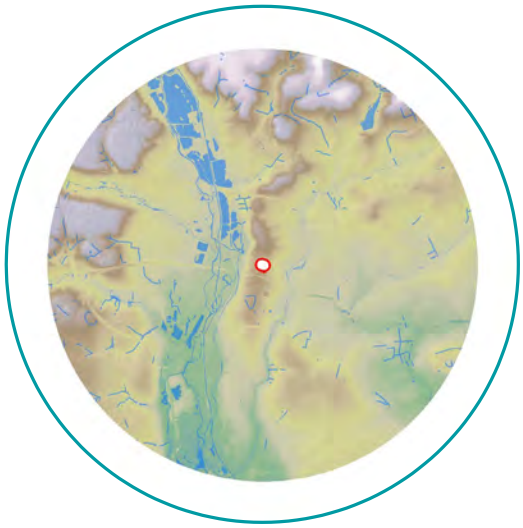
FINAL

Site Area

0.085 ha

Report Reference

82019R1



Discharge to Ground

The proposed development should discharge surface water runoff to ground via infiltration through permeable surfacing/paving and a soakaway. Subject to confirmation of the on-Site infiltration rate.

Report Author

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1 Executive summary

This report assesses the feasibility of a range of Sustainable Drainage Scheme (SuDS) options in support of the Site development process. A SuDS strategy is proposed to ensure surface water runoff can be managed effectively over the lifetime of the development.

SuDS suitability

Risk	Issue	Result
Discharge Location	What is the infiltration potential at the Site?	Moderate to High
	What is the potential to discharge to surface water features?	Low
	What is the potential to discharge to sewers?	High
	What is the potential to discharge to highway drains?	Low
Flooding	What is the fluvial flood risk at the Site?	Very Low
	What is the pluvial flood risk at the Site?	Very Low
	What is the groundwater flood risk at the Site?	Negligible
Pollution	Is the groundwater a protected resource?	Yes
	Is the surface water feature a protected resource?	N/A

Summary of existing and proposed development

The Site is currently used within a residential capacity. At present there is a single building with car park and landscaped areas. Development proposals comprise the construction of a replacement dwelling and 3 car parking spaces in the east, while keeping the existing landscaped areas to the rear (west) of the Site.

Summary of discharge routes

GeoSmart's SuDS Infiltration Potential (SD50) map indicates the Site has a Moderate potential for infiltration, primarily due to the anticipated variable permeability of the underlying geology. Infiltration to ground could be feasible.

Ordnance Survey (OS) mapping indicates there are no surface water features located within close proximity to the Site. Therefore, discharge into surface water should not be considered.

The asset location plan included in Appendix C confirms the Site is located within 50 m of the public sewer network. Due to the short distance to nearby sewers discharging surface water runoff to the sewer is likely feasible.

According to Google Streetview, there are no highway gullies located within Swakeleys Road.

Runoff rate and attenuation requirements

Discharging surface water runoff via infiltration requires approximately 13.68 m^3 of attenuation to be provided. This would ensure there is no increase in runoff above the greenfield scenario as a result of the development, in all storm events up to and including the 1 in 100 year including a 40% allowance for climate change. This volume is subject to the results of infiltration testing.

Recommendations / Next steps

A site investigation is required to confirm the infiltration capacity of the ground in line with BRE 365 guidelines to confirm the infiltration rate and the maximum groundwater level.

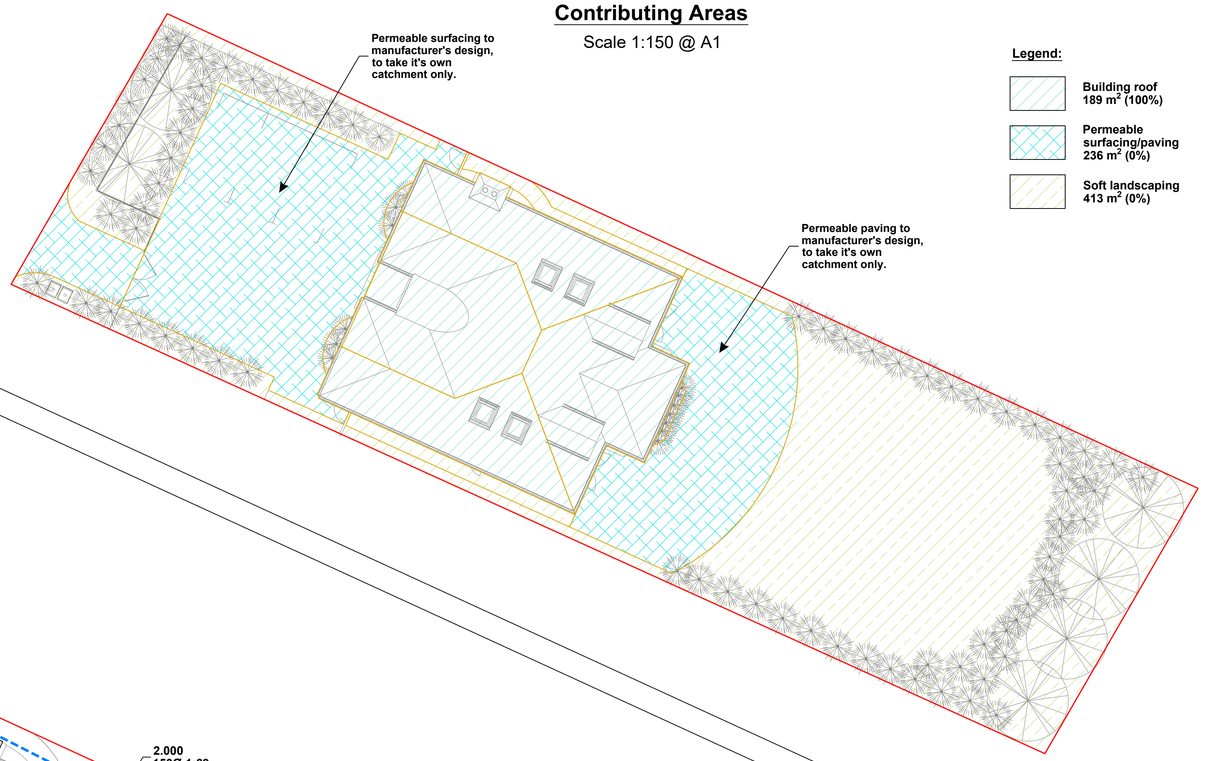
Where site investigation confirms the underlying ground conditions are not conducive to infiltration and surface water features are not available for discharge, the capacity of the public sewer network should be confirmed with the utility provider and permission to connect gained where required.

Legend:

- Soakaway
- RWP — Rainwater pipe
- RWHB — Rainwater harvesting butt
- Surface water drain
- S1 / CL 58.300 / IL 57.550 — Surface manhole with: Reference number, Cover level, Invert level
- CP — Catchpit chamber
- Assumed falls
- Exceedance flow routes
- 58.30 + — Assumed spot levels

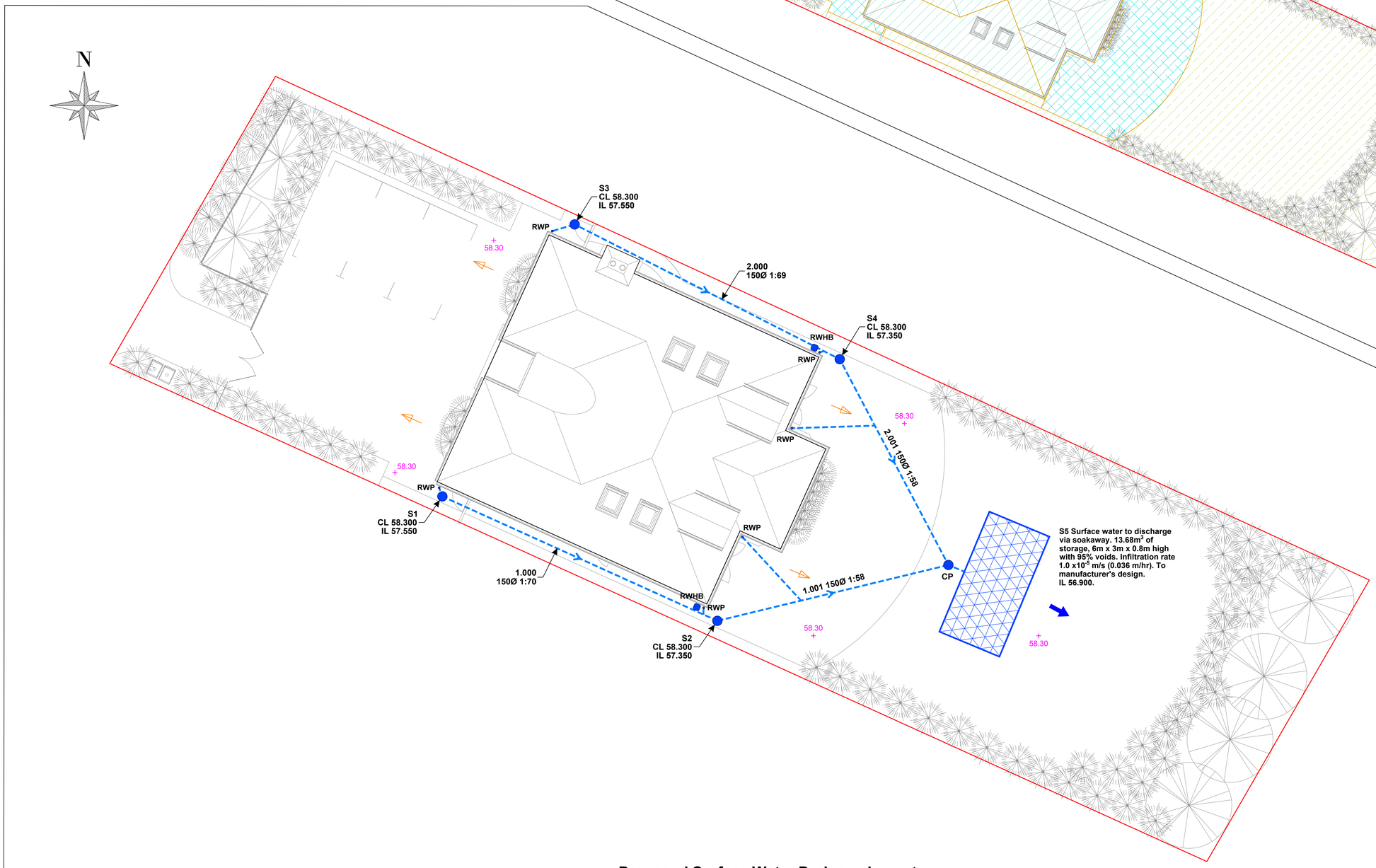
Contributing Areas

Scale 1:150 @ A1



Legend:

- Building roof 189 m² (100%)
- Permeable surfacing/paving 236 m² (0%)
- Soft landscaping 413 m² (0%)



0 2m 4m 6m 8m 10m

10mm = 1m (1:100 @ A1)

Proposed Surface Water Drainage Layout

Scale 1:100 @ A1

Notes:

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Drainage Strategy:

- **Drainage strategy for new building consists of infiltration via soakaway.**
- **Proposed hardstanding to be permeable and to drain itself.**
- **Infiltration rate assumed 1.0x10^{-5} m/s (0.036 m/hr), to be confirmed by infiltration testing to BRE365. Soakaway to manufacturer's design.**
- **Depth to seasonal high ground water to be determined to ensure sufficient distance between base of soakaway and ground water of at least 1.0m.**

Rev	Date	Detail	Drwn	Chkd
P01	01.05.24	Initial issue	DS	MG

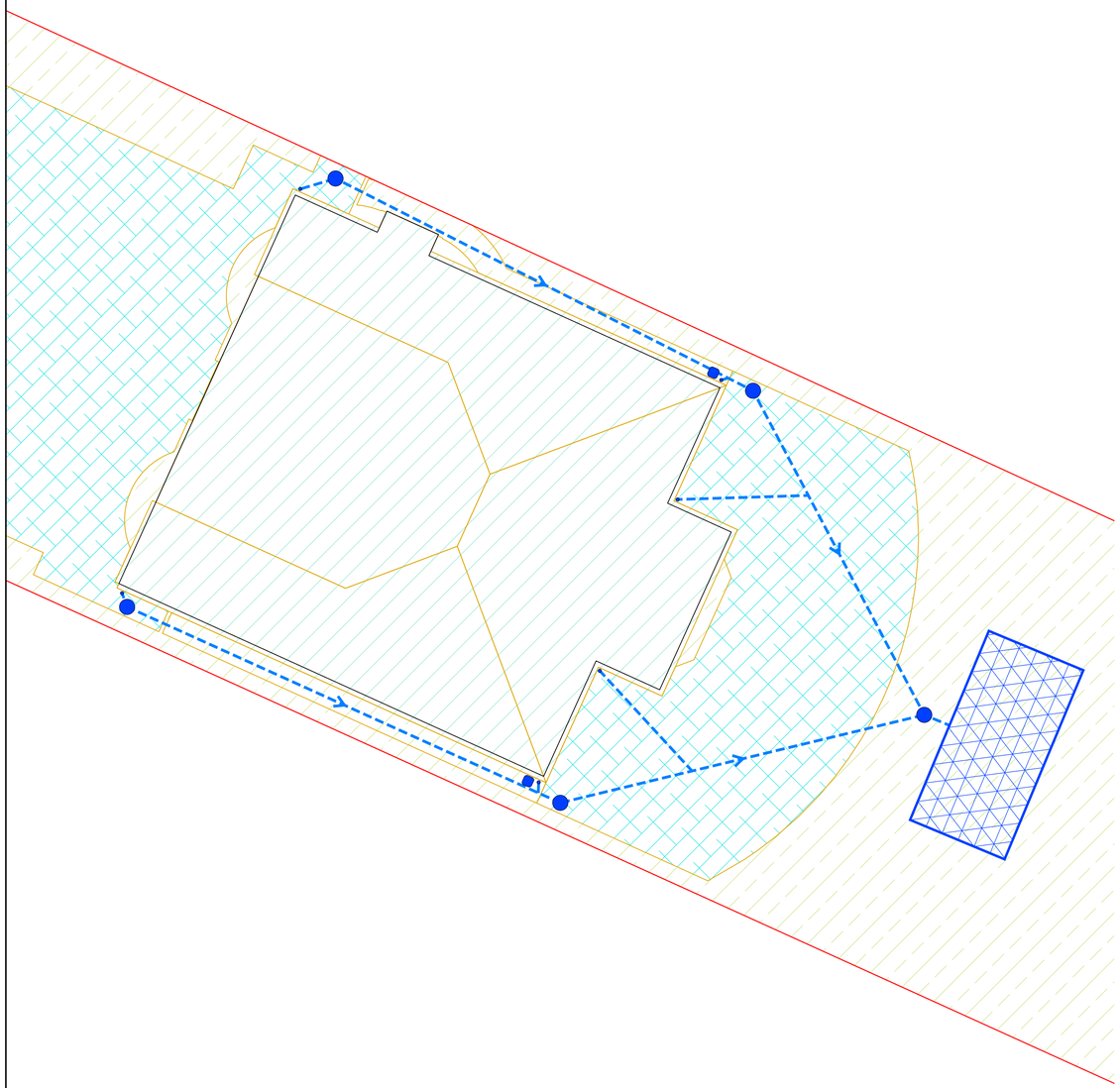
Client: Bajit Singh Takhar

Project: Swakeleys Road

Drawing Title: Proposed Surface Water Drainage Layout

GeoSmart Information
Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU

Drawn by:	Checked by:	Date:
DS	MG	May 2024
Scale: 1:100, 1:150 @ A1		Status: Preliminary
Drawing No: 82019 100		Issue: P01



