

Sustainable Drainage Assessment

Discharge to Sewer

The proposed Sustainable Drainage Scheme (SuDS) strategy is comprised of rainwater harvesting butts, lined permeable paving and rain gardens to attenuate surface water runoff during the 1 in 100 plus 45% climate change event.

Surface water will be discharged into the public surface water sewer, subject to confirmation from the sewer utility provider and the incorporation of SuDS.



Report prepared for

**1 Click Move
Property Management**

Site Address

**St Georges Residential Home
Abbey Hey Lane
Manchester
M18 8RB**

Date

05/06/2026

Site Area

0.15 ha

Grid Reference

389310, 396570

Report Status

FINAL

Report Reference

91637.01R1

 **SuDSmart Plus**

Version Control

Report Version	Date	Report Author	Report Checker	Report Reviewer
91637.01R1	05/06/2026	Annabel Elleray Senior Project Consultant	David South Principal Consultant	Bob Sargent Associate

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
Runoff destination feasibility	Priority 1: rainwater collected for non-potable use	Yes
	Priority 2: infiltration to ground	Low
	Priority 3: discharge to an above ground surface water body	Low
	Priority 4: discharge to surface water sewer	High
	Priority 5: discharge to combined sewer	High
Flooding	What is the river (fluvial) and/or tidal flood risk at the Site?	Very Low
	What is the surface water (pluvial) flood risk at the Site?	Very Low to High
	What is the groundwater flood risk at the Site?	Negligible
Pollution	Is the groundwater a protected resource?	No
	Is the surface water feature a protected resource?	N/A

*Whilst SD50 screening data suggests a Moderate infiltration potential, the use of infiltration SuDS is constrained by potential contamination concerns and the anticipated modest permeability of the underlying geology.

Summary of existing and proposed development

The Site comprises a derelict building with an associated garage, hard standing and soft standing. The building, which was formerly used as a residential nursing home, is currently in poor condition. Development proposals comprise the demolition of the existing building and the erection of 8 two-and-a-half storey dwellings, including associated car parking and landscaping. The existing Site access will be retained.

National Standard 1: Runoff Destinations

Priority 1: collection for non-potable use

In line with DEFRA's national guidance, the potential for the collection of rainwater for non-potable use across the proposed development has been considered.

Rainwater harvesting butts are proposed at the base of the downpipes of each dwelling in order to provide rainwater re-use potential at the Site, as well as to provide biodiversity and amenity benefits. Captured water will be used to water vegetation and ensure their long-term viability as sustainable amenity features. Due to the limited storage capacity and requirement to retain captured rainwater for non-potable use, the volume of runoff which could be attenuated has not been considered within the report.

Priority 2: infiltration to ground

GeoSmart's SuDS Infiltration Potential (SD50) map indicates that the Site has a Moderate potential for infiltration, primarily due to the anticipated modest permeability of the underlying geology (diamicton). However, given the condition and land use history of the Site, there is potential for contamination in the subsurface. Infiltration to ground is therefore unlikely to be feasible.

Priority 3: discharge to above ground surface water body

Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site. Therefore, discharge to surface water feature is not feasible.

Priority 4: discharge to surface water sewer

The asset location plan included in Appendix C confirms the Site is located c. 15 m to the east of a public surface water sewer. Therefore, discharging surface water runoff to the public surface water sewer network is deemed feasible.

Priority 5: discharge to combined sewer

The asset location plan included in Appendix C confirms the Site is located c. 5 m to the south and west of public combined sewers. Therefore, discharging surface water runoff to the sewer is likely to be feasible.

Runoff rate and attenuation requirements

Discharging off-Site requires 47.88 m³ of attenuation to be provided to ensure there is no flooding within the development in all storm events up to and including the 1 in 100 year including a 45% allowance for climate change and 10% allowance for urban creep. This volume is subject to the discharge rate being restricted to 2 l/s (as close to the Greenfield 1 in 1 year rate as possible, without increasing the potential for blockages).

Proposed SuDS strategy

SuDS features comprised of rainwater harvesting butts, lined permeable paving and rain gardens are proposed to attenuate a minimum of 54.00 m³ of surface water runoff. The SuDS features would provide some amenity, biodiversity and water quality benefits (interception and filtration) prior to discharging runoff into the public surface water sewer.

The proposed SuDS strategy would ensure surface water runoff is stored on-Site in SuDS features for the 1 in 100 year event including a 45% allowance for climate change and will not cause flooding to the proposed development in accordance with DEFRA's national standards for SuDS (2025).

Amenity and biodiversity

The inclusion of rain gardens where feasible will provide sufficient biodiversity and amenity benefits to the areas of proposed development. The rain gardens will introduce green features that enhance the local area, support pollinator-friendly planting, and create small-scale habitats that increase biodiversity. The rain gardens should be populated by native vegetation that is happy with occasional inundations. Meanwhile, the use of rainwater harvesting butts will provide a non-potable water supply that can be used to water vegetation and ensure their long-term viability as amenity features.

SuDS & drainage network maintenance

The management and maintenance of the SuDS features, in line with the details and schedules outlined in Section 10 of this report, will be undertaken by contractors appointed by the owners and occupiers of the new residential buildings.

Recommendations / Next steps

The capacity of the public sewer network should be confirmed with the utility provider and permission to connect gained where required.

2. Proposed SuDS strategy

The most suitable SuDS options are outlined below, and a SuDS strategy schematic is shown overleaf. Supporting information is provided in subsequent sections.

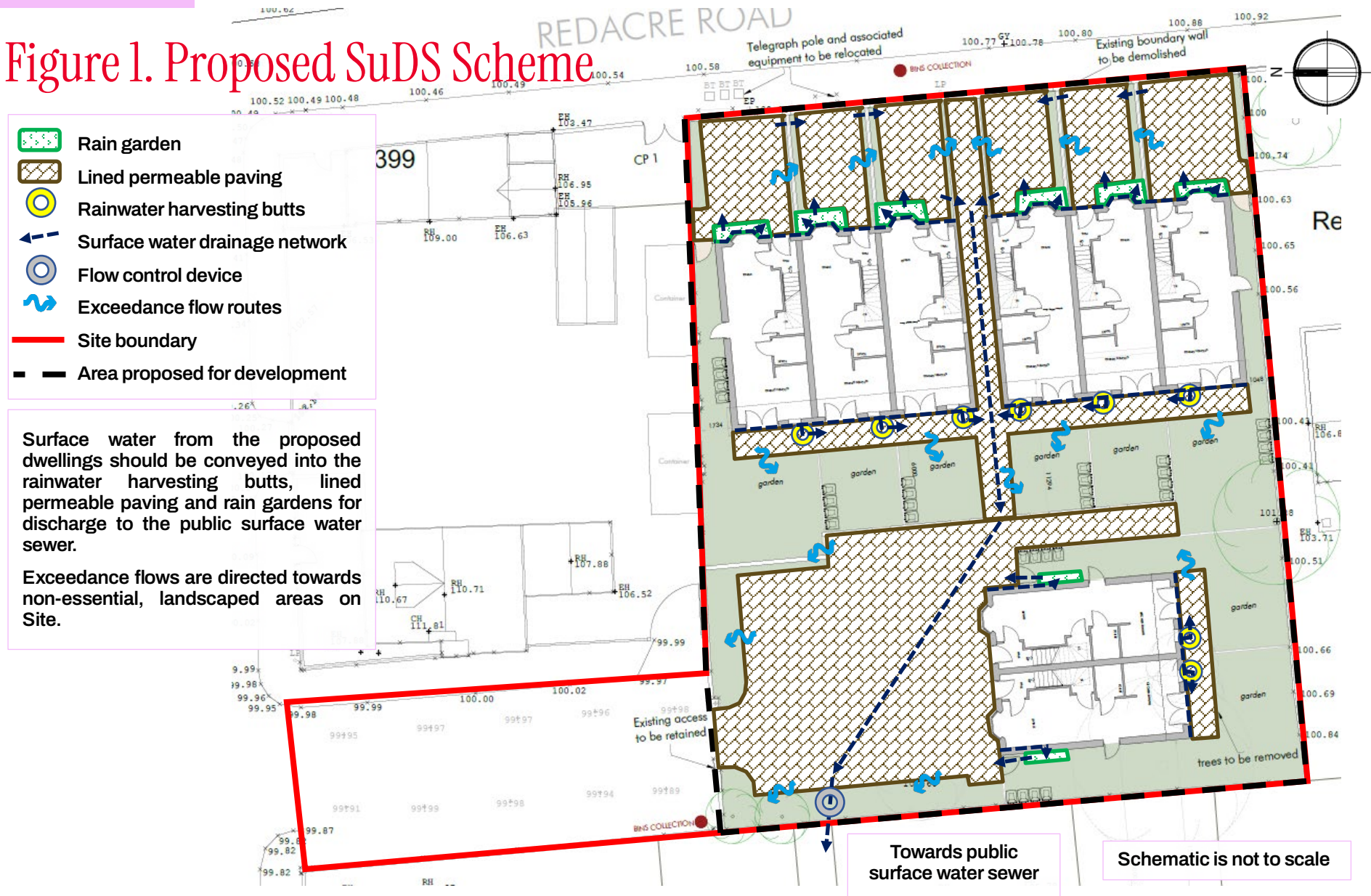
Table 1. Proposed SuDS type, features, discharge location and rate restriction

SuDS type	Source control (interception) and attenuation SuDS.
SuDS features	Rainwater harvesting butts, lined permeable paving and rain gardens.
Discharge location	Public surface water sewer.
Discharge rate	2 l/s (as close to the Greenfield 1 in 1 year rate as possible, without increasing the risk of blockage).

Table 2. Proposed SuDS sizing (dimensions) and attenuation volumes

Rainwater harvesting	To comply with DEFRA's national standards for SuDS (2025), rainwater harvesting butts should be established for each proposed development. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the preliminary SuDS strategy.
Permeable paving	A 450 m ² area of lined permeable paving (underlain with a Type 3 aggregate material with a 30% porosity) within the proposed driveway and hard standing areas to a depth of 0.4 m would provide c. 54.00 m ³ of attenuation.
Rain garden	Rain gardens are proposed to be established for the development for water quality and biodiversity purposes. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rain gardens has not been considered within the preliminary SuDS strategy.
Total attenuation provided	54.00 m³
Total attenuation required	47.88 m³
Freeboard storage provided	6.12 m³

Figure 1. Proposed SuDS Scheme



3. National & local policy context

National Guidance

DEFRA – National standards for sustainable drainage systems (SuDS) (2025)

Standard 1: runoff destinations

A ‘SuDS approach’ shall be adopted to address the management of surface water by the development and where it should be discharged. Runoff shall be treated as a resource and managed in a way that avoids negative impacts of the development on flood risk, the morphology and water quality of receiving waters and the associated ecology.

Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- priority 1: collected for non-potable use
- priority 2: infiltrated to ground
- priority 3: discharged to an above ground surface water body
- priority 4: discharged to a surface water sewer, or another piped surface water drainage system
- priority 5: discharged to a combined sewer

Note 1: priority 1 is the highest priority and priority 5 is the lowest.

Note 2: for the purposes of this standard, a combined sewer is a sewer intended to receive both foul sewage and surface runoff and does not include a sewer intended to receive only foul sewage, even if it has the capacity to accommodate additional flows or has an element of surface water in it already.

To utilise a lesser priority final destination, appropriate evidence shall be provided that demonstrates all higher priority final destinations have been utilised to the maximum extent practicable. Higher cost alone shall not be a reason to utilise lower priority final destinations.

Where more than one final destination is utilised, each final destination’s ability to accept runoff shall be maximised in order of priority.

Standard 2: management of everyday rainfall (interception)

Apply a ‘SuDS approach’ so that at least the first 5mm of rainfall for the majority of rainfall events does not result in runoff from the site to surface waters or piped drainage systems.

Evidence shall be provided that the approach to managing runoff from ‘everyday’ rainfall has been developed alongside and in support of the management of runoff quality (standard 4) and the delivery of amenity and biodiversity benefits (standards 5 and 6).

Standard 3: management of extreme rainfall and flooding

A 'SuDS approach' shall be adopted to address the management of development runoff during extreme rainfall, including allowances for climate change and urban creep to:

- protect people and property on the development from flooding of the surface water drainage system
- mitigate any increased flood risk to people and property adjacent to or downstream of the development
- protect the receiving water body from morphological damage or minimise the impact on sewer capacity

When discharging to an infiltration feature, the system shall be appropriately sized to accommodate the design event based on ground conditions and contributing areas.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff (rate and volume) for the 1% annual exceedance probability (AEP) event shall be controlled to ensure the runoff from the development does not increase flood risk elsewhere.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff rate for the 50% AEP event shall be controlled to ensure development runoff from an event of this magnitude has no negative impact.

Any flooding from the surface water drainage system for events up to the 1% AEP event shall be managed within the development.

Any flooding from off-site sources for the 1% AEP event should be managed on site or safely routed through the site, ensuring any downstream risks are not increased compared to the pre-development scenario.

The risks (both on and off the development) associated with flooding from the surface water drainage system for exceedance events greater than the 1% AEP event shall be appropriately managed.

Standard 4: water quality

Apply a 'SuDS approach' that protects surface waters, groundwater and coastal waters by managing the quality of the surface water runoff to adequately address water quality risks from the development.

The proposed SuDS management train(s) shall be based on a robust water quality risk assessment, appropriate to the pollution hazard and sensitivity of receiving waters, reflecting industry recognised guidance or other quantitative assessment as agreed with the approving body and permitting requirements.

Standard 5: amenity

A 'SuDS approach' shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

Standard 6: biodiversity

A 'SuDS approach' shall be adopted to ensure the surface water drainage system maximises biodiversity benefits throughout the development lifecycle.

The surface water drainage system shall add biodiversity value by:

- creating diverse, self-sustaining, resilient local ecosystems which contribute to net gains in biodiversity
- supporting and promoting natural local habitat and species, for example, through local nature recovery strategies (LNRS)
- contributing to the delivery of local biodiversity strategies
- contributing to habitat connectivity

Standard 7: design of drainage for construction, operation, maintenance, decommissioning and structural integrity

A 'SuDS approach' shall be adopted to ensure that surface water drainage systems are designed so they can be easily and safely constructed, operated and maintained taking account of the need to minimise negative impacts on natural resources and the environment.

The designer shall provide a management and maintenance plan that supports the design objectives detailed in standards 1 to 6 and ensures the performance of the surface water drainage system with regards to runoff destinations, everyday and extreme rainfall, water quality, amenity and biodiversity is maintained throughout the lifetime of the development.

Surface water drainage design shall examine for the likelihood and consequences of potential failure scenarios that may occur during the operation phase and safely manage the associated risks.

The surface water drainage system shall be designed to ensure structural integrity of all components under anticipated loading conditions for the design life of the development so that it does not affect the structural integrity of any existing or proposed components within, or adjacent to, the development.

Urban creep

Within developments an urban creep uplift factor shall be applied by adding a percentage increase to the calculated area of the impermeable area within the property curtilages. This shall be 10% for all developments unless there are no external private permeable spaces, for example, flats and apartments, when it shall be 0%.

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 ($\geq 3.3\%$ AEP) and 1 in 100 (< 3.3 to 1% AEP) year event.

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

Table 3. Irwell Management Catchment peak rainfall allowances

Irwell Management Catchment	3.3% Annual exceedance rainfall event		1% Annual exceedance rainfall event	
	2050s	2070s	2050s	2070s
Central	25%	30%	25%	30%
Upper end	35%	40%	40%	45%

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.

Regional drainage policy

Places for Everyone Joint Development Plan – Policy JP-S4: Flood Risk and the Water Environment (Greater Manchester Combined Authority, 2024)

An integrated catchment-based approach will be taken to protect the quantity and quality of water bodies with reference to the North West River Basin Management Plan and managing flood risk, by:

- Returning rivers to a more natural state, where practicable;
- Working with natural processes and adopting a natural flood management approach to slow the speed of water drainage and intercept water pollutants;
- Locating and designing development so as to minimise the impacts of current and future flood risk, including retrofitting or relocating existing developments, infrastructure and places to increase resilience to flooding;
- Expecting developments to manage surface water run-off through sustainable drainage systems and as close to source as possible. Development should achieve greenfield run-off rates unless it is demonstrated to be impracticable. District local plans should consider setting more detailed surface water drainage policies to reflect local circumstances, including alternative surface water discharge rates, such as in areas with critical drainage issues;
- Ensuring that sustainable drainage systems:
 - Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;
 - Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;
 - Are delivered in a holistic and integrated manner, including on larger sites split into different phases; and
 - Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.

- Securing the remediation of contaminated land and the careful design of developments to minimise the potential for urban diffuse pollution to affect the water environment; and
- As a minimum, residential development should meet the mandatory water efficiency standard of 125 litres/person/day as set out in Building Regulations. District local plans may and should consider setting a tighter water efficiency standard of 110 litres/person/day where there is a clear local need with reference to national guidance on housing optional technical standards.

Greater Manchester Sustainable Drainage Design Guide (Greater Manchester Combined Authority, 2024)

Restricting runoff

The aim should always be to restrict peak runoff rates and volumes as close to greenfield values as possible. This should apply up to the 1% annual exceedance probability (AEP) event. This must not be viewed as a barrier to the implementation of SuDS as the provision of any retrofit SuDS will be an improvement on the existing drainage scenario.

If the restriction of discharge rates to greenfield values is not possible in more severe storm events, significant benefits are achieved where flows are restricted to equivalent greenfield values in storms with more frequent return periods.

Similarly, a system may be designed to discharge runoff at greenfield rates for as long as possible during a storm, with a short period where exceedance flows discharge unrestricted into the downstream network to prevent on-site flooding (which should be less than the existing peak rate).

When designing streets, targeting specific rates can hinder design development and it may be beneficial to first consider the maximum possible integration of SuDS. Proposed discharge rates and associated betterments can then be determined from this initial design.

Water quality

Designing for water quality involves the specification of SuDS features which adequately cleanse and filter pollutants arising from runoff draining into the system. This ensures both groundwater and surface waters are protected from pollution, dependent on the outfall of the system.

Even where SuDS outfall to sewers, water quality treatment must be provided as surface water sewers may ultimately outfall to waterbodies and combined water sewers may have overflow mechanisms.