	Asset Type	Maintenance Schedule (and Frequency)	Party Responsible
	Permeable pavements	Regular maintenance: • Brushing and vacuuming (three time per year) • Trimming any roots and surrounding grass and weeds that may be causing blockages (annually or as required) Monitoring: • Initial inspection (monthly) • Inspect surface for poor performance or ponding (annually or after large storm events)	Privately owned and maintained by house owners or specialist asset management company as agreed / appointed by house owners.
	Underground drainage pipe network and manholes / catchpits	Regular maintenance: • Remove sediment and debris from pre-treatment devices and floor of inspection tube or chamber (annually) • Cleaning of gutters and any filters on downpipes (annually) • Trimming any roots that may be causing blockages (annually or as required) Monitoring: • Inspect silt traps and note rate of sediment accumulation (monthly in the first year and then annually)	
	Soakaway attenuation tank	Regular maintenance: • Remove litter and debris from inlets and outlets (monthly) • Trimming any roots and surrounding grass blockages (as required) Monitoring: • Inspect inlets, outlets and overflows for blockages (monthly or after a heavy storm) • Inspect inlets and outlets for silt accumulation (half yearly) • Inspect infiltration surfaces for compaction and ponding (monthly) • Survey inside of tank for sediment build-up and remove (annually or as required)	
	Linear drainage channel Rain water pipe	Regular maintenance: • Remove sediment and debris from grating, channel and sump (monthly or as required) • Trimming any roots and surrounding grass blockages (as required) Monitoring: • Inspect inlets and outlets for blockages or silt accumulation (monthly or after a heavy storm)	
	Rainwater harvesting water butt	Regular maintenance: • Clean tank, inlets, outlets, gutters, roof drain filters and withdrawal devices (annually or as required) • Empty water butt and clean interior, removing any sludge, algea or sediments (annually or as required) Monitoring: • Inspect tank for debris and sediment build up (annually and following poor performance) • Inspect inlets, outlets and overflow (annually and following poor performance)	

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Rev	Date	Detail	Drwn	Chkd
P01	01.05.24	Initial issue	DS	MG

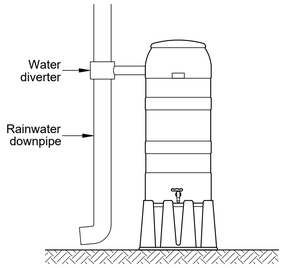
Client:
Bajit Singh Takhar

Project:
Swakeleys Road

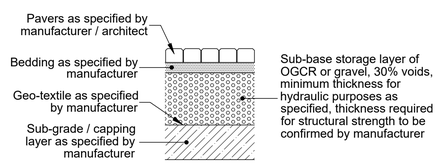
Drawing Title:
Management and Maintenance Plan

GeoSmart Information
Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU

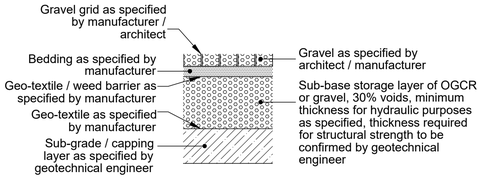
Drawn by:	Checked by:	Date:
DS	MG	May 2024
Scale: N.T.S		Status: Preliminary
Drawing No: 82019 101		Issue: P01



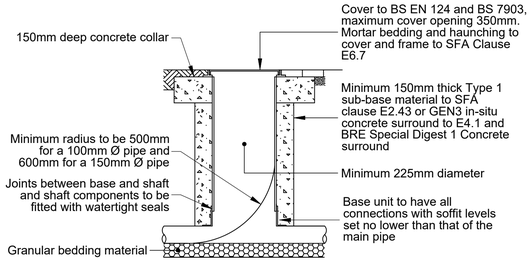
Typical Rain Water Harvest Butt



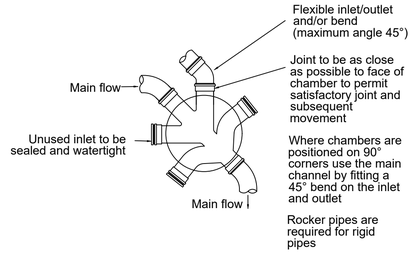
Typical Permeable Paving Detail



Typical Gravel with Grid Paving Detail

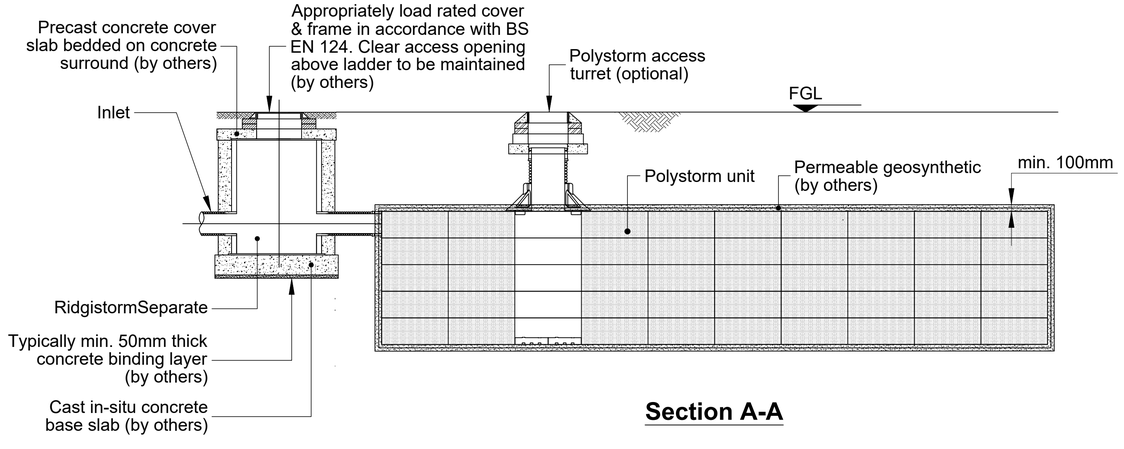


Typical Inspection Chamber
(Driveways, paved areas)

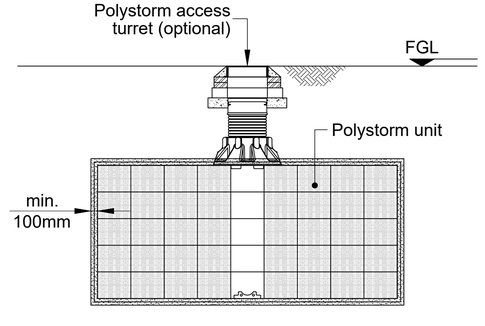


Typical base layout of Type 3 chambers

Typical Soakaway Tank - Plan View



Section A-A



Section B-B

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P01	01.05.24	Initial issue	DS	MG

Client:
Bajit Singh Takhar

Project:
Swakeleys Road

Drawing Title:
Proposed Drainage Details

GeoSmart Information
Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU

Drawn by:	Checked by:	Date:
DS	MG	May 2024
Scale: N.T.S		Status: Preliminary
Drawing No: 82019 102		Issue: P01

2 Site analysis

Site location

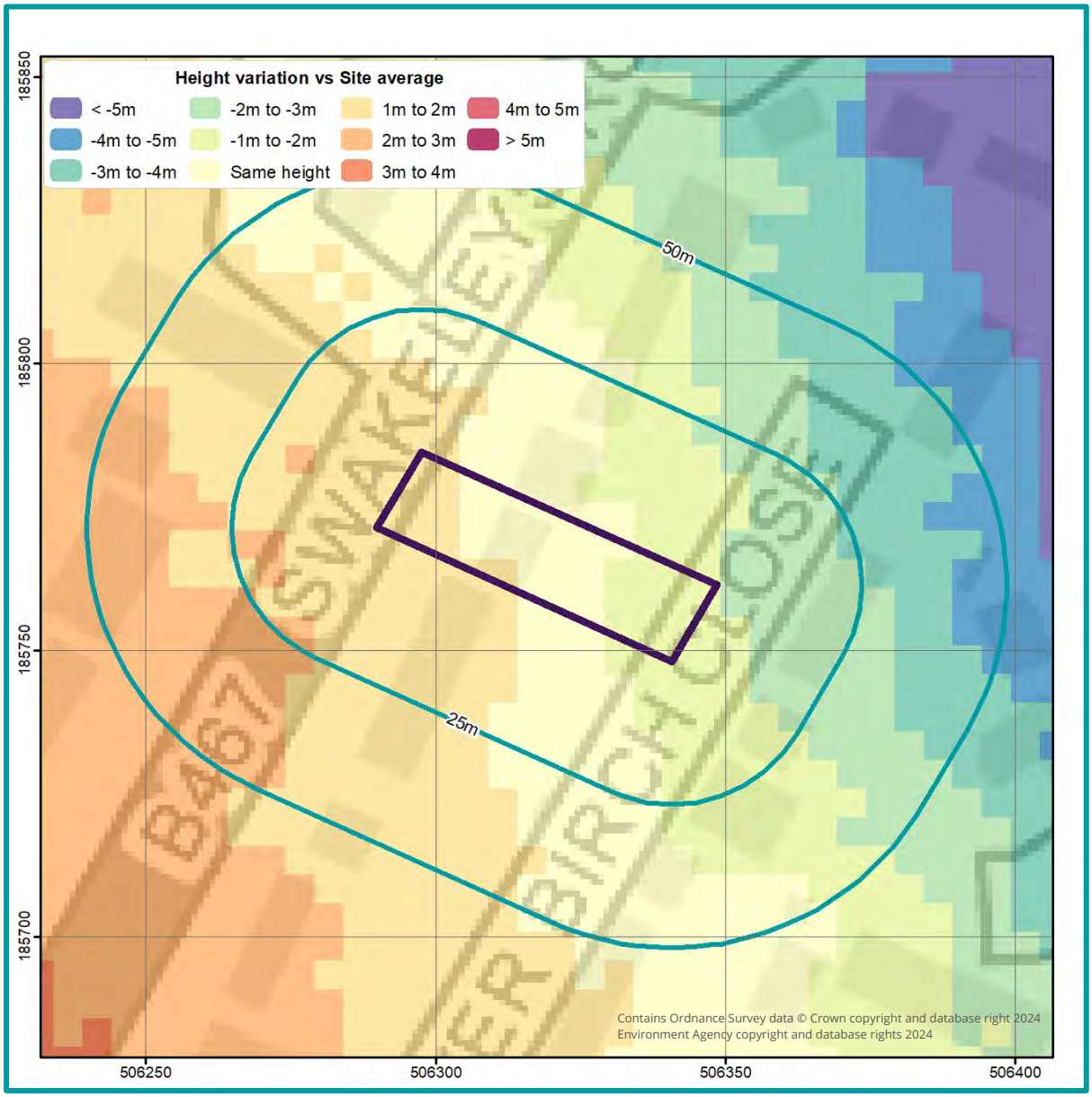
Figure 1. Aerial Imagery (Bluesky, 2024)

Figure 2. SuDS infiltration suitability (SD50) map (GeoSmart, 2024)

The GeoSmart SuDS Infiltration Suitability Map (SD50) screens the potential for infiltration drainage at the Site and indicates where further assessment is recommended. The map combines information on the thickness and permeability of the underlying material and the depth to the high groundwater table. It supports conceptual Site drainage design and the planning of further Site investigation.

There is a Moderate to High potential for infiltration SuDS across the Site. It is likely that the underlying geology at the Site is of varied permeability and an infiltration SuDS scheme could be possible at the Site.

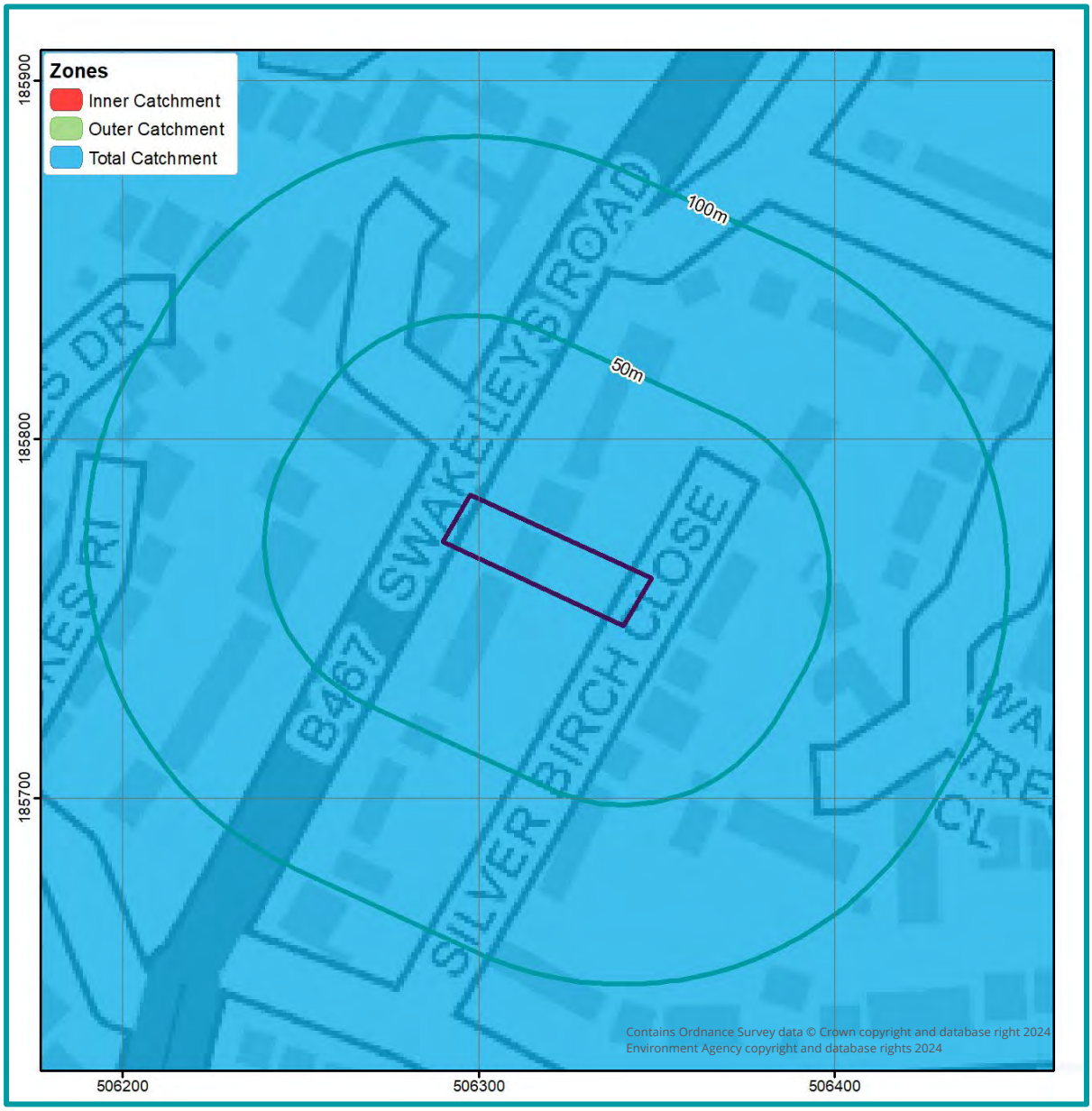
Figure 3. Site topography (GeoSmart, 2024)



An assessment of the topography at the Site has been undertaken using LiDAR DTM5 elevation data to identify the general slope and any localized depressions. The mapping shows a comparison between average ground levels on the Site with ground levels in the surrounding area. The mapping confirms the overall Site is generally on a gradual slope falling towards the east.

Further analysis could be undertaken by visiting the Site or by collecting additional topographic survey to provide further confirmation of ground levels.

Figure 4. Source protection zone map (EA, 2024)



An assessment of the EA's groundwater Source Protection Zones (SPZs) has been undertaken within the vicinity of the Site and confirms the Site lies within a total groundwater Source Protection Zone (SPZ III).

Infiltration, if possible, is likely to be acceptable providing risk screening identifies suitable mitigation measures, if required, to prevent an impact on water quality from the proposed or historical land use and contaminated land.