Water quality design should meet the following criteria:

- Interception should be provided to prevent runoff from the SuDS system for the first 5mm of rainfall.
- Runoff should flow through SuDS features providing major treatment/filtering up to the 100% AEP event.

Above the 100% AEP event, increased volumes of rainfall will often dilute pollutants and decrease their potential impact, at which point flow may be allowed to overspill into larger attenuation components without initial treatment.

The SuDS Manual sets out different methods to assess water quality performance of SuDS, and when each method is required dependent on the hazard level associated with runoff.

4. Site analysis

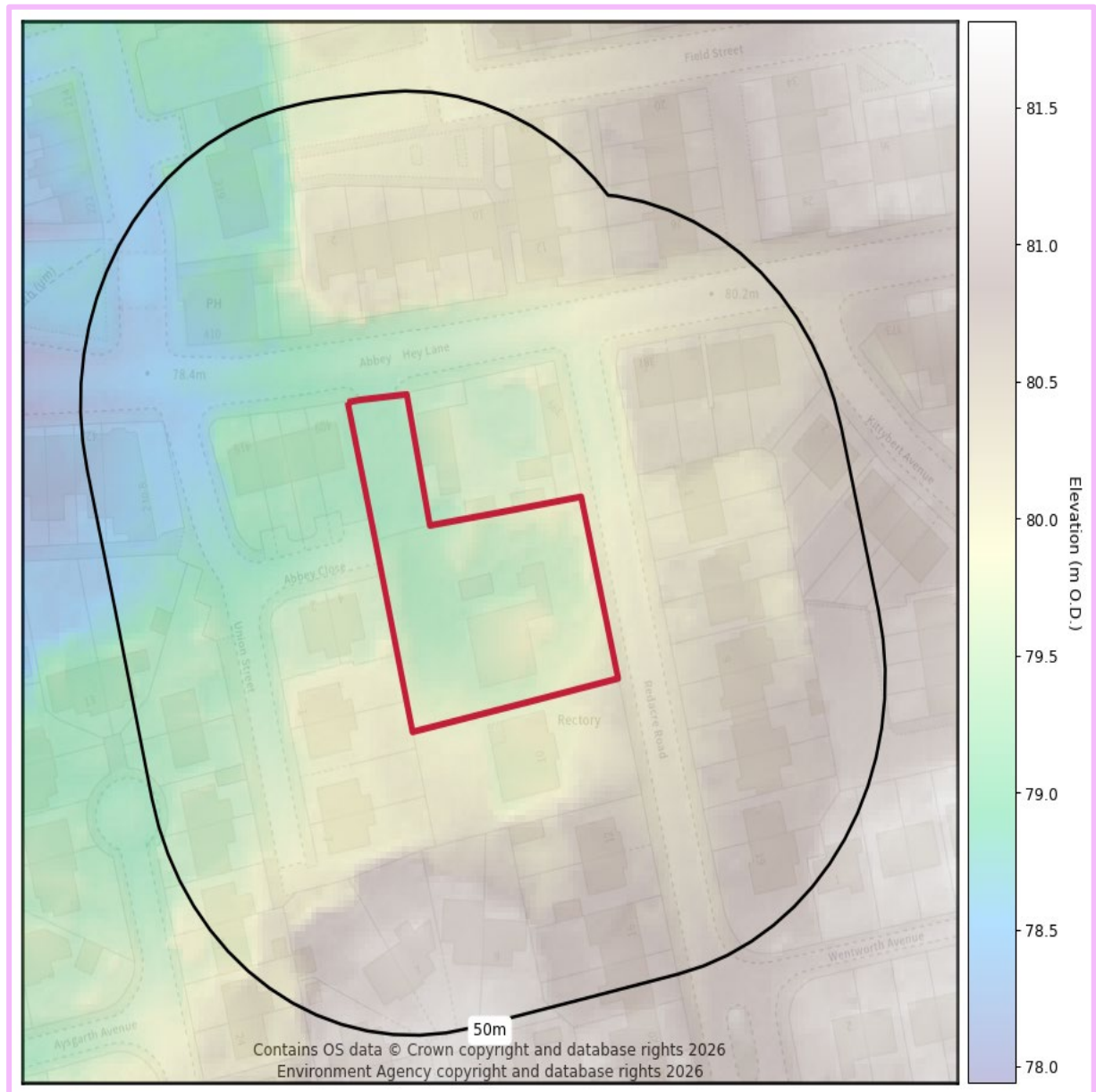
Site location

Figure 2. Aerial Imagery (Bluesky, 2026)



Topography

Figure 4. Site topography (GeoSmart, 2026)

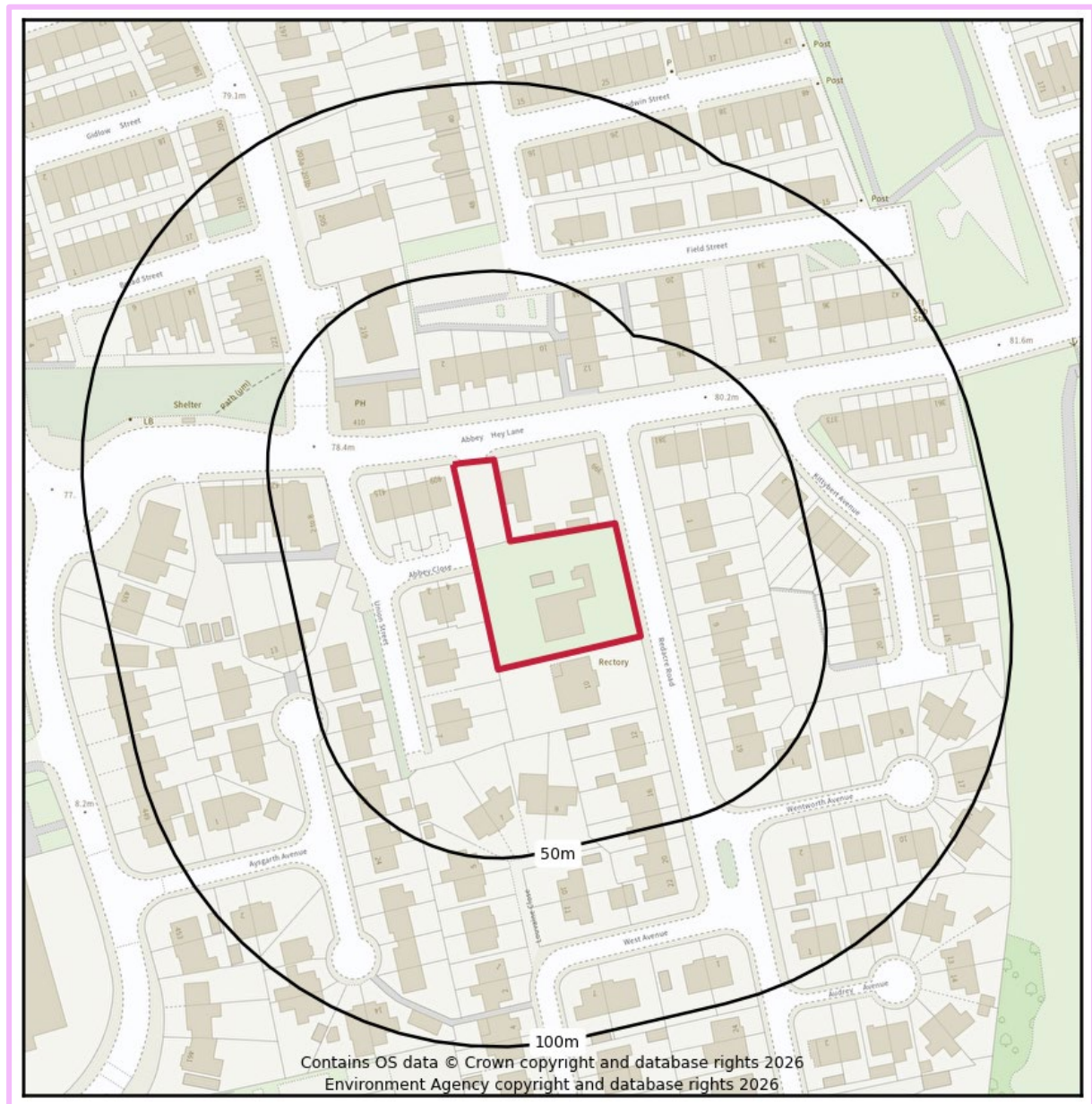


According to a review of the LiDAR DTM5 elevation data for the prevailing area, the ground levels within the vicinity of the Site typically fall to the north west.

The topography on-Site typically falls to the north west, with ground levels ranging from 79.42 mAOB to 80.45 mAOB. This is based on topographic survey data included within the existing development plans (Appendix A), in conjunction with EA elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ± 150 mm.