If further analysis is required, this would involve a review of Site specific contaminated land data. If hazards are identified, it is recommended that the Local Authority and the Environment Agency are contacted to confirm the susceptibility of any SPZs within the wider area.

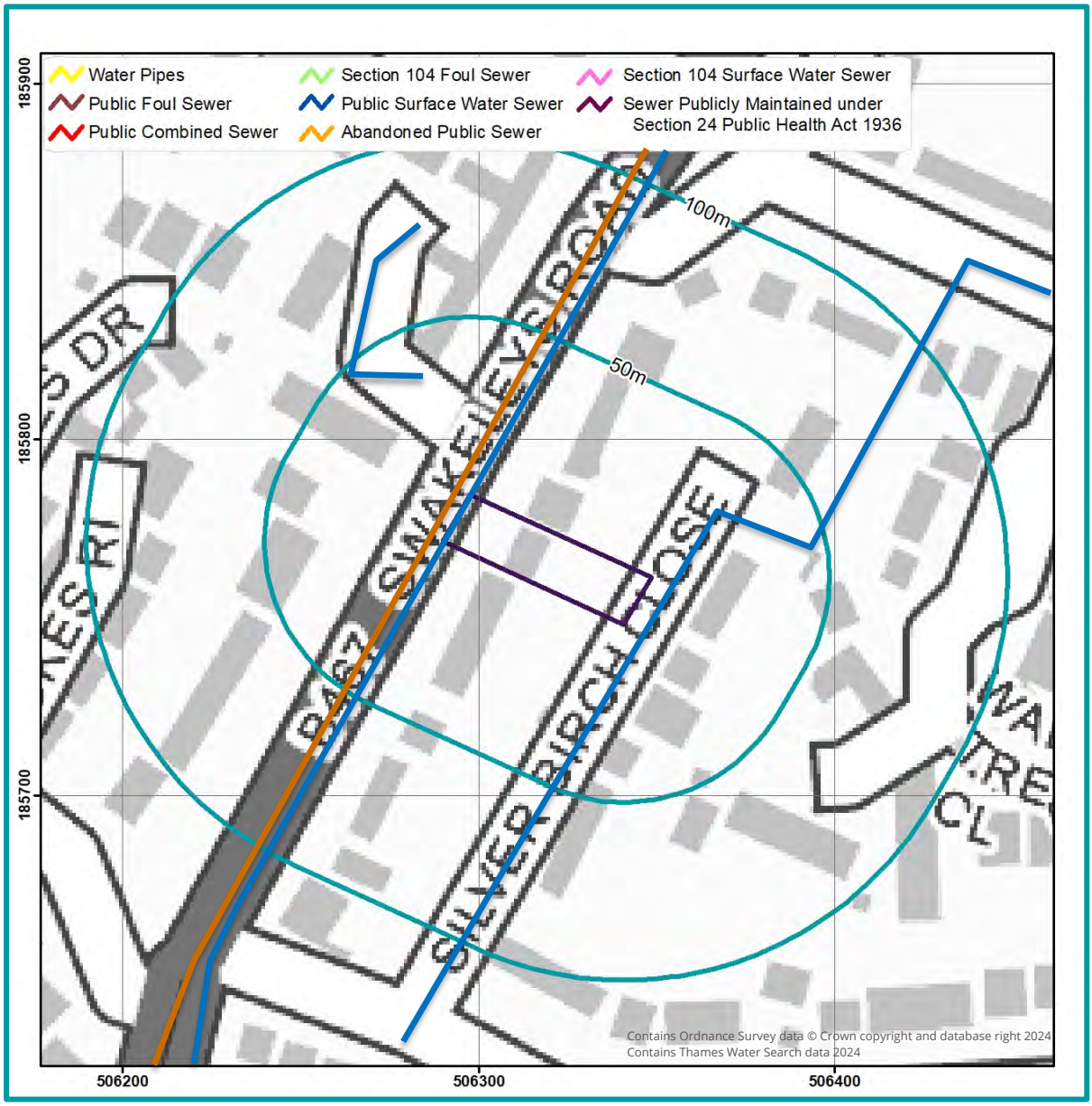
Figure 5. Surface water features map (EA, 2024)

The mapping above confirms that there are no surface water feature within 100 m of the Site. Therefore, discharge to surface water is unlikely to be appropriate.

According to DEFRA's MagicMap, the Site is not within 250m of a SSSI or SPA.

Further analysis could be undertaken by visiting the Site or by contacting the Local Council and the Environment Agency (EA) to confirm the presence, location and condition of any mapped or additional unmapped surface water features.

Figure 6. Sewer features map (OS & Thames Water, 2024)



GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. The Asset location plan (Appendix C) confirms that there is a public surface water sewer, located adjacent to the west and east of the Site, therefore discharge to sewer is likely to be feasible.

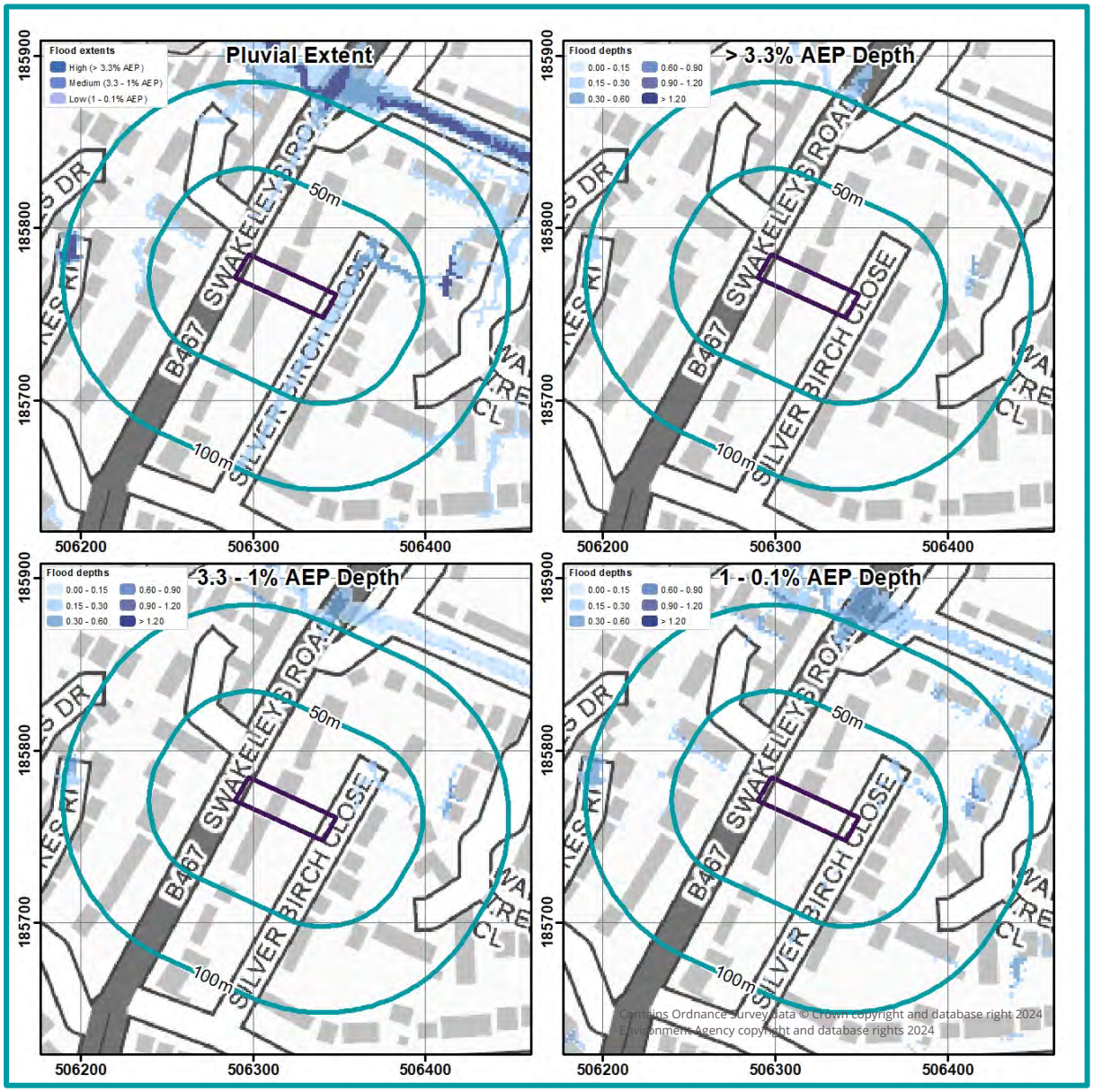
Further analysis of the connections and condition of the public surface water drainage system should be undertaken by carrying out a CCTV survey or by contacting the drainage provider or the Local Council to confirm the presence, location and condition of the sewer. Consultation with the drainage provider would also be required to determine that sufficient capacity is available to accept the proposed discharge, and to gain permission to connect if required.

Where development is proposed above or within close proximity to the public sewer network, a build-over agreement or easement may be required with the relevant utility provider.

Figure 7. Risk of flooding from rivers & sea map (EA, 2024)

According to the EA's Risk of Flooding from Rivers and the Sea (RoFRS) map, the Site has a Very Low risk of flooding from fluvial or coastal flooding, with less than 0.1% annual probability of flooding, therefore the SuDS design is unlikely to be affected.

Figure 8. Risk of surface water flooding map (EA, 2024)



GeoSmart have undertaken an assessment of the risk of flooding from surface water (pluvial) sources within the vicinity of the Site using the EA's Risk of Flooding from Surface Water (RoFSW) mapping.

The above map shows the extent and depth of flooding during the >3.3% annual probability (AEP) (1 in 30 year – High risk), 3.3 – 1% AEP (1 in 100 year – Medium risk) and 1 – 0.1% AEP (1 in 1000 year – Low risk) events. This confirms that there are no areas of the Site which would be affected by surface water flooding.

Further analysis could be undertaken by visiting the Site or by contacting the Local Council and the Environment Agency to confirm the pluvial flood risk, flood depths and velocities where applicable.

Figure 9. Groundwater flood risk (GW5) map (GeoSmart, 2024)

GeoSmart have undertaken an assessment of the risk of flooding from groundwater within the vicinity of the Site. GeoSmart's Groundwater Flood Risk Screening (GW5) map confirms the Site has a Negligible risk of groundwater flooding during a 1% annual probability (1 in 100 year) event.

3 Site context

Site information

The purpose of this report is to assess the potential for disposing of surface water through a Sustainable Drainage System (SuDS) for the site of 265 Swakeleys Road, Ickenham, Uxbridge, UB10 8DR (the Site). The Site is located to the west of Ickenham in a setting of commercial and residential use. The land slopes to the east from 58.82 mAOD to 56.66 mAOD. This is based on EA elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ±150 mm. Site plans and drawings are provided in Appendix A.

Development

The Site is currently used within a residential capacity. At present there is a single building with car park and landscaped areas. Development proposals comprise the construction of a replacement dwelling and 3 car parking spaces in the east, while keeping the existing landscaped areas to the rear (west) of the Site.

Geology, permeability and thickness

British Geological Survey (BGS) national superficial and bedrock geology mapping confirms the geological formations underlying the Site and each formation may have a range of permeability.

Table 1. Site Geology

Geology present on-Site		Potentially permeable?
Superficial geology (Figure 11)	Black Park Gravel (BPGR)	✓
Bedrock geology (Figure 12)	London Clay Formation (LC)	X

The permeability of the underlying material at the Site shown within the BGS mapping is variable ranging from high to moderate and confirmation of the infiltration capacity is recommended.

The BGS website was used to extract ground information from the nearest borehole records to the Site (ref: TQ08NE26, TQ08NE29, TQ08NE28 and TQ08NE30). These boreholes are located approximately 250m to the southwest of the Site. Despite their distance from the Site, they are still the closest and most relevant boreholes to the Site, as they are situated within the same mapped superficial and bedrock geology as the Site.

The nearest and most relevant borehole (ref: TQ08NE29) is located approximately 250m to the south east of the Site at an elevation of 62.10 mAOD and indicates the underlying geology is comprised of Made Ground to a depth of 0.85 m below ground level (bgl), overlying sand and gravel to a depth of 1.50m bgl, overlying sandy flint gravel to a depth of 4.85m bgl, overlying London Clay to a depth of 28.30m bgl, overlying Woolwich and Reading Beds to a depth of 30.00m bgl, where the borehole ends.

The second nearest and most relevant borehole (ref: TQ08NE26) is located approximately 250m to the south east of the Site at an elevation of 61.20 mAOD and indicates the underlying geology consists of Topsoil to a depth of 0.10m bgl, overlying sandy silty clay to a depth of 1.80m bgl, overlying sandy flint gravel to a depth of 2.70m bgl, overlying London Clay to a depth of 27.80m bgl, overlying Woolwich and Reading Beds to a depth of 29.20m bgl, where the borehole ends.

The third nearest and most relevant borehole (ref: TQ08NE30) is located approximately 250m to the south east of the Site at an elevation of 62.20 mAOD and indicates the underlying geology consists of Made Ground to a depth of 0.85m bgl, overlying sandy gravel to a depth of 4.05m bgl, overlying London Clay to a depth of 27.00m bgl, overlying Woolwich and Reading Beds to a depth of 30.00m bgl, where the borehole ends.

The fourth nearest and most relevant borehole (ref: TQ08NE28) is located approximately 250m to the south east of the Site at an elevation of 61.00 mAOD and indicates the underlying geology consists of Topsoil to a depth of 0.25m bgl, overlying sandy silty clay to a depth of 0.80m bgl, overlying sandy flint gravel to a depth of 4.05m bgl, overlying London Clay to a depth of 28.45m bgl, overlying Woolwich and Reading Beds to a depth of 30.00m bgl, where the borehole ends.

Infiltration SuDs are proposed directly into permeable superficial deposits.

The soil infiltration coefficient must be sufficient to accommodate the constraints on the dimensions of the soakaway and its emptying time.

Figure 10. Superficial Geology (BGS, 2024)

Depth to groundwater

The SuDS system should be designed to operate in periods of extreme groundwater levels.

According to borehole data and GeoSmart's Groundwater Flood Risk (GW5) map, shallow groundwater is unlikely to be an issue at the Site.

The base of the infiltration system needs to be 1 m above the expected seasonal high-water table. Passage through unsaturated soil is important for improving the quality of infiltrating water before it reaches the water table.

Figure 11. Bedrock Geology (BGS, 2024)

Ground conditions

Infiltration SuDS are proposed within permeable superficial deposits above clay bedrock. A detailed review of underlying ground conditions is recommended to ensure focused infiltration does not result in the creation of shrink-swell clays.

Soakaways should be a minimum of 5m away from the foundations of a building and local guidance may recommend a greater distance, such as 10m on some areas of the Chalk.

Water quality

The Site lies within an SPZ, therefore consultation with the Local Authority and assessment of historical land uses should be undertaken to confirm the presence of contaminated material; as this could limit the use of infiltration SuDS

Infiltration systems should not be used where there is a risk of contaminating groundwater by infiltrating polluted runoff or where receiving groundwater is particularly sensitive.

The influence of surface runoff on water quality will depend on whether there is a source of contamination on-Site and the sensitivity of the receiving environment, either groundwater or surface water. The intervening pathway from source to receptor including mitigation and natural attenuation will determine the final impact.

The impact of contaminants on the groundwater will be reduced by travel and natural attenuation through the unsaturated soil zone. A greater depth of unsaturated zone and the presence of significant clay and organic material will provide greater protection for the underlying groundwater. Rapid flow through fractures will provide less protection than intergranular flow around soil and rock particles.

4 National & local policy context

National Guidance

CIRIA SuDS Manual (C753) (2015)

A development should utilise sustainable drainage systems (SUDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy:

1. Use infiltration techniques, such as porous surfaces in non-clay areas,
2. attenuate rainwater in ponds or open water features for gradual release,
3. attenuate rainwater by storing in tanks or sealed water features for gradual release,
4. discharge rainwater direct to a watercourse,
5. discharge rainwater to a surface water sewer / drain,
6. discharge rainwater to the combined sewer.