Land designations

Figure 5. Source protection zone map (EA, 2026)

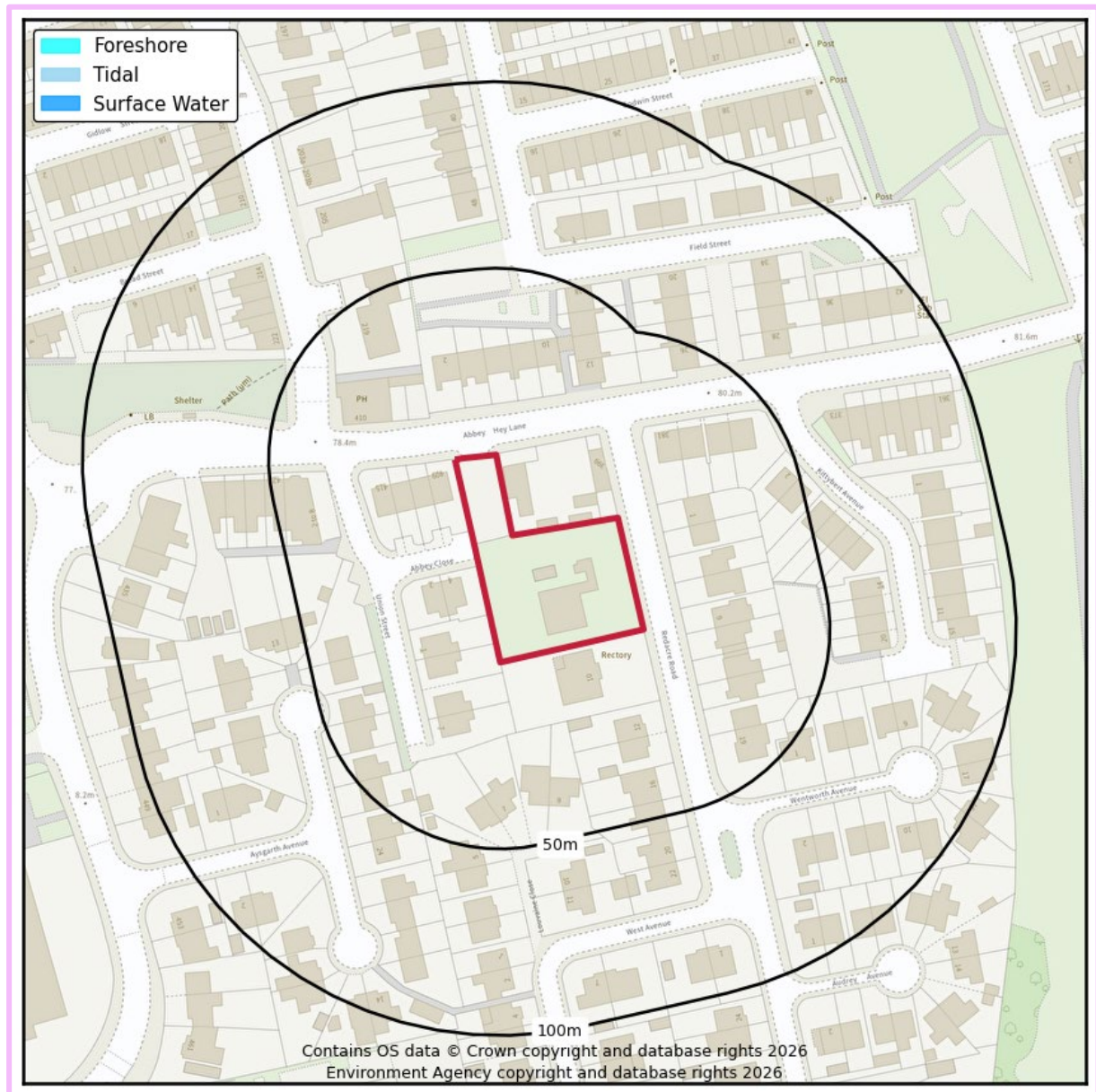


According to DEFRA's Magic Map, the Site is not located within a groundwater Source Protection Zone (SPZ). The mapping also confirms that the Site is not within 250m of a SSSI or SPA.

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.

Surface water features

Figure 6. Surface water features map (EA, 2026)

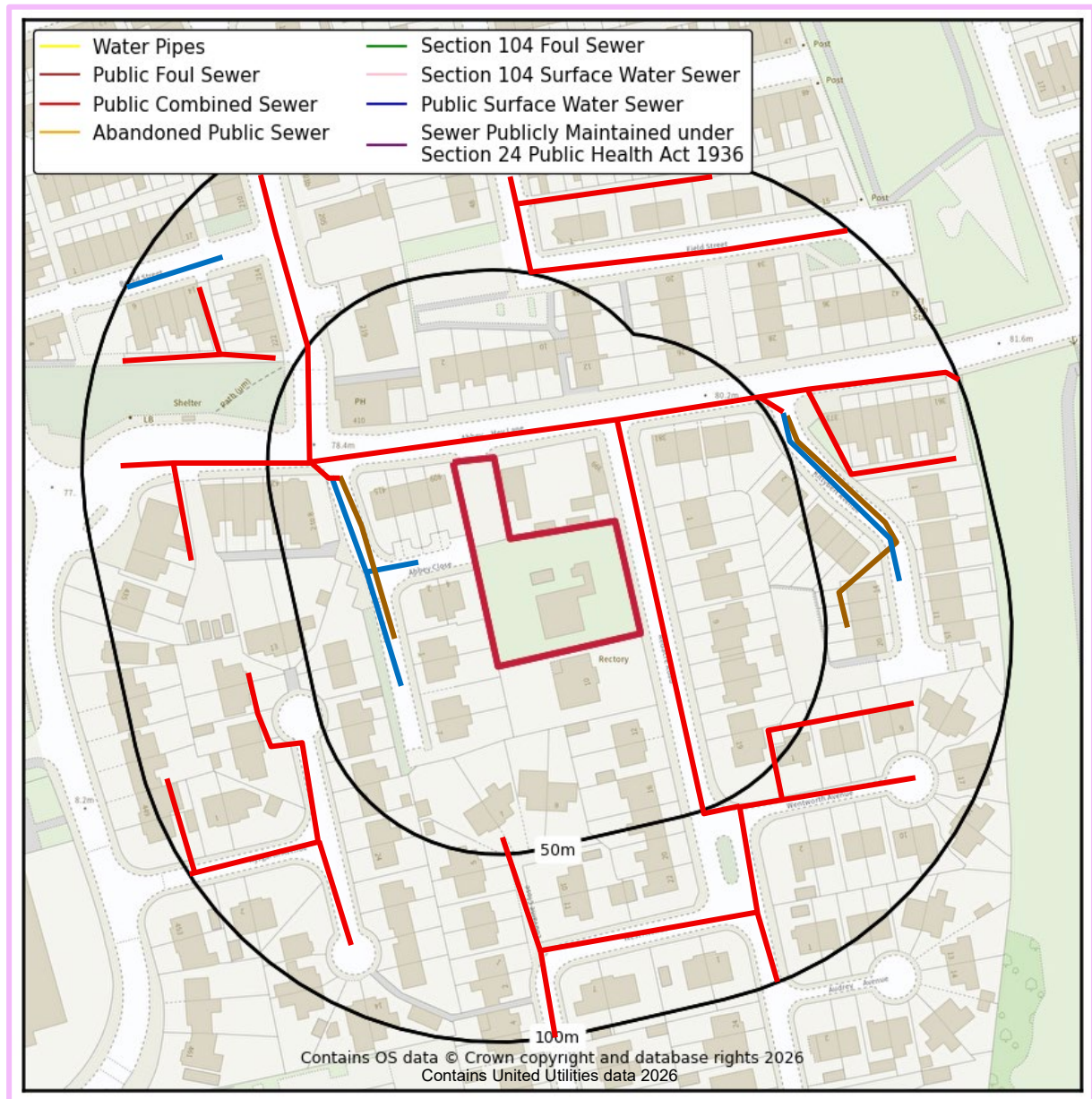


Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site. Therefore, discharge to surface water feature is not feasible.

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 potentially unmapped surface water features.

Sewer features

Figure 7. Sewer features map (OS & United Utilities, 2026)

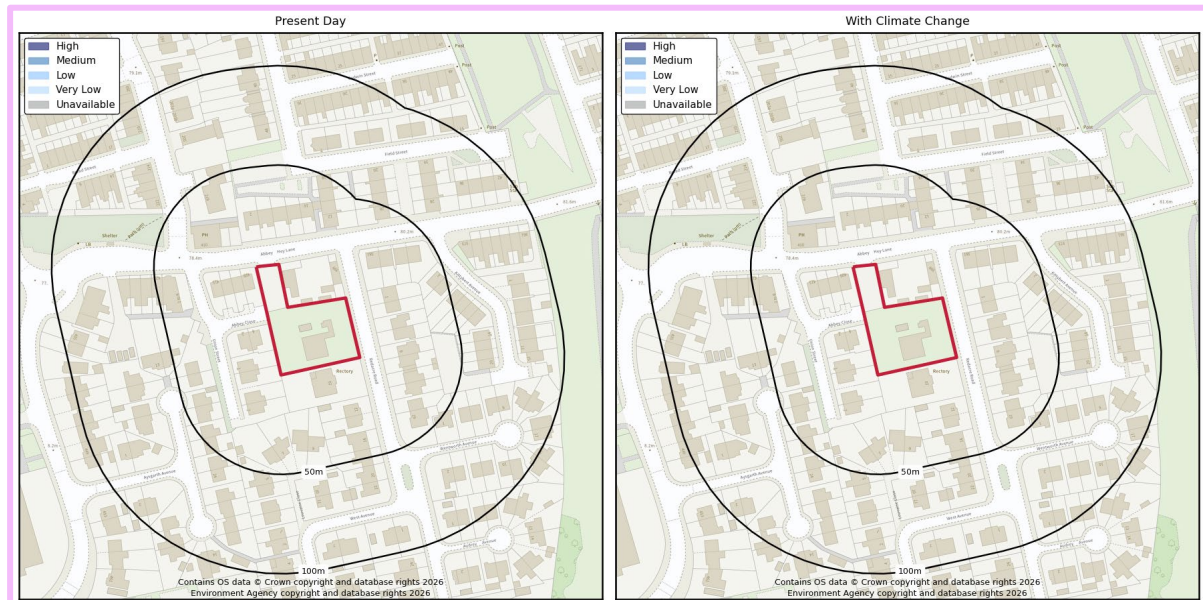


According to the United Utilities asset location plan obtained for the Site (Appendix C), a public surface water sewer is located c. 15 m to the west of the Site, along Abbey Close. Additionally, a public combined sewer is located c. 5 m north, along Abbey Hey Lane, and c. 5 m east, along Redacre Road. Therefore, discharging runoff to the public sewer network is likely to be appropriate.

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.

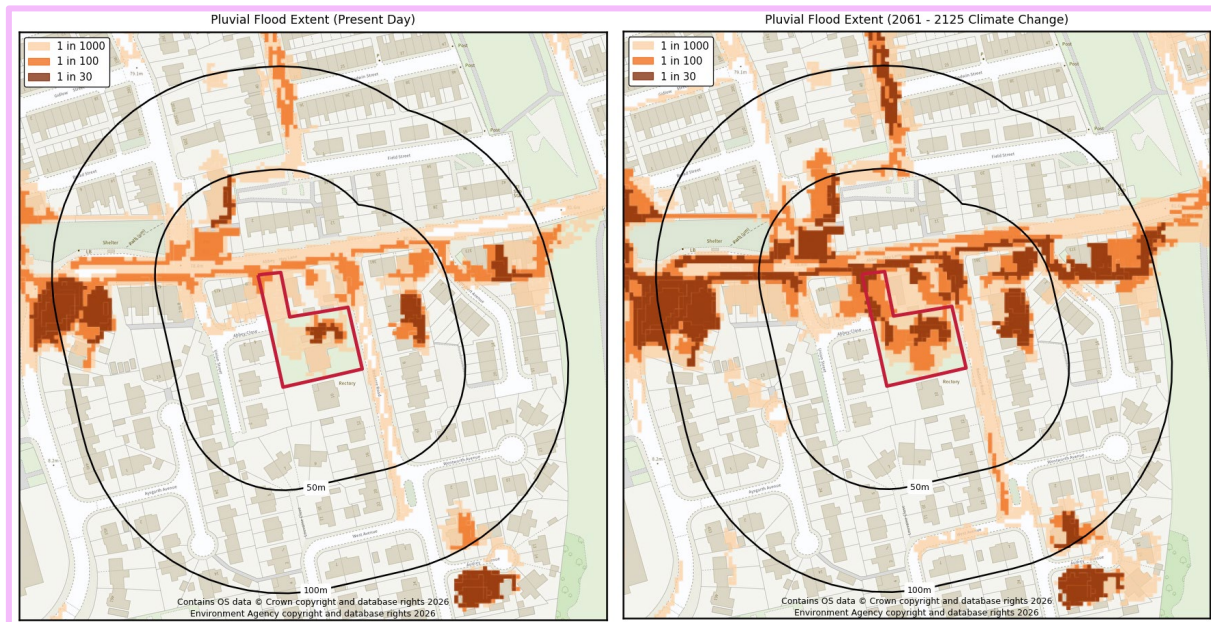
Flood risk

Figure 8. Risk of flooding from rivers & sea map (EA, 2026)



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 during both the present day and climate change (2036 to 2069) scenarios, with less than 0.1% annual probability of flooding. Therefore, the SuDS design is unlikely to be affected.

Figure 9. Risk of surface water flooding map (EA, 2026)

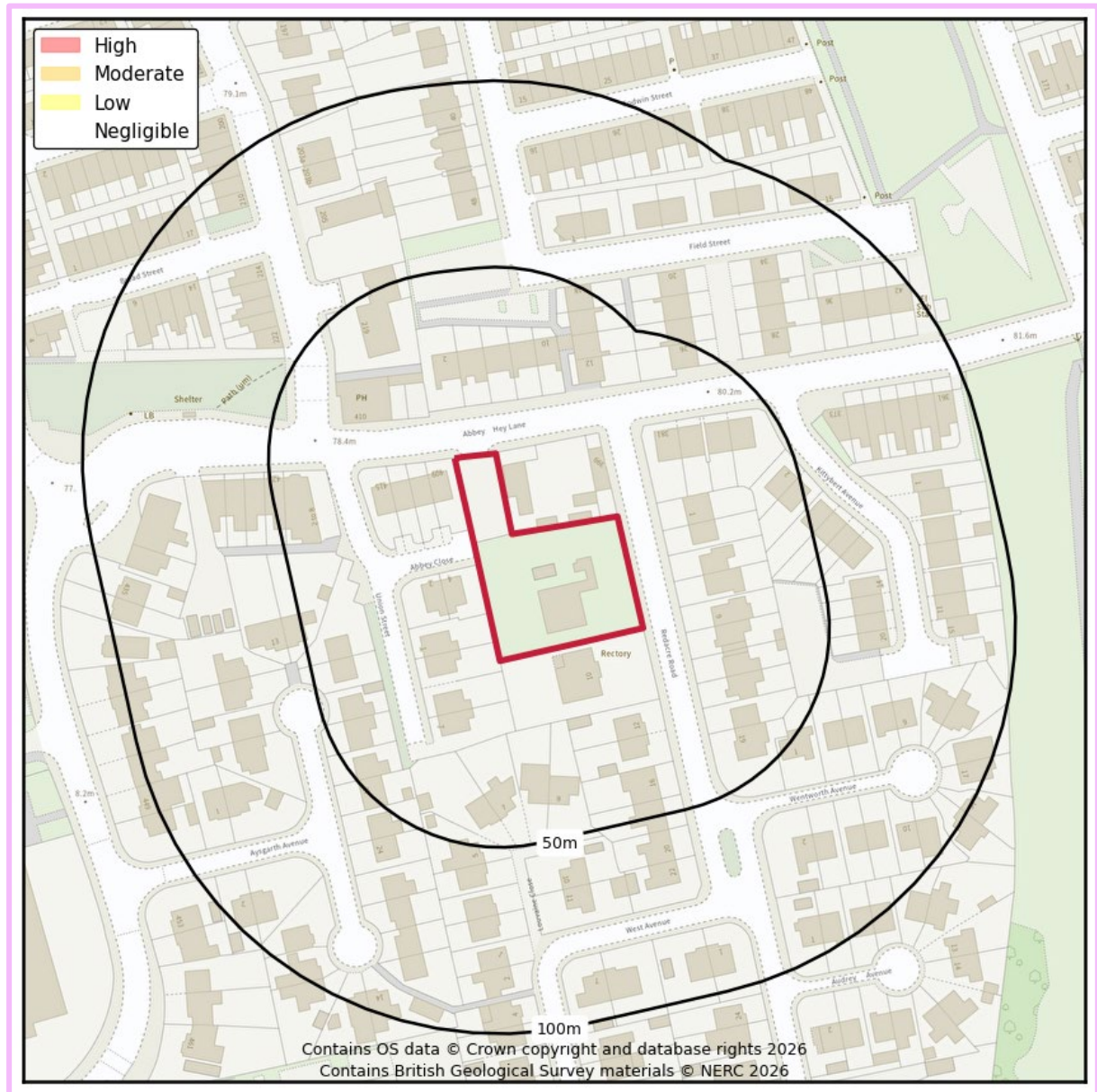


The EA's Surface Water Spatial Planning dataset included within the Flood Map for Planning confirms the Site is considered to be at Very Low to High risk of surface water flooding during the present day and climate change (2061 to 2125) scenario.

The above map shows the extent 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 there are areas where flooding could occur in the 1 in 30 year, 1 in 100 year and 1 in 1000 year events during the present day and climate change scenarios. Flooding in these areas may constrain certain types of SuDS features being used.

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

Figure 10. Groundwater flood risk (GW5) map (GeoSmart, 2026)



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.

5. 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 St Georges Residential Home, Abbey Hey Lane, Manchester, M18 8RB ('the Site'). The Site is located within a setting of predominantly residential land use.

Development

The Site comprises a derelict building with an associated garage, hard standing and soft standing. The building, which was formerly used as a residential nursing home, is currently in poor condition.

Development proposals comprise the demolition of the existing building and the erection of 8 two-and-a-half storey dwellings, including associated car parking and landscaping. The existing Site access will be retained. Site plans and drawings are provided in Appendix A.

Geology, permeability, and thickness

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

Table 4. Site Geology

Geology present on-Site		Likely to be permeable?
Superficial geology (Figure 11)	Devensian Till (TILLD) – diamicton	X
Bedrock geology (Figure 12)	Manchester Marls Formation (MM) – mudstone	X

According to a review of the BGS borehole database (BGS, 2026), the nearest available borehole record mapped within the same geological strata as the Site (ref: SJ89NE672) is located c. 100 m to the north at an elevation of c. 80.10 mAOD (estimated using LiDAR).