Defra - Sustainable Drainage Systems: Non-statutory technical standards for sustainable drainage systems (2015)

Peak Flow control

For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event.

Volume control

Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event. The runoff volume must be discharged at a rate that does not adversely affect flood risk.

The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the Site for a 1 in 30 year rainfall event.

Ministry of Housing, Communities & Local Government – National Planning Practice Guidance: Flood risk assessments: climate change allowances (2022)

The Peak rainfall intensity allowances section provides advice on the increased rainfall effects on river levels and land and urban drainage systems. As of May 2022, the applicable climate change allowance is defined by specific Management Catchment for the 1 in 30 (≥ 3.3% AEP) and 1 in 100 (< 3.3 to 1% AEP) year event.

As the Site is located within the Colne Management Catchment the following climate change allowances are applicable.

Table 2. Colne Management Catchment peak rainfall allowances

Colne Management Catchment	3.3% Annual exceedance rainfall event		1% Annual exceedance rainfall event	
	2050s	2070s	2050s	2070s
Central	20%	25%	20%	25%
Upper end	35%	35%	40%	40%

The drainage system should be designed to make sure there is no increase in the rate of runoff discharged from the Site for the upper end allowance.

Where on-Site flooding for the upper end allowance presents a significant flood hazard (for example, depths and velocities of surface water runoff cause a significant danger to people), you will need to take further mitigation measures to protect people and property (for example, raising finished floor levels). As a minimum, there should be no significant flood hazard to people from on-Site flooding for the central allowance.

Sub-national Drainage Policy

London Plan - Policy SI13 Sustainable drainage (2021)

Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water run-off outside these areas also need to be identified and addressed. Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:

- Rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation);
- Rainwater infiltration to ground at or close to source;

- Rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens);
- Rainwater discharge direct to a watercourse (unless not appropriate);
- Controlled rainwater discharge to a surface water sewer or drain;
- Controlled rainwater discharge to a combined sewer.

Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.

Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity and recreation.

Development proposals should aim to get as close to greenfield run-off rates as possible depending on site conditions. The well-established drainage hierarchy set out in this policy helps to reduce the rate and volume of surface water run-off. Rainwater should be managed as close to the top of the hierarchy as possible. There should be a preference for green over grey features, and drainage by gravity over pumped systems. A blue roof is an attenuation tank at roof or podium level; the combination of a blue and green roof is particularly beneficial, as the attenuated water is used to irrigate the green roof.

For many sites, it may be appropriate to use more than one form of drainage, for example a proportion of rainwater can be managed by more sustainable methods, with residual rainwater managed lower down the hierarchy. In some cases, direct discharge into the watercourse is an appropriate approach, for example rainwater discharge into the tidal Thames or a dock. This should include suitable pollution prevention filtering measures, ideally by using soft engineering or green infrastructure. In addition, if direct discharge is to a watercourse where the outfall is likely to be affected by tide-locking, suitable storage should be designed into the system. However, in other cases direct discharge will not be appropriate, for example discharge into a small stream at the headwaters of a catchment, which may cause flooding. This will need to be assessed on a case-by-case basis, taking into account the location, scale and quality of the discharge and the receiving watercourse. The maintenance of identified drainage measures should also be considered in development proposals.

London Plan - Sustainable design and Construction SPG: Section 3.4.9 (2014)

Most developments have been able to achieve at least 50% attenuation of the site's (prior to re-development) surface water runoff at peak times. This is the minimum expectation from development proposals.

On previously developed sites, runoff rates should not be more than three times the calculated greenfield rate. The only exceptions to this, where greater discharge rates may be acceptable, are where a pumped discharge would be required to meet the standards or where surface water drainage is to tidal waters and therefore would be able to discharge at unrestricted rates provided unacceptable scour would not result.

Discharge to surface water course/sewer

There may be situations where it is not appropriate to discharge at greenfield runoff rates. These include, for example, sites where the calculated greenfield runoff rate is extremely low and the final outfall of a piped system required to achieve this would be prone to blockage.

Local Policy

Hillingdon Council Local Plan: Part 1 Strategic Policies (2012)

Surface and Foul Water Drainage

8.87- The mismanagement of surface water flooding can also result in the increased risk of flooding. Sewage and drainage systems struggle to keep pace with the rate of development. The unchecked loss of natural drainage areas through increased hardstanding puts significant pressure on drainage systems, particularly in times of heavy rain. As development progresses and/or urban areas expand these systems become inadequate for the volumes and rates of storm water they receive, resulting in increased flood risk and/or pollution of watercourses. Allied to this are the implications of climate change on rainfall intensities, leading to flashier catchment/ site responses and surcharging of piped systems.

8.88- The impacts of climate change will add to the pressure on the drainage systems and it is therefore essential that all new development is managed to minimise the problems.

8.89- The management of surface water drainage for new development comes in the form of Sustainable Urban Drainage Systems (SUDS). These seek to manage storm water as close to its source as possible, mimicking storm water flows arising from the site, prior to the proposed development. Typically this approach involves a move away from piped systems to softer engineering solutions inspired by natural drainage processes.

8.90- SUDS should be designed to take into account the surface run-off quantity, rates and also water quality ensuring their effective operation up to and including the 1 in 100 year design standard flood including an increase in peak rainfall of up to 30% to account for climate change.

8.91- SUDS come in a variety of different types, from infiltration techniques through to water harvesting. Wherever possible, a SUDS technique should seek to contribute to each of the three goals identified below with the favoured system contributing significantly to each objective. Where possible SUDS solutions for a site should seek to:

- Reduce flood risk (to the site and neighbouring areas);
- Reduce pollution; and
- Provide landscape and wildlife benefits.

Hillingdon SuDS Design and Evaluation Guide (McCloy Consulting, 2018)

Sustainable drainage requirements and SuDS

- Calculations must adhere to the revised Environment Agency guidance on climate change produced in Jan 2016. This requires storage to control surface water on site to be provided for up to the 1 in 100 year event plus 20 percent for commercial premises and storage for the 1 in 100 year plus 40 percent for residential development.
- Calculations should be provided to demonstrate water is controlled to greenfield runoff rates, at a variety of return periods.
- We expect a likely discharge rate of 1-2 l/s/ha. A 5 l/s rate should not be used as a minimum, as flow control devices have evolved to allow smaller discharge rates.

5 Storage, volume and peak flow rate

Suggested minimum and aspirational storage requirements for an infiltration or attenuation SuDS scheme for the development footprint are set out below, with more detail provided in subsequent sections. Storage volumes may be reduced (but not below the minimum level) if the design incorporates off-Site discharge.

Table 3. Storage requirements at the proposed development Site (Discharge runoff via infiltration)

Attenuation scenario		Attenuation required (m^3)	Explanation
Discharge runoff via infiltration	1 in 100 year including 40% CC	13.68	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 100 year event including a 40% allowance for climate change. This is based on an assumed infiltration rate of $1x10^{-5}$ m/s (0.036 m/hr), the worst case infiltration rate for sand as per the Ciria SuDS Manual*.

*Subject to confirmation through infiltration testing.

Surface water runoff

An increase in impermeable area on-Site will result in greater rainfall runoff. Reduction in runoff will help mitigate flood risk both on and off-Site. Further information on the surface water runoff calculations is provided in Section 12 'Background Information'.

Guidance

The Non-Statutory Technical Guidance for SuDS (Defra, March 2015) states:

"Where reasonably practicable, for Greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the Greenfield runoff volume for the same event. Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the Greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event."

Table 4. Change in impermeable area associated with the development

Total Site area	852 m^2
Impermeable area (and as a percentage of the total area of the proposed development footprint of 852 m^2)	
Pre-development	Post-development
300 m^2 (35%)	189m^2 (22%)
Impermeable land use: building rood and paved areas Permeable land use: landscaped areas	New impermeable land use: 189 m^2 building roof New permeable land use: 236 m^2 of permeable paving & 413 m^2 of soft landscaping.

Guidance

"The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30 year rainfall event' and 'flooding does not occur during a 1 in 100 year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development"

(Defra, March 2015, non-statutory guidance).

Peak discharge rates

The table below presents peak discharge rates for a range of storm events used to assess the impact of the proposed development and select the maximum permitted discharge rate. Further information on the calculation and control of peak discharge rates is provided in Section 12 'Background Information'.

Table 5. Peak discharge rates associated with the development

Rainfall event	Greenfield runoff rates (l/s)	Existing runoff rates[1] (l/s)	Potential runoff rates without attenuation (l/s)	Potential minus existing (l/s)
QBAR	0.37	N/A	N/A	N/A
6 hour 1 in 1 year	0.32	0.66	0.74	0.08
6 hour 1 in 10 year	0.61	1.14	1.27	0.13
6 hour 1 in 30 year	0.84	1.48	1.66	0.18
6 hour 1 in 100 year	1.19	1.93	2.16	0.23
6 hour 1 in 100 year + 20% CC	N/A	N/A	2.59	0.66
6 hour 1 in 100 year + 40% CC	N/A	N/A	3.02	1.09

[1] Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the IoH124 method.

Relevant national, regional and local planning policy has been consulted in Section 4 to determine restrictions on runoff from previously developed and greenfield sites. In some cases, greenfield rates may be requested, but in practice it is difficult to restrict discharge rates at any one control point to less than 2 l/s, without increasing the risk of any potential blockages occurring in the drainage network.

Total discharge volumes

The table below presents discharge volumes for a range of storm events used to assess the impact of the proposed development and calculate the required storage volumes. Further information on the calculation of total discharge volumes is provided in Section 11 'Methodology and Limitations'.

Table 6. Total discharge volumes associated with the development

Rainfall event	Greenfield runoff volume (m^3)	Existing runoff volume[2] (m^3)	Potential runoff volume without attenuation (m^3)	Potential minus existing (m^3)
QBAR	11.04	N/A	N/A	N/A
6 hour 1 in 1 year	10.28	14.36	16.06	1.70
6 hour 1 in 10 year	17.85	24.58	27.39	2.80
6 hour 1 in 30 year	22.89	31.97	35.76	3.79
6 hour 1 in 100 year	29.82	41.66	46.59	4.93
6 hour 1 in 100 year + 20% CC	N/A	N/A	55.91	14.25
6 hour 1 in 100 year + 40% CC	N/A	N/A	65.22	23.57

[2] Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the IoH124 method.

6 Runoff destination

Options for the destination for the runoff generated on-Site have been assessed in line with the prioritisation set out in the Building Regulations Part H document (HM Government, published in 2010 and updated in 2015) and Defra's Non-statutory Technical Standards for SuDS (2015).

Flow attenuation using infiltration SuDS (discharge to ground) is generally the preferred option. If discharge to ground is not available, runoff discharge to surface water is the other preferred method. Only if these two options are impractical should discharge to the sewer network be considered.

Discharge to ground

The Site has moderate to high potential for infiltration, with permeable underlying gravel. Based on the available borehole information (subject to confirmation by site investigation) and groundwater flood risk mapping there is Negligible potential for occasional high groundwater levels at the Site.

There are no known issues identified relating to Site contamination, but the Site is located within a SPZ.

A site investigation comprising trial pits is recommended to confirm the depth to groundwater and allow infiltration tests to be undertaken to confirm the feasibility of an infiltration SuDS scheme.

Discharge to surface watercourse

There are no nearby surface water features to discharge to. Therefore, this discharge route has been deemed unfeasible and has not been considered.

Discharge to sewer

GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. There is a public surface water sewer, located adjacent to the west and east of the Site, therefore discharge to sewer is likely to be appropriate.

Discharge to sewer is not likely to be the optimum sustainable drainage option for the new development area. If required consultation with the local sewer undertaker should be undertaken. Discharge to sewer would only be accepted if it can be demonstrated that none of the above options are reasonably practical. Discharge would have to be controlled and on-Site attenuation would be required.

The topographic gradient on the Site falls relatively shallowly from the west to the east. Therefore, it would likely be easier to drain the Site to the surface water sewer to the east.

7 Water quality

A key requirement of any SuDS system is that it protects the receiving water body from the risk of pollution. This can be effectively managed by an appropriate "train" or sequence of SuDS components that are connected in series. The frequent and short duration rainfall events are those that are most loaded with potential contaminants (silts, fines, heavy metals and various organic and inorganic contaminants). Therefore, the first 5-10 mm of rainfall (first flush) should be adequately treated with SuDS.

The minimum number of treatment stages will depend on the sensitivity of the receiving water body and the potential hazard associated with the proposed development SuDS Manual (CIRIA, 2015). The proposed development is a combination of very low (roof water) to low hazard (runoff from car parking and road). The Site does lie within an SPZ, however as the development is residential, additional treatment stages are not required.

Table 7. Level of hazard

Hazard	Source of hazard
Very Low	Residential roof drainage
Low	Residential, amenity uses including low usage car parking spaces and roads, other roof drainage.
Medium	Commercial, industrial uses including car parking spaces and roads (excluding low usage roads, trunk roads and motorways).
High	Areas used for handling and storage of chemicals and fuels, handling of storage and waste (incl. scrap-yards).

The recommended minimum number treatment stages suggested for the different runoff waters identified for the proposed development is highlighted in the table below.

Table 8. Minimum number of treatment stages for runoff

		Sensitivity of the receiving water body		
		Low	Medium	High
Hazard	Low	1	1	1
	Med	2	2	2
	High	3	3	3

8 Client checklist

A drainage strategy should now be compiled on the basis of the information provided. Prior to installation of the Site drainage system it is recommended that the client carries out the following checks to confirm the development proposals. GeoSmart would be able to support with any updates required to the drainage scheme, please contact us and we would be happy to provide you with a proposal to undertake the work.

Table 9. Potential SuDS limitations

Conditions in Non-Statutory Technical Standards (Defra, 2015), limitations to infiltration SuDS	Do these conditions arise at the Site?
Is the surface runoff greater than the rate at which water can infiltrate into the ground?	
Is there an unacceptable risk of ground instability?	
Is there an unacceptable risk of mobilising contaminants?	
Is there an unacceptable risk of pollution to groundwater?	
Is there an unacceptable risk of groundwater flooding?	
Is the infiltration system going to create a high risk of groundwater leakage to the combined sewer?	

Table 10. SuDS design considerations

Confirm that potential flooding on-Site in excess of the design storm event and exceedance flow routes have been considered.	
Review options for the control of discharge rates (e.g. hydrobrake).	
Confirm the owners/adopters of the drainage system. Consider management options for multiple owners.	
Is there an unacceptable risk of pollution to groundwater?	
Review access and way leave requirements.	
Review maintenance requirements.	

Health and safety considerations for SuDS

GeoSmart reports may include outline strategies or designs to support with development plans. Any drawings or advice provided do not comprise any form of detailed design. Implementation of any conceptual scheme options may constitute 'Construction Work' as defined by CDM Regulations (2015).

The CDM Regulations place specific Health and Safety duties on those commissioning, planning and undertaking construction works. If you are uncertain what this means you should seek the advice of your architect, builder or other competent professional.

GeoSmart does not provide health and safety advisory services but we are required to advise you of your general responsibilities under CDM (visit http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/ for more information).

Please remember that detailed design work should be undertaken by a competent professional who might be your engineer, architect, builder or another competent party.

9 Methodology and limitations of study

This report assesses the feasibility of infiltration SuDS and alternative drainage strategies in support of the Site development process. From April 6th 2015 SuDS are regulated by Local Planning Authorities and will be required under law for major developments in all cases unless demonstrated to be inappropriate. What is considered appropriate in terms of costs and benefits by the Planning Authority will vary depending on local planning policy, and Site setting. The Lead Local Flood Authority will require information as a statutory consultee on major planning applications with surface water drainage implications. The National Planning Policy Framework requires that new developments in areas at risk of flooding should give priority to the use of SuDS and demonstrate that the proposed development does not increase flood risk downstream to third parties.