A summary of the geological strata encountered by the boreholes is provided within the table overleaf.

Table 5. Summary of BGS borehole ref: SJ89NE672

Strata encountered*	Depth to base of stratum (m bgl)	Strata composition
Made Ground	0.7	Bituminous surfacing, concrete and ash and cinder fill
	1.4	Clay fill with stones, sand and brick fragments
Manchester Marls Formation	3.5	Silty sandy clay with stone and coal inclusions and lenses of sand
Chester Formation	>6.0 (base of borehole)	Sand

*Inferred from the strata descriptions within the borehole record.

Figure 11. Superficial Geology (BGS, 2026)

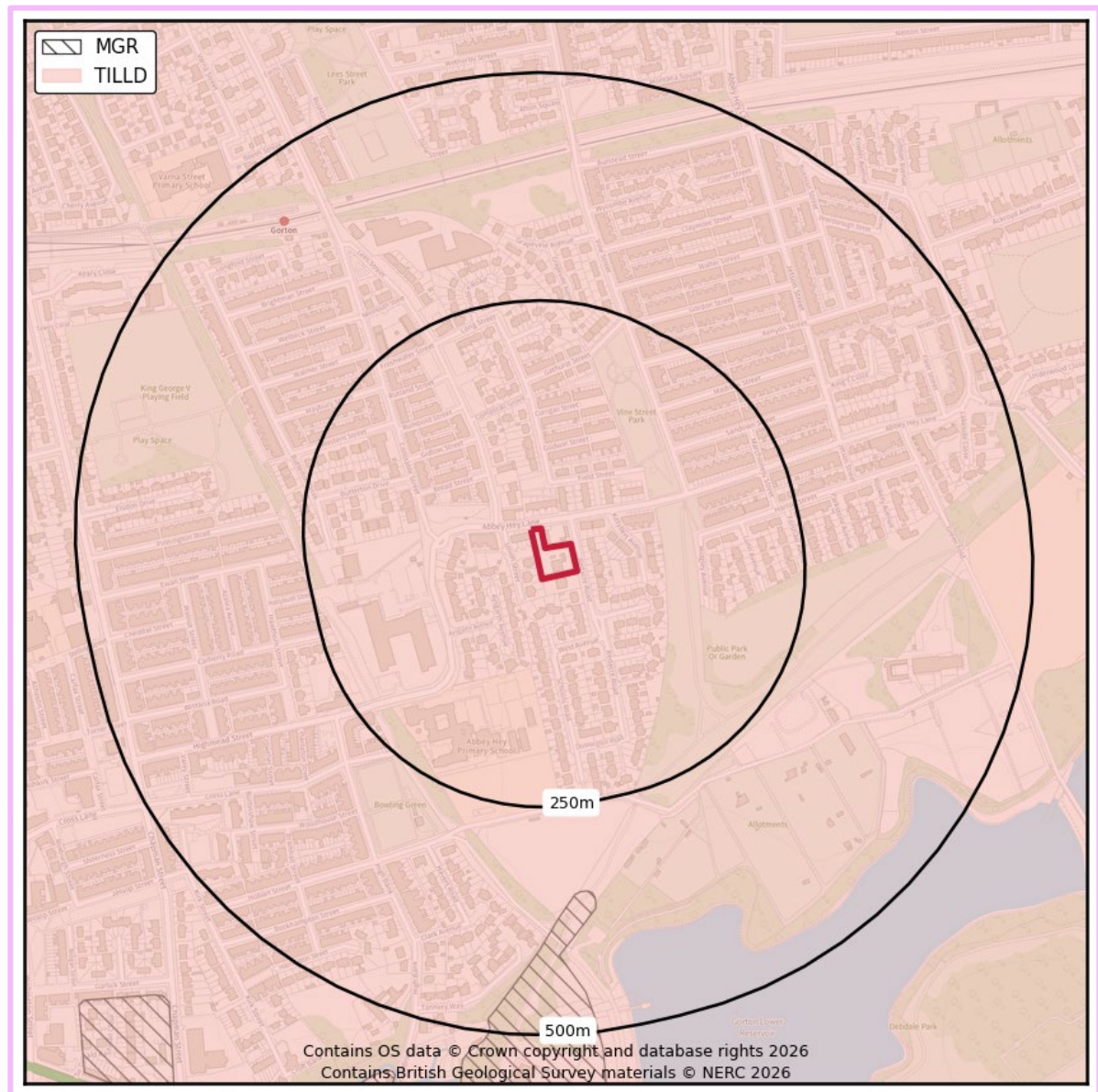
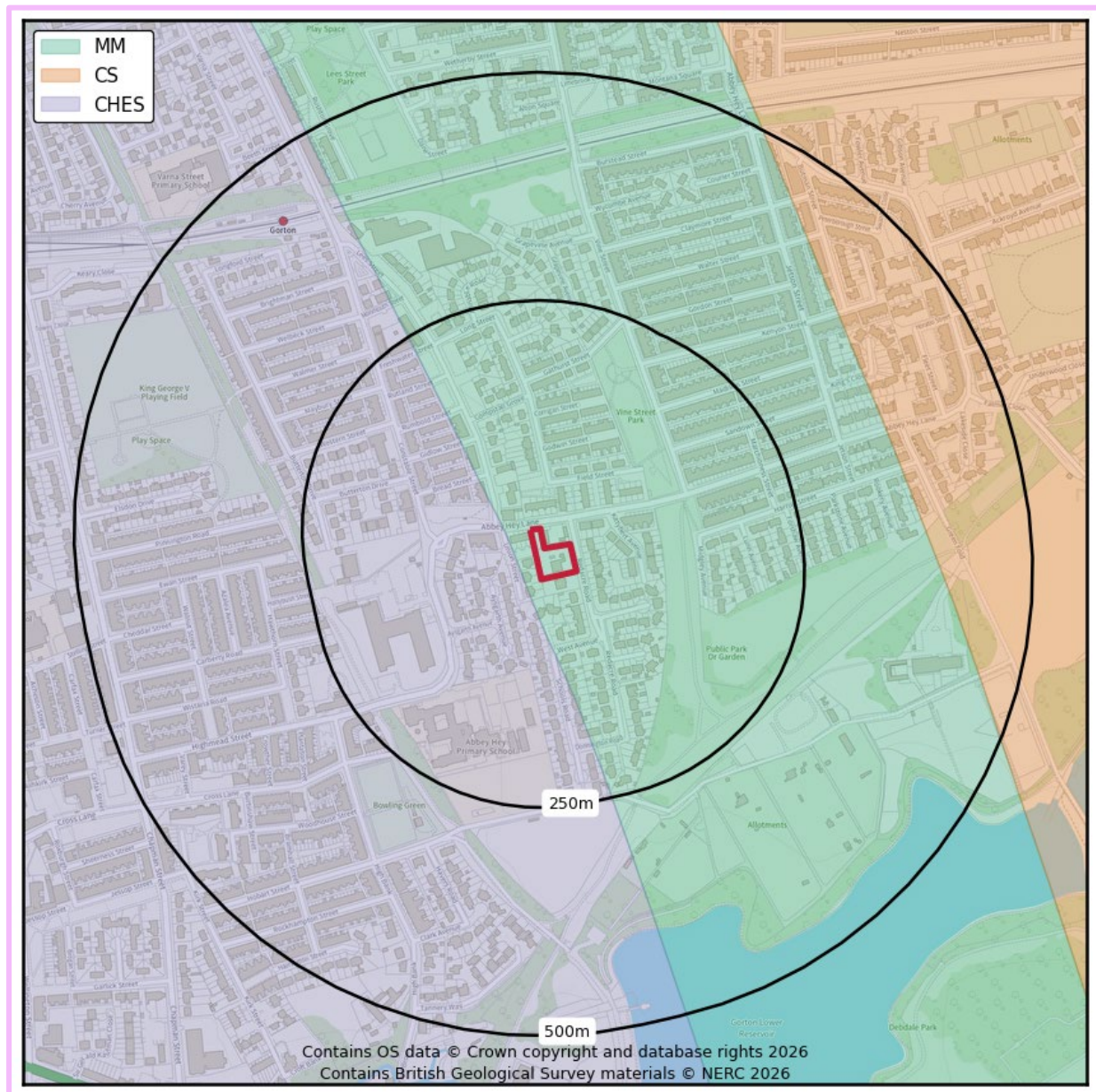


Figure 12. Bedrock Geology (BGS, 2026)



Depth to groundwater

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

Borehole ref: SJ89NE672 did not encounter groundwater to its maximum depth of 6.0 m bgl in March 1997, subject to seasonal variations.

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

Ground conditions

Infiltration SuDS features are not proposed at the Site due to the anticipated modest permeability of the underlying geology, paired with potential concerns surrounding contamination (due to the land use history and current condition of the Site); therefore, a detailed investigation into the ground conditions is not required.

Water quality

The Site does not lie within an SPZ, and infiltration features are not proposed; therefore, for the purposes of the sustainable drainage assessment further consideration of the historical land uses (and any associated contamination risks) is not considered necessary.

In any case, a Phase 1 Contaminated Land Assessment has been prepared for the proposed development, which provides further consideration of the historic land use of the Site (ref: 91637).