How was the suitability of SuDS estimated for the Site?

There are a range of SuDS options available to provide effective surface water management that intercept and store excess runoff. When considering these options, the destination of the runoff should be assessed using the order of preference outlined in the Building Regulations Part H document (HM Government, 2010) and Defra's National Standards for SuDS (2015):

1. Discharge to the ground;
2. Discharge to a surface water body;
3. Discharge to a surface water sewer;
4. Discharge to a local highway drain; and
5. Discharge to a combined sewer.

Data sets relating to each of the potential discharge options have been analysed to assess the feasibility of each option according to the hierarchy set out above. Hydrogeological characteristics for the Site are assessed in conjunction with the occurrence of SPZ's to assess infiltration suitability. The Site has been screened to determine whether flood risk from groundwater, surface water, fluvial or coastal sources may constrain SuDS. The distance to surface water bodies and sewers has been reviewed gauge whether these provide alternative options.

GeoSmart SuDS Infiltration Suitability Map (SD50)

The GeoSmart SuDS Infiltration Suitability Map (SD50) screens the suitability for infiltration drainage in different parts of the Site and indicates where further assessment is recommended. In producing the SuDS Infiltration Suitability Map (SD50), GeoSmart used data from the British Geological Survey on groundwater levels, geology and permeability to screen

for areas where infiltration SuDS may be suitable. The map classifies areas into 3 categories of High, Medium and Low suitability for infiltration SuDS. This can then be used in conjunction with additional data on Site constraints to give recommendations for SuDS design and further investigation.

The primary constraint on infiltration potential is the minimum permeability of the underlying material and in some cases the range in permeability may be considerable, ranging down to low. The map classifies these areas as moderate infiltration suitability requiring further investigation. In cases where the thickness of the receiving permeable horizon is less than 1.5 meters then additional Site investigation is recommended. If the Site is at risk of groundwater flooding for up to the 1% annual occurrence the map classifies these areas as moderate infiltration suitability requiring further investigation.

The GeoSmart SuDS Infiltration Suitability Map (SD50) is a national screening tool for infiltration SuDS techniques but a Site specific assessment should be used before final detailed design is undertaken. Further information on the GeoSmart SuDS Infiltration Suitability Map (SD50) is available at geosmartinfo.co.uk

How is the suitability to discharge to sewers and watercourses calculated?

The suitability to discharge to discharge to sewers and watercourses has been calculated using the distance from the Site to both. For example, where the Site is within 50 m of a surface water body. Discharge to surface water is potentially appropriate subject to land access arrangements and a feasibility assessment. Where the Site is within 50 m of a sewer, discharge to sewer is potentially appropriate subject to land access arrangements and a feasibility assessment. The utility company should be contacted to agree connection feasibility and sewer capacity.

Further information relating to sewers available in the area can be found in Appendix C.

What is a Source Protection Zone?

The Environment Agency have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which is occasionally applied. The zones are used to set up pollution prevention measures in areas which are at a higher risk. The shape and size of a zone depends on the condition of the ground, how the groundwater is removed, and other environmental factors. Inner zone (Zone 1) is defined as the 50 day travel time from any point below the water table to the source (minimum radius of 50 metres). Outer zone (Zone 2) is defined by a 400 day travel time. Total catchment (Zone 3) is defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.

How was surface water runoff estimated from the Site?

In accordance with The SuDS Manual (C753) (CIRIA, 2015), the Greenfield runoff from the Site has been calculated using the IoH124 method and is assumed representative of the runoff generated on the undeveloped surfaces that are affected by the proposed development. The method used for calculating the runoff complies with the NPPF (MHCLG, 2023). For the impermeable surfaces, it has been assumed that 100% runoff will occur (calculations provided in Appendix B). Rainfall data is derived from the Flood Estimation Handbook (FEH), developed by NERC (2009). Only areas affected by the proposed development are considered in the flow and volume calculations. Permeable areas that remain unchanged are not included in the calculations as it is assumed these will not be actively drained and attenuated.

What is the peak discharge rate?

An estimation of peak runoff flow rate and volume is required to calculate infiltration, storage and discharge requirements. The peak discharge rate is the maximum flow rate at which surface water runoff leaves the Site during a particular storm event, without considering the impact of any mitigation such as storage, infiltration or flow control. Proposed discharge rates (with mitigation) should be no greater than existing rates for all corresponding storm events. If all drainage is to infiltration there will be no discharge off-Site. Discharging all flow from Site at the existing 1 in 100 event would increase flood risk during smaller events. Flow restriction is generally required to limit the final discharge from Site during all events as a basic minimum to the green field QBAR rate. A more complex flow restriction which varies the final discharge rate from the Site depending on the storm event will reduce the volume of storage required on-Site. Drainage to infiltration SuDS is subtracted from the total discharge off-Site to achieve a beneficial net affect.

What is the total discharge volume?

The total discharge volume is calculated on the basis of the surface water runoff that has the potential to leave the Site as a result of the assumed 6 hour duration design storm event. The runoff is related to the underlying soil conditions, impermeable cover, rainfall intensity and duration of the storm event. The total volume generated by the current Site is compared to the potential total volume from the developed Site (not taking into consideration any mitigation). The difference provides the minimum total volume that will need to be stored and infiltrated on-Site or released at a controlled rate. Guidance indicates that the total discharge volume should never exceed the runoff volume from the development Site prior to redevelopment for that event and should be as close as is reasonably practicable to the Greenfield runoff volume.

10 Background SuDS information

SuDS control surface water runoff close to where it falls. SuDS are designed to replicate, as closely as possible, the natural drainage from the Site before development to ensure that the flood risk downstream does not increase as a result of the Site being developed, and that the Site will have satisfactory drainage under current and likely future climatic conditions. SuDS provide opportunities to reduce the causes and impacts of flooding; remove pollutants from urban runoff at source; and combine water management with green space with benefits for amenity, recreation and wildlife. Government planning policy and planning decisions now include a presumption in favour of SuDS being used for all development Sites, unless they can be shown to be inappropriate.

For general information on SuDS see our website: http://geosmartinfo.co.uk/

Infiltration SuDS

Government policy for England is to introduce sustainable drainage systems (SuDS) via conditions in planning approvals. Guidance indicates that capturing rainfall runoff on-Site and infiltrating it into the ground (infiltration SuDS) is the preferred method for managing surface water without increasing flood risk downstream.

The greatest benefit to general flood risk is if all runoff is infiltrated on-Site, however, this may not be feasible due to physical and economic constraints in which case infiltration may be considered as a part of an integrated drainage solution. The final design capacity for an infiltration SuDS system depends on the Site constraints and the requirements of the individual Planning Authority and the Lead Local Flood Authority.

The capacity of the ground to receive infiltration depends on the nature, thickness and permeability of the underlying material and the depth to the high groundwater table. The final proportion of the Site drained by infiltration will depend on topography, outfall levels and a suitable drainage gradient. It is important to note that, even if the whole Site cannot be drained by infiltration, the use of partial infiltration is encouraged, with the remainder of runoff discharged via other SuDS systems.

Types of infiltration SuDS

Infiltration components include infiltration trenches, soakaways, swales and infiltration basins without outlets, rain gardens and permeable pavements. These are used to capture surface water runoff and allow it to infiltrate (soak) and filter through to the subsoil layer, before returning it to the water table below.

An infiltration trench is usually filled with permeable granular material and is designed to promote infiltration of surface water to the ground. An infiltration basin is a dry basin or depression designed to promote infiltration of surface water runoff into the ground. Soakaways are the most common type of infiltration device in the UK where drainage is often connected to over-sized square or rectangular, rubble-filled voids sited beneath lawns.

According to the guidance in Building Research Establishment (BRE) Digest 365 (2016) a soakaway must be able to discharge 50% of the runoff generated during a 1 in 10 year storm event within 24 hours in readiness for subsequent storm flow. This is the basic threshold criteria for a soakaway design and the internal surface area of the proposed soakaway design options should be calculated on this basis by taking into account the soil infiltration rate for the Site.

Developers need to ensure their design takes account of the construction, operation and maintenance requirements of both surface and subsurface components, allowing for any machinery access required.

SuDS maintenance and adoption

Regular maintenance is essential to ensure effective operation of the soakaway(s) over the intended lifespan of the proposed development. A maintenance schedule for SuDs is required. Sewerage undertakers or Local Authorities may adopt SuDS and will require maintenance issues to be dealt with in accordance with their Management Plan. If the SuDS will not be adopted other provision is required with associated financial implications. Maintenance is a long-term obligation requiring the upkeep of all elements of the SuDS, including mechanical components (e.g. pumps), as well as inspections, regular maintenance and repair.

Additional background SuDS information can be found on our website: http://geosmartinfo.co.uk/

11 Further information

The following table includes a list of additional products by GeoSmart:

Additional GeoSmart Products			
✓	Additional assessment: FloodSmart Report		The FloodSmart Report range provides clear and pragmatic advice regarding the nature and potential significance of flood hazards which may be present at a Site. Our consultants assess available data to determine the level of risk based on professional judgement and years of experience. Please contact info@geosmartinfo.co.uk for further information.
	Additional assessment: EnviroSmart Report		Provides a robust desk-based assessment of potential contaminated land issues, taking into account the regulatory perspective. Our EnviroSmart reports are designed to be the most cost effective solution for planning conditions. Each report is individually prepared by a highly experienced consultant conversant with Local Authority requirements. Ideal for pre-planning or for addressing planning conditions for small developments. Can also be used for land transactions. Please contact info@geosmartinfo.co.uk for further information.

12 References and glossary

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GeoSmart Information

Glossary

General terms

Attenuation	Reduction of peak flow and increased duration of a flow event.
Combined sewer	A sewer designed to carry foul sewage and surface water in the same pipe.
Detention basin	A vegetated depression, normally is dry except after storm events, constructed to store water temporarily to attenuate flows. May allow infiltration of water to the ground.
Evapotranspiration	The process by which the Earth's surface or soil loses moisture by evaporation of water and by uptake and then transpiration from plants.
FEH	Flood Estimation Handbook, produced by Centre for Ecology and Hydrology, Wallingford (formerly the Institute of Hydrology).
Filter drain or trench	A linear drain consisting of a trench filled with a permeable material, often with a perforated pipe in the base of the trench to assist drainage, to store and conduct water, but may also be designed to permit infiltration.
First flush	The initial runoff from a site or catchment following the start of a rainfall event. As runoff travels over a catchment it will collect or dissolve pollutants, and the "first flush" portion of the flow may be the most contaminated as a result. This is especially the case for intense storms and in small or more uniform catchments. In larger or more complex catchments pollution.
Flood plain	Land adjacent to a watercourse that would be subject to repeated flooding under natural conditions (see Environment Agency's Policy and practice for the protection of flood plains for a fuller definition).
Greenfield runoff	This is the surface water runoff regime from a site before development, or the existing site conditions for brownfield redevelopment sites.
Impermeable surface	An artificial non-porous surface that generates a surface water runoff after rainfall.
Permeability	A measure of the ease with which a fluid can flow through a porous medium. It depends on the physical properties of the medium, for example grain size, porosity and pore shape.

Runoff	Water flow over the ground surface to the drainage system. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense.
Sewerage undertaker	This is a collective term relating to the statutory undertaking of water companies that are responsible for sewerage and sewage disposal including surface water from roofs and yards of premises.
Soakaway	A subsurface structure into which surface water is conveyed to allow infiltration into the ground.
Treatment	Improving the quality of water by physical, chemical and/or biological means.

The terms included in this glossary have been taken from CIRIA (2015) guidance.

GeoSmart Information

Data Sources

Aerial Photography	Contains Ordnance Survey data © Crown copyright and database right 2024 BlueSky copyright and database rights 2024
Bedrock & Superficial Geology	Contains British Geological Survey materials © NERC 2024 Ordnance Survey data © Crown copyright and database right 2024
Flood Risk (RoFRS/Pluvial/Surface Water Features/SPZ)	Environment Agency copyright and database rights 2024 Ordnance Survey data © Crown copyright and database right 2024
Flood Risk (Groundwater) and SuDS infiltration suitability (SD50)	GeoSmart, BGS & OS GW5 (v2.4) Map (GeoSmart, 2024) Contains British Geological Survey materials © NERC 2024 Ordnance Survey data © Crown copyright and database right 2024
Sewer Location	Contains Ordnance Survey data © Crown copyright and database right 2024 Contains Thames Water Asset Plan Search data 2024
Topographic Data	OS LiDAR/EA Contains Ordnance Survey data © Crown copyright and database right 2024 Environment Agency copyright and database rights 2024

13 Appendices

GeoSmart Information

Appendix A

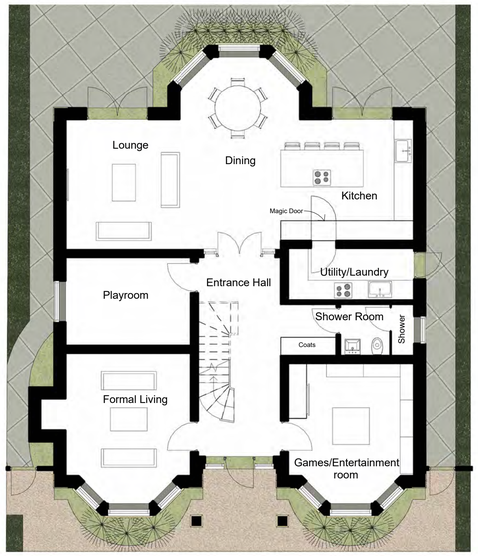
Site plans

Scale: 100 0 1m 2 3 4 5 6 7 8 9 10m

Scale: 50 0 1m 2 3 4 5m

Scale: 200 0 2m 4 6 8 10 12 14 16 18 20m

Scale: 20 0 0.2 0.4 0.6 0.8 1m 1.2 1.4 1.6 1.8 2m



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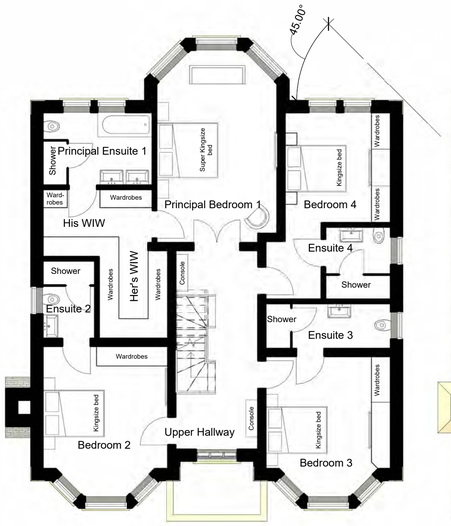
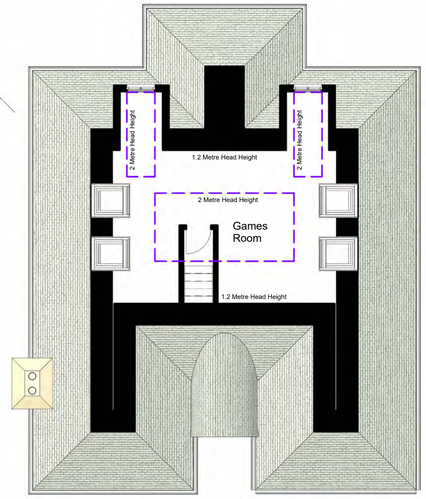
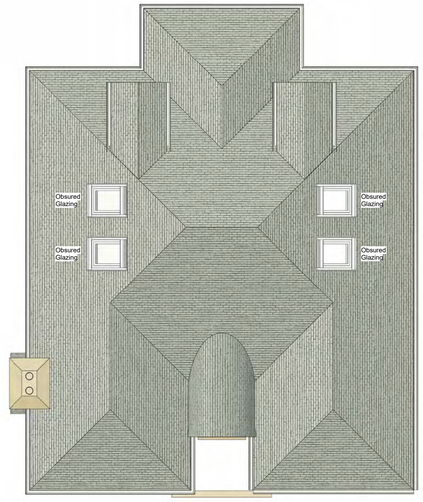


02 First Floor FFL
1 : 100



03 Second Floor FFL
1 : 100



04 Roof Plan
1 : 100

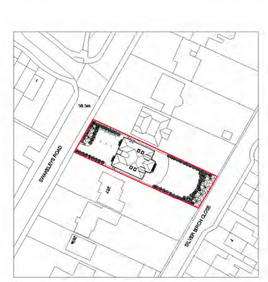
Proposed Site Plan
1 : 500

Front Elevation
1 : 100

Side Elevation 1
1 : 100

Rear Elevation
1 : 100

Side Elevation 2
1 : 100



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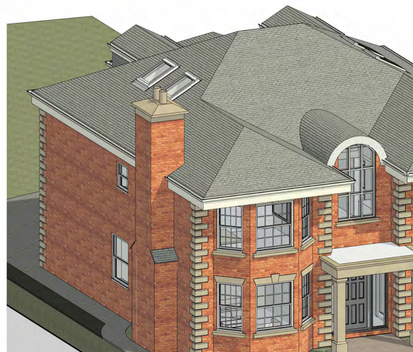
Proposed Location Plan
1 : 1250



3D Front View

3D Rear View

Longitudinal Section
1 : 100

Cross-Sectional Section
1 : 100

Scale: 500 0 5m 10 15 20 25 30 35 40 45 50m

Scale: 1250 0 10m 20 30 40 50 60 70 80 90 100m

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RTPI Chartered Town Planner
IN PARTNERSHIP WITH LABC

SUBMISSION/ REFERENCE	Planning
DRAWING TITLE	Replacement Dwelling
CLIENT/ JOB ADDRESS	265 Swakeleys Road, Ickenham, Uxbridge, UB10 8DR
SHEET TITLE	Planning

Rev	Description	Date

DRAWN BY DV	**CHECKED BY** MS	**DATE** 28/09/23
SCALE (@ A1) As indicated	**PROJECT NUMBER** SR 100	
DRAWING NUMBER 265/SR/PL/100		**REV**

1	STRUCTURAL AND BUILDING DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELATED DRAWINGS.	8	SOME AREAS OF EXISTING WORK HAVE BEEN ASSUMED. ALL ARE TO BE CHECKED ON-SITE BY MAIN CONTRACTOR AND ANY DISCREPANCIES REPORTED SO THAT ADJUSTMENTS CAN BE MADE TO THE STRUCTURAL SCHEME IF NECESSARY.
2	ALL DIMENSIONS TO BE CHECKED ON SITE AND ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORKS.	9	IT IS THE RESPONSIBILITY OF THE CLIENT TO ENSURE THAT THOSE UNDERTAKING THE WORKS ARE COMPETENT AND EXPERIENCED IN THE TYPE OF WORK TO BE UNDERTAKEN.
3	ENGINEERS DRAWINGS INDICATE STRUCTURAL ELEMENTS ONLY.	10	ALL PLANS SHOW STRUCTURE FOR FLOOR ABOVE
4	ALL EXISTING DETAILS AND DIMENSIONS INDICATED ON THIS DRAWING ARE FOR GUIDANCE ONLY AND ARE TO BE CHECKED ON SITE BY THE CONTRACTOR.	11	THAMES WATER (OR OTHER LOCAL WATER PROVIDER) BUILD OVER AGREEMENTS MAY BE REQUIRED. THIS IS SUBJECT TO A DRAINAGE INSPECTION AND MAY REQUIRE AN ADDITIONAL FEE, WHICH WILL BE PAYABLE TO THE WATER PROVIDER AND LANDMARK GROUP.
5	THE CONTRACTOR IS RESPONSIBLE FOR AND MUST TAKE NECESSARY PRECAUTIONS TO ENSURE THE STABILITY OF EXISTING STRUCTURES AND THE WORKS AT ALL TIMES DURING CONSTRUCTION. TEMPORARY SUPPORT MAY BE REQUIRED. RESPONSIBILITY FOR ALL TEMPORARY SUPPORT REMAINS WITH THE CONTRACTOR AT ALL TIMES.	12	PARTY WALL (ETC) ACT, 1996 TO BE AGREED WITH ADJOINING NEIGHBOURS PRIOR TO ALL WORK TO THE SATISFACTION OF LOCAL AUTHORITY INSPECTOR. NO DEVIATION FROM THESE DRAWING WHAT SO EVER UNLESS AGREED IN WRITING WITH LANDMARK GROUP.
6	ALL SERVICES ARE TO BE LOCATED AND PROTECTED AS NECESSARY BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF THE WORKS.	13	ALL GUTTERS, FOUNDATIONS AND DOWNPIPES TO REMAIN WITHIN THE BOUNDARY LINES OF THE SUBJECT PROPERTY ALL PLANS ARE SUBJECT TO FULL PLANS APPROVAL BY BUILDING CONTROL, NOT BUILDING NOTICE.
7	ALL WORKMANSHIP AND MATERIALS ARE TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT BS, CODES OF PRACTICE AND GOOD BUILDING PRACTICE	14	DRAWINGS AND CALCULATIONS TO BE APPROVED BY LOCAL AUTHORITY OR APPROVED BUILDING CONTROL INSPECTOR BEFORE WORK COMMENCES.

Scale: 100 0 1m 2 3 4 5 6 7 8 9 10m

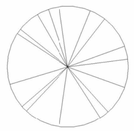
Scale: 50 0 1m 2 3 4 5m

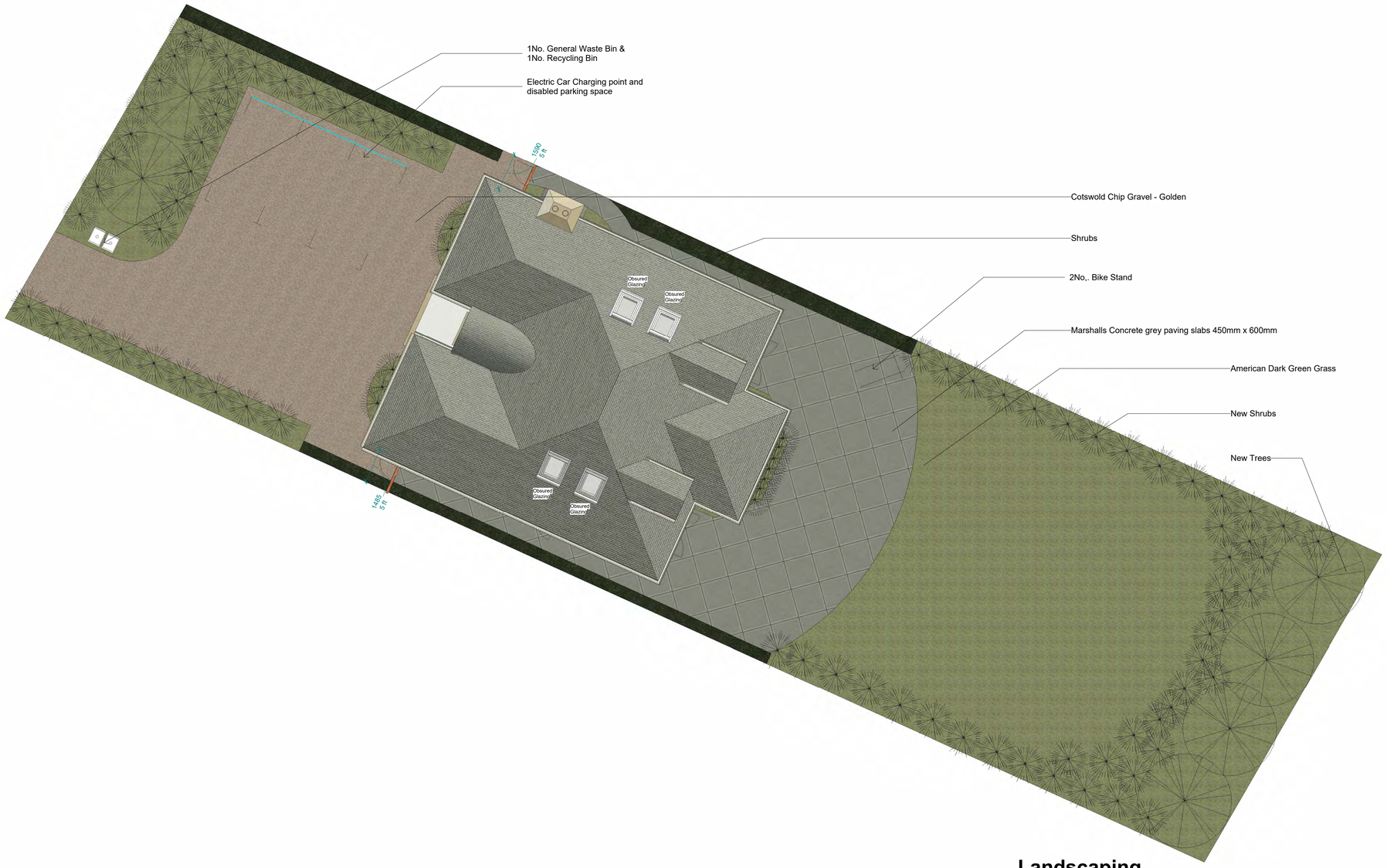
Scale: 200 0 2m 4 6 8 10 12 14 16 18 20m

Scale: 20 0 0.2 0.4 0.6 0.8 1m 1.2 1.4 1.6 1.8 2m

N

Landscaping Legend	
Material	Image
Cotswold Chip Gravel - Golden	
Marshalls Concrete grey paving slabs 450mm x 600mm	
Shrubs	

PLANTING KEY	DESCRIPTION
	New Tree
	New Shrubs



Landscaping
1 : 100

Scale: 500 0 5m 10 15 20 25 30 35 40 45 50m

Scale: 1250 0 10m 20 30 40 50 60 70 80 90 100m

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SUBMISSION/ REFERENCE
Planning

DRAWING TITLE
Replacement Dwelling

CLIENT/ JOB ADDRESS
265 Swakeleys Road,
Ickenham,
Uxbridge,
UB10 8DR

SHEET TITLE
Landscaping

Rev	Description	Date

DRAWN BY	CHECKED BY	DATE
DV	MS	28/09/23
SCALE (@ A1) 1 : 100	**PROJECT NUMBER** SR 100	
DRAWING NUMBER 265/SR/PL/101		**REV**

1	STRUCTURAL AND BUILDING DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELATED DRAWINGS.	8	SOME AREAS OF EXISTING WORK HAVE BEEN ASSUMED. ALL ARE TO BE CHECKED ON-SITE BY MAIN CONTRACTOR AND ANY DISCREPANCIES REPORTED SO THAT ADJUSTMENTS CAN BE MADE TO THE STRUCTURAL SCHEME IF NECESSARY.
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Scale: 100 0 1m 2 3 4 5 6 7 8 9 10m

Scale: 50 0 1m 2 3 4 5m

Scale: 200 0 2m 4 6 8 10 12 14 16 18 20m

N

Scale: 20 0 0.2 0.4 0.6 0.8 1m 1.2 1.4 1.6 1.8 2m

LOCATION	DESCRIPTION	IMAGE
Exterior Walls	Weinerberger - Dorton Manor Stock	
Roof Tiles	Marlow - Plain Grey Stone	
Stonework	Serene Stone - Colour Bathstone	
Entrance Door	Black Composite Door - RAL 9005	
Windows	White Georgian UPVC Sash Windows - RAL 9010	
Fascias	White UPVC Fascia	
Downpipes	White UPVC Downpipe	

Front Elevation - Materials

1 : 50

Rear Elevation - Materials

1 : 50

Scale: 500 0 5m 10 15 20 25 30 35 40 45 50m

Scale: 1250 0 10m 20 30 40 50 60 70 80 90 100m

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Ickenham,
Uxbridge,
UB10 8DR

SHEET TITLE
Materials

Rev	Description	Date

DRAWN BY	CHECKED BY	DATE
DV	MS	28/09/23

SCALE (@ A1)	PROJECT NUMBER
1 : 50	SR 100

DRAWING NUMBER	REV
265/SR/PL/102	

1	STRUCTURAL AND BUILDING DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELATED DRAWINGS.	8	SOME AREAS OF EXISTING WORK HAVE BEEN ASSUMED. ALL ARE TO BE CHECKED ON-SITE BY MAIN CONTRACTOR AND ANY DISCREPANCIES REPORTED SO THAT ADJUSTMENTS CAN BE MADE TO THE STRUCTURAL SCHEME IF NECESSARY.
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Scale: 50 0 1m 2 3 4 5m

Scale: 200 0 2m 4 6 8 10 12 14 16 18 20m

Scale: 20 0 0.2 0.4 0.6 0.8 1m 1.2 1.4 1.6 1.8 2m

Front Elevation - Street Scene

1 : 50

Scale: 500 0 5m 10 15 20 25 30 35 40 45 50m

Scale: 1250 0 10m 20 30 40 50 60 70 80 90 100m

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DRAWING TITLE
Replacement Dwelling

CLIENT/ JOB ADDRESS
265 Swakeleys Road,
Ickenham,
Uxbridge,
UB10 8DR

SHEET TITLE
Neighbouring Heights

Rev	Description	Date

DRAWN BY	CHECKED BY	DATE
DV	MS	28/09/23

SCALE (@ A1)	PROJECT NUMBER
1 : 50	SR 100

DRAWING NUMBER	REV
265/SR/PL/104	

1	STRUCTURAL AND BUILDING DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELATED DRAWINGS.	8	SOME AREAS OF EXISTING WORK HAVE BEEN ASSUMED. ALL ARE TO BE CHECKED ON-SITE BY MAIN CONTRACTOR AND ANY DISCREPANCIES REPORTED SO THAT ADJUSTMENTS CAN BE MADE TO THE STRUCTURAL SCHEME IF NECESSARY.
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HILLINGDON
LONDON

Mr Sukh Bal
Landmark Architecture And Plan
The Pillars
Slade Oak Lane
Gerrards Cross
SL9 0QE

Application Ref: 36415/APP/2023/2983

TOWN AND COUNTRY PLANNINGACT 1990 (AS AMENDED)

GRANT OF PLANNING PERMISSION

The Council of the London Borough of Hillingdon as the Local Planning Authority within the meaning of the above Act and associated Orders **GRANTS** permission for the following:

Description of development:
Erection of a replacement dwelling with landscaping, 3 off-street car parking spaces, with cycle/ refuse storage and electrical car charge point.

Location of development:	265 Swakeleys Road Ickenham
Date of application:	16th October 2023
Plan Numbers:	See attached Schedule of plans

Permission is subject to the condition(s) listed on the attached schedule:-

Head of Development Management and Building Control
Date: 20th March 2024

NOTES: (i) Please also see the informatives included in the Schedule of Conditions.

(ii) Should you wish to appeal against any of the conditions please read the attached sheet which explains the procedure.

(iii) This decision does not convey any approval or consent which may be required under any by-laws, building regulations or under any Act other than the Town and Country Planning Act 1990 (as amended).

TOWN AND COUNTRY PLANNINGACT 1990 (AS AMENDED)

GRANT OF PLANNING PERMISSION

Application Ref: 36415/APP/2023/2983

SCHEDULE OF CONDITIONS

1 The development hereby permitted shall be begun before the expiration of three years from the date of this permission.

REASON
To comply with Section 91 of the Town and Country Planning Act 1990

2 The development hereby permitted shall not be carried out except in complete accordance with the details shown on the submitted plans, numbered:

265/SR/PL/100 (Received 14.03.2024)
265/SR/PL/101 (Received 14.03.2024)
265/SR/PL/102 (Received 14.03.2024)
265/SR/PL/104 (Received 14.03.2024)
Trees Layout
Tree Protection Plan
Location Plan

and shall thereafter be retained/maintained for as long as the development remains in existence.