6. Runoff destination

National Standard 1: runoff destinations

Options for the destination for the runoff generated on-Site have been assessed in line with the prioritisation set out in DEFRA's national standards for sustainable drainage systems (2025).

Priority 1: Collection for non-potable use

An assessment of the potential for rainwater collection and re-use across the proposed development has been undertaken, which confirms that there is the potential for the provision of rainwater harvesting measures at the Site. Captured water could be used to water vegetation in order to provide additional amenity and biodiversity benefits.

Priority 2: Discharge to ground

According to GeoSmart's SD50 screening data, the Site has Moderate potential for infiltration. Based on the available hydrogeological information (Section 5) the permeability of the underlying strata is unlikely to be sufficient to accommodate focused infiltration SuDS features, although shallow groundwater is unlikely to be a concern at the Site. The Site is not located within an SPZ.

Given the condition and land use history of the Site, there is potential for contamination in the subsurface. Therefore, infiltration SuDS features are not considered to be feasible at the Site.

Priority 3: Discharge to above ground surface water body

Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site; therefore, discharge to surface water feature is not feasible.

Priority 4: Discharge to surface water sewer

According to the United Utilities asset location plan obtained for the Site (Appendix C), a public surface water sewer is located c. 15 m to the west of the Site. Therefore, discharging surface water runoff to the public surface water sewer is feasible.

For this option, a flow control device would be required to limit peak discharge rates to the maximum selected rate as indicated in Section 7, along with the appropriate attenuation storage volume.

Priority 5: Discharge to combined sewer

According to the United Utilities asset location plan obtained for the Site (Appendix C), a public combined sewer is located c. 5 m to the north and east of the Site; therefore, discharging runoff to the public combined sewer is likely to be appropriate.

7. Storage, volume and peak flow rate

Urban creep

According to Paragraph 3.3 of the DEFRA National standards for SuDS, urban creep should be taken into account as part of the SuDS design. Urban creep accounts for the potential for impermeable areas to increase over the lifespan of a development, such as extensions to proposed building footprints and increases in patio areas.

Therefore, in accordance with the required allowance for a Site with external private permeable spaces, a 10% urban creep allowance has been applied to the proposed impermeable areas.

Surface water runoff

An increase in impermeable areas on-Site will result in greater rainfall runoff. A reduction in runoff will help mitigate flood risk both on and off-Site.

Table 6. Change in impermeable area associated with the development

Total Site area	1500 m ²
Impermeable area (and as a percentage of the total area of the proposed development footprint of 1250 m ²) [†]	
Pre-development	Post-development
613 m ² (49%)	930 m ² (74%) [‡]
Impermeable land use: 200 m ² building footprint, 413 m ² broken hard standing Permeable land use: 637 m ² soft standing	New impermeable land use: 395 m ² building footprint, 450 m ² hard standing* New permeable land use: 321 m ² landscaped areas

*Please note, while these areas will be utilised for SuDS, for the calculations these areas will be classed as impermeable in order to assess the potential run-off volumes and rates for the Site post- development and the potential holding capability of the proposed SuDS features.

‡ An additional 10% Urban Creep uplift factor has been applied to the post-development impermeable area in order to account for the potential for impermeable areas to increase over the lifespan of a development.

† A c. 250 m² area, consisting of the Site entrance, is understood to be unaffected by the development proposals. As such, this area is considered to drain as existing and has been excluded from the drainage calculations.

Suggested minimum and aspirational storage requirements for an attenuation SuDS scheme for the development footprint are set out below, with more detail provided in subsequent sections.

Table 7. Storage requirements for the proposed development (discharge of runoff to surface water sewer)

Attenuation scenario		Attenuation required (m ³)	Explanation	
Discharge runoff to surface water sewer	1 in 30 year	21.13	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 30 year (1 hour, Critical Storm Duration) event*. Flooding of the Site of 8.19 m³ should be contained within permeable landscaped areas within the Site to ensure no flooding of internal areas during the 1 in 100 year storm event.	A further 18.56 m ³ should be managed within overland flow routes to ensure there is no increase in flood risk in all events up to the 1 in 100 year including 40% allowance for climate change.
	1 in 100 year	29.32	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 100 year (1 hour, Critical Storm Duration) event*.	
	1 in 100 year including 45% CC	47.88	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 100 year (2 hour, Critical Storm Duration) event including a 45% allowance for climate change*.	

*See Appendix B for associated runoff and discharge calculations. Subject to discharge rates being limited to 1 l/s (as close to the equivalent Greenfield 1 in 1 year rate as possible, without increasing the potential for blockages).

Peak discharge rates

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 runoff is disposed of via infiltration, there will be no discharge off-Site.

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.

Table 8. 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	0.82	N/A	N/A	N/A
6 hour 1 in 1 year	0.69	1.02	1.20	0.19
6 hour 1 in 10 year	1.13	1.59	1.87	0.28
6 hour 1 in 30 year	1.37	2.05	2.43	0.38
6 hour 1 in 100 year	1.70	2.59	3.07	0.48
6 hour 1 in 100 year + 20% CC	N/A	N/A	3.68	1.09
6 hour 1 in 100 year + 45% CC	N/A	N/A	4.45	1.86

¹ Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the loH124 method.

Relevant national, regional and local planning policy has been consulted in Section 3 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.

Table 9. 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	14.99	N/A	N/A	N/A
6 hour 1 in 1 year	14.15	21.98	26.02	4.04
6 hour 1 in 10 year	22.65	34.32	40.35	6.03
6 hour 1 in 30 year	28.55	44.33	52.48	8.15
6 hour 1 in 100 year	36.05	55.98	66.28	10.29
6 hour 1 in 100 year + 20% CC	N/A	N/A	79.53	23.55
6 hour 1 in 100 year + 45% CC	N/A	N/A	96.10	40.12

² Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces, as calculated using the loH124 method.

Critical storm duration and volume requirements

Storage volumes for a range of return periods including the 1 in 30 year, 1 in 100 year and 1 in 100 year plus climate change (45%) events have been calculated to assess the impact of the proposed development. The required storage volumes for attenuation features have been calculated for the critical storm durations, limited to a maximum discharge rate of 2 l/s (as close to the equivalent Greenfield 1 in 1 year rate as possible, without increasing the potential for blockages).

Table 10. Critical Storm Duration and Attenuation volume requirements

Return Period	Runoff rate restriction (l/s)	Critical Storm Duration (hr)	Attenuation volume required (m ³)
1 in 30 year	2	1	21.13
1 in 100 year	2	1	29.32
1 in 100 year including a 45% climate change	2	2	47.88

8. 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 driveways, car parking and hard standing). The Site does not lie within an SPZ and therefore additional treatment stages are not required.

Table 11. Pollution hazard indices for different land use classifications

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very Low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads and non-residential car parking within infrequent change (i.e. less than 300 traffic movements/day)	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g. hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, storage, used or manufactured: industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

Table 12. Indicative SuDS mitigation indices for discharges to surface waters

Type of SuDS component	Mitigation indices		
	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area		

As indicated within Tables 11 and 12, the proposed permeable paving and rain gardens would provide sufficient mitigation indices to treat the Low pollution hazard associated with the Site use.

9. Proposed SuDS strategy

Sustainable drainage systems

DEFRA's national standards for SuDS require the below ground drainage systems to have the capacity to accommodate at least the 1 in 30 year event and to manage the 1 in 100 year event without flooding of on-site buildings and substations. All runoff should be managed on-Site though for the 1 in 100 year event, accounting for the maximum impacts of climate change to ensure flood risk is not increased to third-parties.

It is assumed that the shared access road (outside the development footprint) will continue to use the existing drainage arrangement.

A surface water drainage strategy (summarised in Section 2 of this report) includes the following SuDS features to intercept, attenuate and treat surface water runoff.

SuDS Strategy:

Infiltration to ground is not achievable at the Site, and no suitable water features were identified. Therefore, surface water runoff will be managed within SuDS features and discharged to the public sewer network.

Table 13. Proposed SuDS type, features, discharge location and rate restriction

SuDS type	Source control (interception) and attenuation SuDS.
SuDS features	Rainwater harvesting butts, lined permeable paving and rain gardens.
Discharge location	Public surface water sewer.
Discharge rate	2 l/s (as close to the Greenfield 1 in 1 year rate as possible, without increasing the risk of blockage).