REASON
To ensure the development complies with the provisions of the Hillingdon Local Plan Part 1 (2012), Part 2 (2020) and the London Plan (2021).

3 Prior to development commencing, the applicant shall submit a demolition and construction management plan incorporating the recommendations of the Arboricultural Method Statement and Ecological Report, to the Local Planning Authority for its approval. The plan shall detail:

(i) The phasing of development works
(ii) The hours during which development works will occur
(iii) A programme to demonstrate that the most valuable or potentially contaminating materials and fittings can be removed safely and intact for later re-use or processing.
(iv)Measures to prevent mud and dirt tracking onto footways and adjoining roads (including wheel washing facilities).
(v) Traffic management and access arrangements (vehicular and pedestrian) and parking provisions for contractors during the development process (including measures to reduce the numbers of construction vehicles accessing the site during peak hours).
(vi) Measures to reduce the impact of the development on local air quality and dust through minimising emissions throughout the demolition and construction process.
(vii) The storage of demolition/construction materials on site.
(viii) How trees and ecological habitats would be protected.

The approved details shall be implemented and maintained throughout the duration of the demolition and construction process.

REASON
To safeguard trees, ecological value and the amenity of the surrounding area in accordance with Policies DMHB 11, DMHB 14, DMEI 7, DMT 2 and DMT 6 of the Hillingdon Local Plan Part 2 (2020).

4 Prior to the commencement of any work above damp proof course level of the development hereby approved, details and samples of all external materials and finishes shall submitted to and approved in writing by the Local Planning Authority. Details should include information relating to make, product/type, colour and photographs/images.

Thereafter the development shall be constructed in accordance with the approved details and be retained as such.

REASON
To ensure that the development presents a satisfactory appearance in accordance with Policy DMHB 11 of the Hillingdon Local Plan Part 2 (2020).

5 The development shall be carried out in strict accordance with the approved Arboricultural Report dated 11/03/2024.

REASON
To ensure that trees and other vegetation can and will be retained on site and not damaged during construction work and to ensure that the development conforms with Policy DMHB 14 of the Hillingdon Local Plan Part 2 (2020)

6 Trees, hedges and shrubs shown to be retained on the approved plan(s) shall not be damaged, uprooted, felled, lopped or topped without the prior written consent of the Local Planning Authority. If any retained tree, hedge or shrub is removed or severely damaged during (or after) construction, or is found to be seriously diseased or dying, another tree, hedge or shrub shall be planted at the same place or, if planting in the same place would leave the new tree, hedge or shrub susceptible to disease, then the planting should be in a position to be first agreed in writing with the Local Planning Authority and shall be of a size and species to be agreed in writing by the Local Planning Authority and shall be planted in the first planting season following the completion of the development or the occupation of the buildings, whichever is the earlier. Where damage is less severe, a schedule of remedial works necessary to ameliorate the effect of damage by tree surgery, feeding or groundwork shall be agreed in writing with the Local Planning Authority. New planting should comply with BS 3936 (1992) 'Nursery Stock, Part 1, Specification for Trees and Shrubs' Remedial work should be carried out to BS BS 3998:2010 'Tree work - Recommendations' and BS 4428 (1989) 'Code of Practice for General Landscape Operations (Excluding Hard Surfaces)'. The agreed work shall be completed in the first planting season following the completion of the development or the occupation of the buildings, whichever is the earlier.

REASON
To ensure that the trees and other vegetation continue to make a valuable contribution to the amenity of the area in accordance with Policy DMHB 14 of the Hillingdon Local Plan Part 2 (2020) and to comply with Section 197 of the Town and Country Planning Act 1990.

7 No development shall take place until a landscape scheme has been submitted to and approved in writing by the Local Planning Authority. The scheme shall include: -

1. Details of Soft Landscaping
1.a Planting plans (at not less than a scale of 1:100),
1.b Written specification of planting and cultivation works to be undertaken,
1.c Schedule of plants giving species, plant sizes, and proposed numbers/densities where appropriate

2. Details of Hard Landscaping
2.a Refuse Storage
2.b Means of enclosure/boundary treatments
2.c Car Parking Layouts (including 2 'active' and 2 'passive' electrical car charging points)
2.d Hard Surfacing Materials

3. Schedule for Implementation

4. Other
4.a Existing and proposed functional services above and below ground
4.b Proposed finishing levels or contours

Thereafter the development shall be carried out and maintained in full accordance with the approved details.

REASON
To ensure that the proposed development will preserve and enhance the visual amenities of the locality and provide adequate facilities in compliance with Policies DMHB 11, DMHB 12, DMHB 14, DMEI 1, DMT 2 and DMT 6 of the Hillingdon Local Plan Part 2 (2020) and Policy G5 of the London Plan (2021).

8 The development hereby permitted, shall not be occupied until the 2no secure and accessible cycle spaces have been provided in accordance with the approved plans. Thereafter, these facilities shall be permanently retained on site and be kept available for the use of cyclists.

REASON
To ensure the provision and retention of facilities for cyclists to the development and hence the availability of sustainable forms of transport to the site in accordance with Policy DMT 6 of the Hillingdon Local Plan Part 2 (2020).

9 One of the parking spaces shall have passive electrical vehicle charging point. The development shall be carried out in accordance with the approved details and maintained as such for the lifetime of the development.

REASON:
To ensure an appropriate distribution of parking spaces in accordance with the published London Plan Policy T6.1 Residential Parking.

10 Prior to works commencing, details of step free access via the principal private entrance, and all the other points of entry and exit, shall be submitted to, and approved in writing, by the Local Planning Authority. Such provision shall remain in place for the life of the building.

REASON
To ensure that an appropriate standard of housing stock, in accordance with the 2021 London Plan Policy D7 is achieved and maintained.

11 The dwelling hereby approved shall accord with the requirements of Policy D7 of the London Plan and shall not be occupied until certification of compliance with the technical specifications for an M4(2) dwelling, as set out in Approved Document M to the Building Regulations (2010) 2015, has been submitted to, and approved in writing, by the Local Planning Authority. All such provisions must remain in place for the life of the building.

REASON
To not only allow the Building Control body to require the development to comply with the optional Building Regulations standards, but to also ensure the appropriate quantity and standard of accessible and adaptable housing is constructed and maintained in accordance with Policy D7 of the London Plan.

12 Notwithstanding the provisions of the Town and Country Planning (General Permitted Development)(England) Order 2015 (or any order revoking and re-enacting that Order with or without modification), no additional windows, doors or other openings shall be
constructed in the walls or roof slopes of the development hereby approved facing Nos. 263 and 267 Swakeleys Road.

REASON
To prevent overlooking to adjoining properties in accordance with Policy DMHB 11 of the Hillingdon Local Plan Part 2 (2020).

13 Notwithstanding the provisions of the Town and Country Planning (General Permitted Development)(England) Order 2015 (or any order revoking and re-enacting that Order with or without modification); no garage(s), shed(s) or other outbuilding(s), nor extension or roof alteration to any dwellinghouse(s) shall be erected without the grant of further specific permission from the Local Planning Authority.

REASON
To protect the character and appearance of the Area of Special Local Character and amenity of residential occupiers in accordance with Policies DMHB 5, DMHB 11, and DMHB 12 of the Hillingdon Local Plan Part 2 (2020).

14 Notwithstanding the annotations shown on the approved drawings, the first floor windows in the both side elevations shall be glazed with permanently obscured glass to at least scale 4 on the Pilkington scale and be non-opening below a height of 1.7 metres taken from internal finished floor level for so long as the development remains in existence.

REASON
To prevent overlooking to adjoining properties in accordance with Policies DMHB 11 of the Hillingdon Local Plan Part 2 (2020).

15 Notwithstanding the approved plans, all roof lights shall be conservation roof lights with a black external finish and genuine glazing bar, installed completely flush along the roof line.

REASON
To conserve the character and appearance of the Area of Special Local Character in accordance with Policy HE1 (Hillingdon Local Plan Part 1, November 2012) and Policies DMHB 1, DMHB 5, DMHB 6 and DMHB 11 (Hillingdon Local Plan Part 2, January 2020).

16 Prior to the commencement of the development hereby approved (excluding demolition, ground works and substructure works), a scheme for the provision of sustainable water management and water efficiency shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall:
i. Provide information about the design storm period and intensity, the method employed to delay and control the surface water discharged from the site and the measures taken to prevent pollution of the receiving groundwater and/or surface waters;
ii. Include a timetable for its implementation; and
iii. Provide a management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime.
The scheme shall also demonstrate the use of methods to minimise the use of potable water through water collection, reuse and recycling and will:
iv. Provide details of water collection facilities to capture excess rainwater;
v. Provide details of how rain and grey water will be recycled and reused in the development;
vi. Provide details of how the dwelling will achieve a water efficiency standard of no more than 110 litres per person per day maximum water consumption (to include a fixed factor of water for outdoor use of 5 litres per person per day in accordance with the optional requirement defined within Approved Document G of the Building Regulations).

Thereafter the development shall be implemented and retained/maintained in accordance with these details for as long as the development remains in existence.

REASON
To ensure the development does not increase the risk of flooding in accordance with Policies DMEI 9 and DMEI 10 of the Hillingdon Local Plan Part 2 (2020) and Policies SI2 and SI 13 of the London Plan (2021).

17 Any rooflights in the side roof slopes of the development hereby approved below a height of 1.7 metres

taken from internal finished floor level shall be glazed with permanently obscured glass to at least scale 4 on the Pilkington scale and be non-opening for so long as the development remains in existence.

REASON
To prevent overlooking to adjoining properties in accordance with Policy DMHB 11 of the Hillingdon Local Plan Part 2 (2020).

INFORMATIVES

1 Nuisance from demolition and construction works is subject to control under The Control of Pollution Act 1974, the Clean Air Acts and other related legislation. In particular, you should ensure that the following are complied with:-

A. Demolition and construction works which are audible at the site boundary shall only be carried out between the hours of 08.00 and 18.00 hours Monday to Friday and between the hours of 08.00 hours and 13.00 hours on Saturday. No works shall be carried out on Sundays, Bank or Public Holidays.

B. All noise generated during such works shall be controlled in compliance with British Standard Code of Practice BS 5228:2009.

C. Dust emissions shall be controlled in compliance with the Mayor of London's Best Practice Guidance' The Control of dust and emissions from construction and demolition.

D. No bonfires that create dark smoke or nuisance to local residents.

You are advised to consult the Council's Environmental Protection Unit (www.hillingdon.gov.uk/noise Tel. 01895 250155) or to seek prior approval under Section 61 of the Control of Pollution Act if you anticipate any difficulty in carrying out construction other than within the normal working hours set out in (A) above, and by means that would minimise disturbance to adjoining premises.

2 You are advised that it is an offence under the Wildlife and Countryside Act 1981 to disturb roosting bats, nesting birds or any other protected species.

3 You are advised that if any part of the development hereby permitted encroaches by either its roof, walls, eaves, gutters, or foundations, then a new planning application may have to be submitted. The validity of this planning permission may be challengeable by third parties if the development results in any form of encroachment onto land outside the applicant's control for which the appropriate Notice under Article 13 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 has not been served.

4 Your attention is drawn to the fact that the planning permission does not override property rights and any ancient rights of light that may exist. This permission does not empower you to enter onto land not in your ownership without the specific consent of the owner. If you require further information or advice, you should consult a solicitor.

5 The decision to GRANT planning permission has been taken having regard to all relevant planning legislation, regulations, guidance, circulars and Council policies, including The Human Rights Act (1998) (HRA 1998) which makes it unlawful for the Council to act incompatibly with Convention rights, specifically Article 6 (right to a fair hearing); Article 8 (right to respect for private and family life); Article 1 of the First Protocol (protection of property) and Article 14 (prohibition of discrimination).

6 In dealing with the application the Council has implemented the requirement in the National Planning Policy Framework to work with the applicant in a positive and proactive way. We have made available detailed advice in the form of our statutory policies from Local Plan Part 1, Local Plan Part 2, Supplementary Planning Documents, Planning Briefs and other informal written guidance, as well as offering a full pre-application advice service, in order to ensure that the applicant has been given every opportunity to submit an application which is likely to be considered favourably.

7 Under the terms of the Planning Act 2008 (as amended) and Community Infrastructure Levy Regulations 2010 (as amended), this development is liable to pay the London Borough of Hillingdon Community Infrastructure Levy (CIL) and the Mayor of London's Community Infrastructure Levy (CIL). This will be calculated in accordance with the London Borough of Hillingdon CIL Charging Schedule 2014 and the Mayor of London's CIL Charging Schedule 2012. Before commencement of works the development parties must notify the London Borough of Hillingdon of the commencement date for the construction works (by submitting a Commencement Notice) and assume liability to pay CIL (by submitting an Assumption of Liability Notice) to the Council at planning@hillingdon.gov.uk. The Council will then issue a Demand Notice setting out the date and the amount of CIL that is payable. Failure to submit a valid Assumption of Liability Notice and Commencement Notice prior to commencement of the development may result in surcharges being imposed.

The above forms can be found on the planning portal at:
www.planningportal.gov.uk/planning/applications/howtoapply/whattosubmit/cil

Pre-Commencement Conditions: These conditions are important from a CIL liability perspective as a scheme will not become CIL liable until all of the pre-commencement conditions have been discharged/complied with.

The decision to GRANT planning permission has been taken having regard to the policies and proposals in the Hillingdon Local Plan Part 1 (2012) and Part 2 (2020) set out below, including Supplementary Planning Guidance, and to all relevant material considerations, including The London Plan - The Spatial Development Strategy for London consolidated with alterations since 2011 (2021) and national guidance.

Part 1 Policies

PT1.BE1	(2012) Built Environment

Part 2 Policies

DMHB 11	Design of New Development
DMHB 12	Streets and Public Realm
DMHB 14	Trees and Landscaping
DMHB 16	Housing Standards
DMEI 9	Management of Flood Risk
DMEI 10	Water Management, Efficiency and Quality
DMT 1	Managing Transport Impacts
DMT 2	Highways Impacts
DMT 5	Pedestrians and Cyclists
DMT 6	Vehicle Parking
LPP D1	(2021) London's form, character and capacity for growth
LPP D3	(2021) Optimising site capacity through the design-led approach

LPP D4	(2021) Delivering good design
LPP D5	(2021) Inclusive design
LPP D6	(2021) Housing quality and standards
LPP D7	(2021) Accessible housing
LPP D11	(2021) Safety, security and resilience to emergency
LPP SI2	(2021) Minimising greenhouse gas emissions
LPP SI3	(2021) Energy infrastructure
LPP T5	(2021) Cycling
LPP T6	(2021) Car parking
NPPF11	NPPF 2021 - Making effective use of land
NPPF12	NPPF 2021 - Achieving well-designed places
NPPF14	NPPF 2021 - Meeting the challenge of climate change flooding
NPPF2	NPPF 2021 - Achieving sustainable development
NPPF4	NPPF 2021 - Decision-Making
NPPF9	NPPF 2021 - Promoting sustainable transport

END OF SCHEDULE

Address:

Development Management
Directorate of Place
Hillingdon Council
3 North, Civic Centre, High Street, Uxbridge UB8 1UW
www.hillingdon.gov.uk

GRANT OF PLANNING PERMISSION

Application Ref: 36415/APP/2023/2983

SCHEDULE OF PLANS

Location Plan - received 13 Oct 2023

100 - received 13 Oct 2023

Replacement Dwelling - received 13 Oct 2023

265/SR/PL/103 - received 13 Oct 2023

265/SR/PL/100 - received 14 Mar 2024

265/SR/PL/101 - received 14 Mar 2024

265/SR/PL/102 - received 14 Mar 2024

265/SR/PL/104 - received 14 Mar 2024

Tree Layout - received 12 Mar 2024

Tree Protection Plan - received 12 Mar 2024

RIGHTS OF APPLICANTS AGGRIEVED BY DECISION OF LOCAL PLANNING AUTHORITY

TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)

If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the office of the First Secretary of State under Section 78 of the Town and Country Planning Act 1990.

If you want to appeal, then you must do so within six months of the date of this notice, using a form which you can get from the Planning Inspecorate at Customer Support Unit, Room 3/15 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN (Tel 0117 372 8424) Appeal forms can be downloaded from the Planning Inspectorate website at www.Planning-inspectorate.gov.uk

If you intend to submit an appeal that you would like examined by inquiry then you must notify the Local Planning Authority and Planning Inspectorate (inquiryappeals@planninginspectorate.gov.uk) at least 10 days before submitting the appeal.
Further details are available at www.gov.uk/government/collections/casework-dealt-with-by-inquiries

The Secretary of State can allow a longer period for giving notice of an appeal, but he will not normally be prepared to use this power inless there are special circumstances, which excuse the deploy in giving notice of an appeal.

The Secretary of State need not consider an appeal if it seems to him that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

In practice, the Secretary of State does not refuse to consider appeals solely because the local planning authority based their decision on a direction given by him.

Purchase Notices.

If either the local planning authority or the officer of the First Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use by carrying out of any development which has been or would be permitted.

In these circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

GeoSmart Information

Appendix B

Rainfall runoff calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.005	5.00	58.300	450	119.850	129.609	0.750
2	0.005	5.00	58.300	450	132.654	123.817	0.950
3	0.005	5.00	58.300	450	126.069	142.109	0.750
4	0.005	5.00	58.300	450	138.325	135.951	0.950
5			58.300	450	144.179	125.829	1.400
Dummy			58.300	450	147.959	124.182	1.450

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	14.053	0.600	57.550	57.350	0.200	70.3	150	5.20	50.0
1.001	2	5	11.699	0.600	57.350	57.150	0.200	58.5	150	5.34	50.0
2.000	3	4	13.716	0.600	57.550	57.350	0.200	68.6	150	5.19	50.0
2.001	4	5	11.693	0.600	57.350	57.150	0.200	58.5	150	5.34	50.0
Dummy	5	Dummy	4.123	0.600	56.900	56.850	0.050	82.5	150	5.41	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.201	21.2	0.7	0.600	0.800	0.005	0.0	18	0.546
1.001	1.317	23.3	1.4	0.800	1.000	0.010	0.0	24	0.714
2.000	1.216	21.5	0.7	0.600	0.800	0.005	0.0	18	0.553
2.001	1.318	23.3	1.4	0.800	1.000	0.010	0.0	24	0.715
Dummy	1.108	19.6	2.7	1.250	1.300	0.020	0.0	38	0.782

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	1440	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Node 5 Online Head/Flow Control

Flap Valve x | Replaces Downstream Link ✓ | Invert Level (m) 56.900

Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
0.001	0.001	5.000	0.001

Node 5 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.03600	Invert Level (m)	56.900	Depth (m)	0.800
Side Inf Coefficient (m/hr)	0.03600	Time to half empty (mins)	1155	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.000	Number Required	1
Porosity	0.95	Pit Length (m)	6.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	57.568	0.018	0.7	0.0053	0.0000	OK
15 minute winter	2	11	57.374	0.024	1.4	0.0064	0.0000	OK
15 minute winter	3	10	57.568	0.018	0.7	0.0053	0.0000	OK
15 minute winter	4	11	57.374	0.024	1.4	0.0064	0.0000	OK
480 minute winter	5	328	57.071	0.171	0.4	2.9553	0.0000	SURCHARGED
15 minute summer	Dummy	1	56.850	0.000	0.0	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	0.7	0.435	0.031	0.0215	
15 minute winter	2	1.001	5	1.3	0.704	0.056	0.0215	
15 minute winter	3	2.000	4	0.7	0.437	0.031	0.0210	
15 minute winter	4	2.001	5	1.3	0.704	0.056	0.0215	
480 minute winter	5	Head/Flow	Dummy	0.0				0.1
480 minute winter	5	Infiltration		0.1				

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	57.581	0.031	2.0	0.0090	0.0000	OK
15 minute winter	2	10	57.393	0.043	4.0	0.0114	0.0000	OK
15 minute winter	3	10	57.581	0.031	2.0	0.0090	0.0000	OK
15 minute winter	4	10	57.393	0.043	4.0	0.0114	0.0000	OK
240 minute winter	5	236	57.359	0.459	1.6	7.9222	0.0000	SURCHARGED
15 minute summer	Dummy	1	56.850	0.000	0.0	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	2.0	0.586	0.093	0.0477	
15 minute winter	2	1.001	5	3.9	0.959	0.167	0.0476	
15 minute winter	3	2.000	4	2.0	0.588	0.092	0.0464	
15 minute winter	4	2.001	5	3.9	0.959	0.167	0.0476	
240 minute winter	5	Head/Flow	Dummy	0.0				0.1
240 minute winter	5	Infiltration		0.1				

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	57.585	0.035	2.5	0.0101	0.0000	OK
480 minute winter	2	440	57.504	0.154	0.6	0.0406	0.0000	SURCHARGED
15 minute winter	3	10	57.584	0.034	2.5	0.0101	0.0000	OK
480 minute winter	4	440	57.504	0.154	0.6	0.0406	0.0000	SURCHARGED
480 minute winter	5	440	57.504	0.604	1.2	10.4239	0.0000	SURCHARGED
15 minute summer	Dummy	1	56.850	0.000	0.0	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	2.5	0.621	0.117	0.0564	
15 minute winter	2	1.001	5	4.9	1.020	0.211	0.0563	
15 minute winter	3	2.000	4	2.5	0.624	0.115	0.0549	
15 minute winter	4	2.001	5	4.9	1.020	0.211	0.0563	
480 minute winter	5	Head/Flow	Dummy	0.0				0.1
480 minute winter	5	Infiltration		0.1				

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	1	585	57.838	0.288	0.3	0.0841	0.0000	SURCHARGED
600 minute winter	2	585	57.838	0.488	0.6	0.1288	0.0000	SURCHARGED
600 minute winter	3	585	57.838	0.288	0.3	0.0841	0.0000	SURCHARGED
600 minute winter	4	585	57.838	0.488	0.6	0.1288	0.0000	SURCHARGED
600 minute winter	5	585	57.838	0.938	1.2	13.8377	0.0000	SURCHARGED
15 minute summer	Dummy	1	56.850	0.000	0.0	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	3.6	0.683	0.168	0.0737	
15 minute winter	2	1.001	5	7.0	1.120	0.302	0.0868	
15 minute winter	3	2.000	4	3.6	0.686	0.166	0.0717	
15 minute winter	4	2.001	5	7.0	1.121	0.302	0.0867	
600 minute winter	5	Head/Flow	Dummy	0.0				0.1
600 minute winter	5	Infiltration		0.2				

GeoSmart Information

Appendix C

Thames Water Asset Location Plan

Asset Location Search

Thames Water Property Searches

GeoSmart Information Ltd
1st Floor Old Bank Buildings
Suite 9-11Bellstone
SHREWSBURY
SY1 1HU

Search address supplied 265
Swakeleys Road
Ickenham
Uxbridge
UB10 8DR

Your reference 82019

Our reference ALS/ALS Standard/2024_4980489

Search date 25 April 2024

Notification of Price Changes

From 1st April 2024 Thames Water Property Searches will be increasing the prices of its CON29DW Residential and Commercial searches along with the Asset Location Search. Costs will rise in line with RPI as per previous years, which is sat at 6%.

Customers will be emailed with the new prices by February 28th 2024.

Any orders received with a higher payment prior to the 1st April 2024 will be non-refundable. For further details on the price increase please visit our website at www.thameswater-propertysearches.co.uk.

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0800 009 4540

Asset Location Search

Property Searches

Search address supplied: 265, Swakeleys Road, Ickenham, Uxbridge, UB10 8DR

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Asset Location Search

Thames Water Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd
Tamblin Way
Hatfield
AL10 9EZ
Tel: 0345 3572401

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

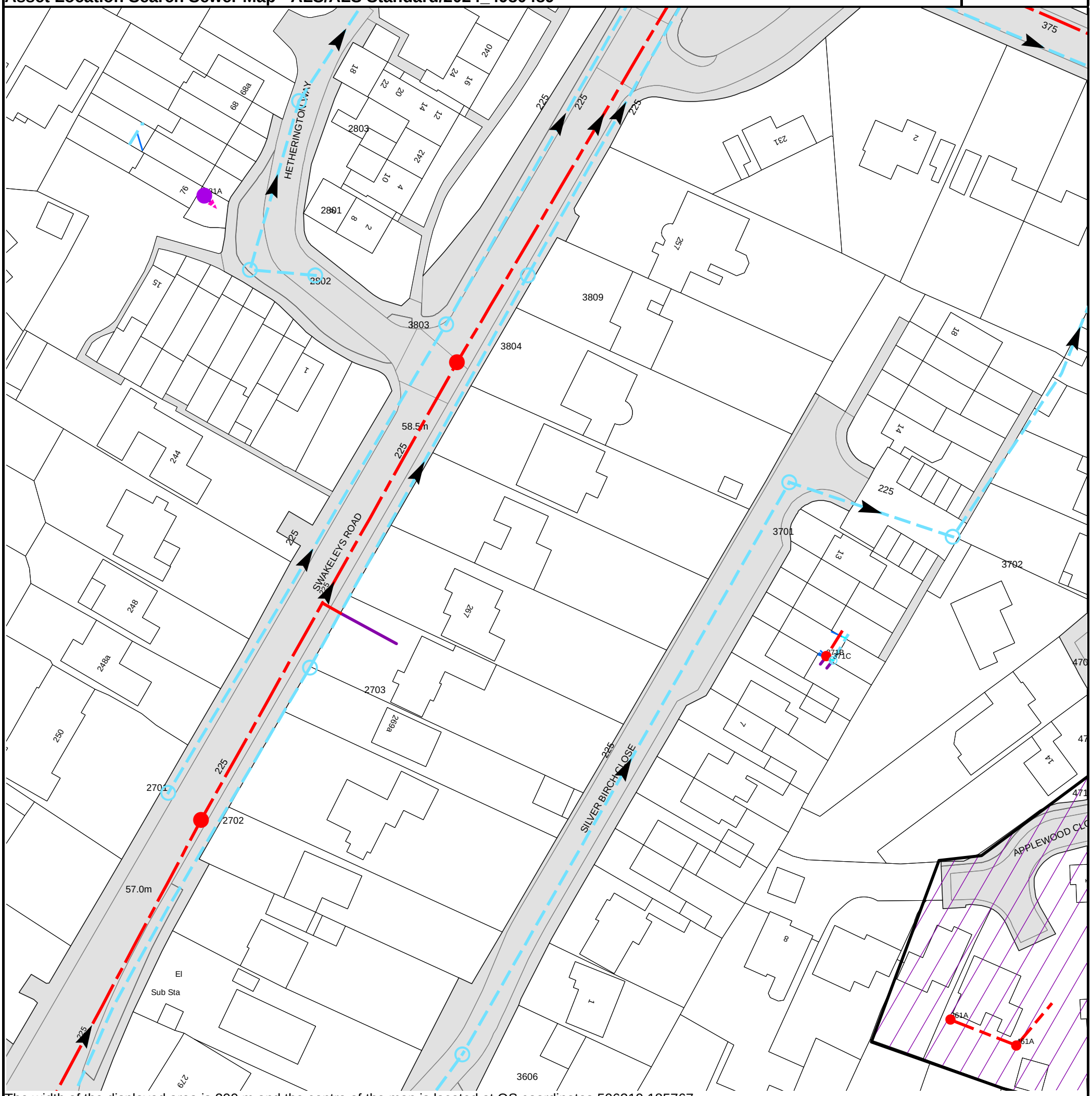
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2024_4980489



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 506319,185767

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
2803	57.55	56
2701	59.95	57.55
2702	59.99	59.2
2703	n/a	n/a
371C	n/a	n/a
371B	n/a	n/a
3702	n/a	n/a
3701	n/a	n/a
3803	58.3	56.05
3804	n/a	n/a
2801	59.01	57.72
3809	n/a	n/a
2802	57.79	56.4
281A	n/a	n/a
3606	n/a	n/a
461A	n/a	n/a
361A	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

A feature in a sewer that changes or divects the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Inlet
- Outfall
- Undefined End

Other Symbols

Symbols used on maps which do not fall under other general categories.

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement — Ducts may contain high voltage cables. Please check with Thames Water.
- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.

If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Payment Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment within 14 days of the date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service or will be held to be invalid.
4. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
5. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
6. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800.

If you are unhappy with our service, you can speak to your original goods or customer service provider. If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager for resolution who will provide you with a response.

If you are still dissatisfied with our final response, and in certain circumstances such as you are buying a residential property or commercial property within certain parameters, The Property Ombudsman will investigate your case and give an independent view. The Ombudsman can award compensation of up to £25,000 to you if he finds that you have suffered actual financial loss and/or aggravation, distress, or inconvenience because of your search not keeping to the Code. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0300 034 2222 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**
Please Call **0800 009 4540** quoting your invoice number starting CBA or ADS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number

Disclaimer

This report has been prepared by GeoSmart in its professional capacity as soil, groundwater, flood risk and drainage specialists, with reasonable skill, care and diligence within the agreed scope and terms of contract and taking account of the manpower and resources devoted to it by agreement with its client and is provided by GeoSmart solely for the internal use of its client.

The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to GeoSmart at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

This report is confidential to the client. The client may submit the report to regulatory bodies, where appropriate. Should the client wish to release this report to any other third party for that party's reliance, GeoSmart may, by prior written agreement, agree to such release, provided that it is acknowledged that GeoSmart accepts no responsibility of any nature to any third party to whom this report or any part thereof is made known. GeoSmart accepts no responsibility for any loss or damage incurred as a result, and the third party does not acquire any rights whatsoever, contractual or otherwise, against GeoSmart except as expressly agreed with GeoSmart in writing.

For full T&Cs see http://geosmartinfo.co.uk/terms-conditions

Further information

Information on confidence levels and ways to improve this report can be provided for any location on written request to info@geosmart.co.uk or via our website. Updates to our model are ongoing and additional information is being collated from several sources to improve the database and allow increased confidence in the findings. Further information on groundwater levels and flooding are being incorporated in the model to enable improved accuracy to be achieved in future versions of the map. Please contact us if you would like to join our User Group and help with feedback on infiltration SuDS and mapping suggestion.

Important consumer protection information

This search has been produced by GeoSmart Information Limited, Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU.

Tel: 01743 298 100

Email: info@geosmartinfo.co.uk

GeoSmart Information Limited is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom.
- sets out minimum standards which firms compiling and selling search reports have to meet.
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals.
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.
- By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports.
- act with integrity and carry out work with due skill, care and diligence.
- at all times maintain adequate and appropriate insurance to protect consumers.
- conduct business in an honest, fair and professional manner.
- handle complaints speedily and fairly.
- ensure that products and services comply with industry registration rules and standards and relevant laws.
- monitor their compliance with the Code.

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs contact details:

The Property Ombudsman scheme

Milford House

43-55 Milford Street

Salisbury

Wiltshire SP1 2BP

Tel: 01722 333306

Fax: 01722 332296

Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk.

Please ask your search provider if you would like a copy of the search code

Complaints procedure

GeoSmart Information Limited is registered with the Property Codes Compliance Board as a subscriber to the Search Code. A key commitment under the Code is that firms will handle any complaints both speedily and fairly. If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk.

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision. Complaints should be sent to:

Martin Lucass

Commercial Director

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

martinlucass@geosmartinfo.co.uk

14 Terms and conditions, CDM regulations and data limitations

Terms and conditions can be found on our website:

http://geosmartinfo.co.uk/terms-conditions/

CDM regulations can be found on our website:

http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/

Data use and limitations can be found on our website:

http://geosmartinfo.co.uk/data-limitations/