Table 14. Proposed SuDS sizing (dimensions) and attenuation volumes

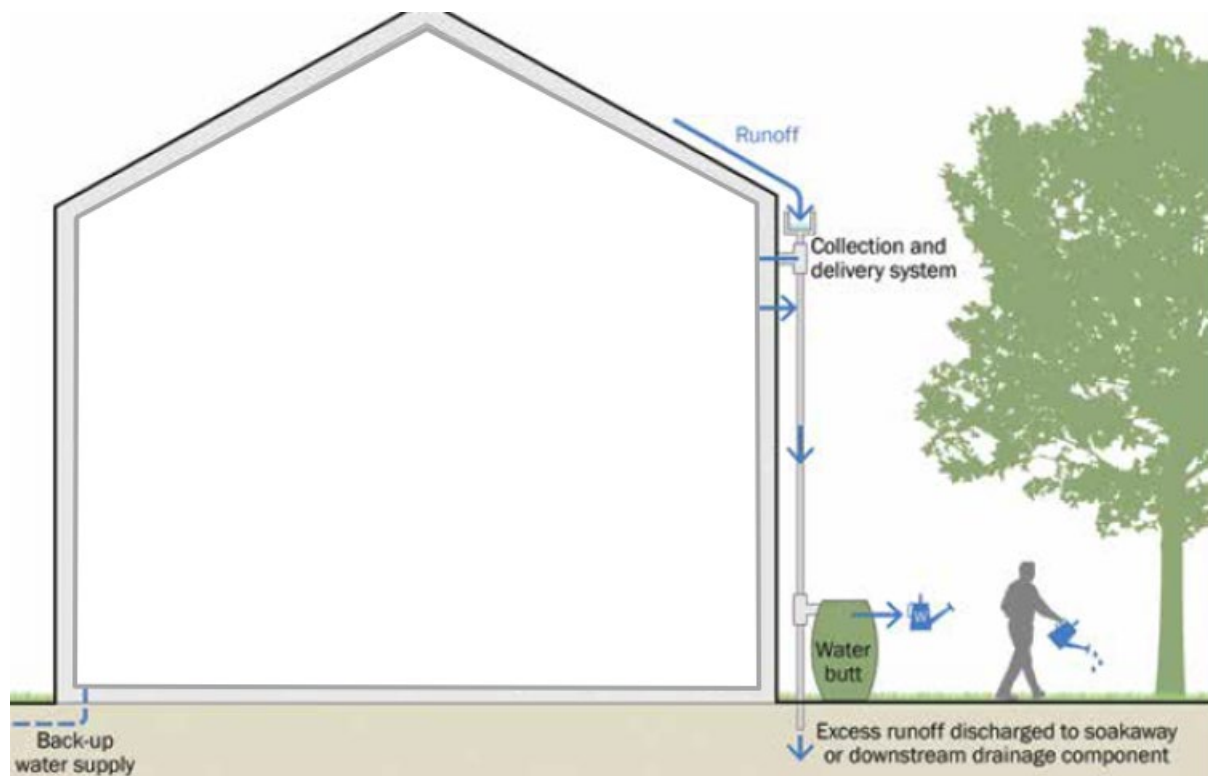
Rainwater harvesting	To comply with DEFRA's national standards for SuDS (2025), rainwater harvesting butts should be established for each proposed development. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the preliminary SuDS strategy.
Permeable paving	A 450 m ² area of lined permeable paving (underlain with a Type 3 aggregate material with a 30% porosity) within the proposed driveway and hard standing areas to a depth of 0.4 m would provide c. 54.00 m ³ of attenuation.
Rain garden	Rain gardens are proposed to be established for the development for water quality and biodiversity purposes. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rain gardens has not been considered within the preliminary SuDS strategy.

Total attenuation provided	54.00 m ³
Total attenuation required	47.88 m ³
Freeboard storage provided	6.12 m ³

Rainwater harvesting

Run-off from the proposed development roofs should be led into rainwater harvesting butts via rainwater downpipes and guttering. Overflow from the butts should be discharged into the storage system provided by the permeable paving.

Due to the relatively insignificant amounts of attenuation provided by rainwater harvesting tanks in this instance and the requirement to retain water for non-potable uses such as garden maintenance, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the report.



Modified from Figure 11.3 of the CIRIA SuDS Manual (C753) (2015)

Permeable paving

Lined permeable paving is proposed for the driveways and hard standing areas to intercept runoff. Suitable aggregate materials (angular gravels with suitable grading as per CIRIA, 2015) will improve water quality due to their filtration capacity and usually work to a 30% porosity. Paving could also implement an impermeable liner close to the building or create a separate compartment within the permeable sub-base close to the building to further divert attenuated water away from building foundations.

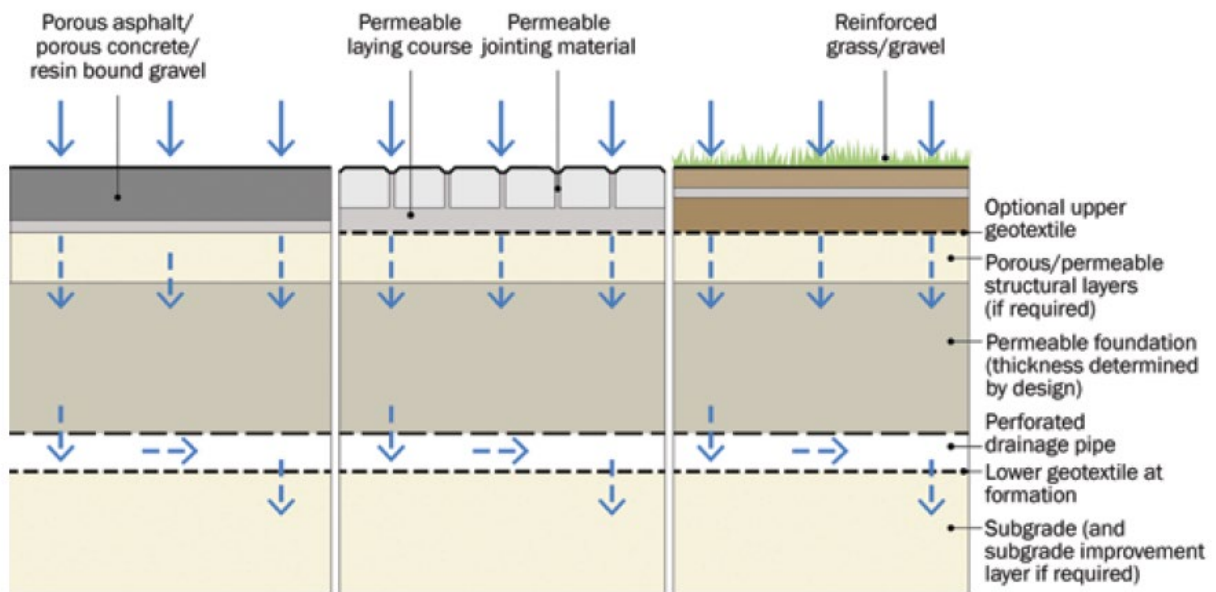


Figure 20.13 of the CIRIA SuDS Manual (C753) (2015)

Rain gardens

Rain gardens (bio-retention areas) will be used to collect surface water. The bio-retention area should provide an area to store and treat rainwater where water is collected. Rain gardens should be planted up with native vegetation that is happy with occasional inundations.

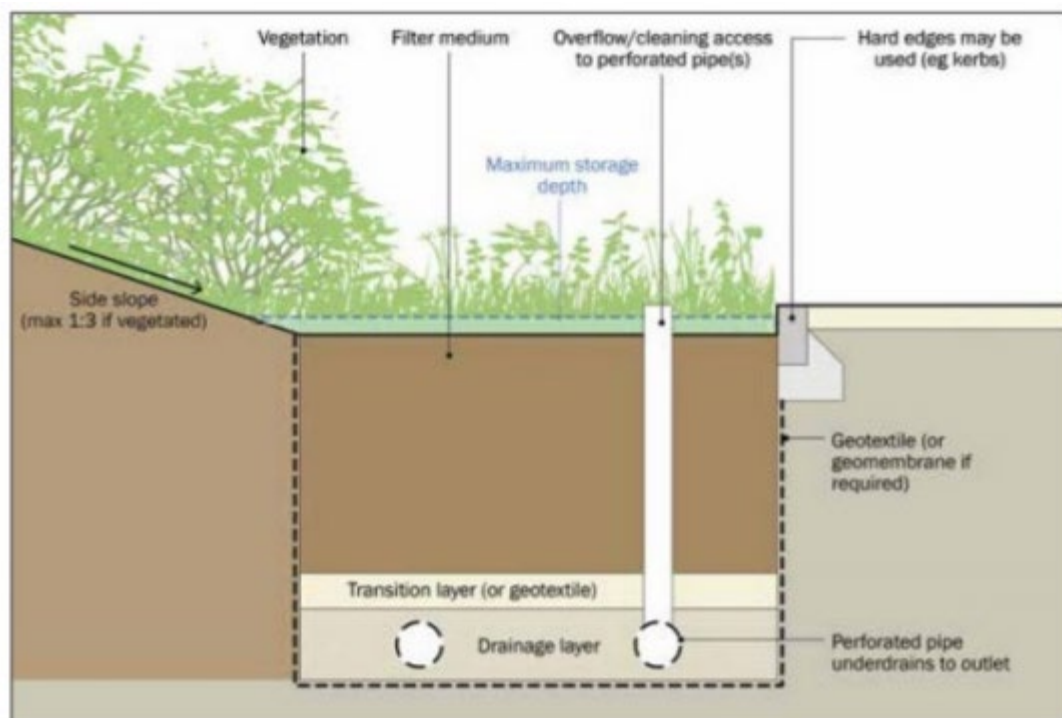


Figure 18.1 of the CIRIA SuDS Manual (C753) (2015)

Flow control devices and systems

Hydrobrake Flow control systems can be used to reduce the runoff rate from the Site. These are usually a device used for controlling water flow into a connecting feature, such as a sewer, to a specific attenuation performance. The design consists of an intake, a volute and an outlet and the configuration is critical to ensure discharge control. For drainage areas which are less than 3 ha, outlet throttle diameters would have to be small (<150mm diameter) to achieve outflow rates which could result in blockage. For most SuDS features, a flow control device will comprise a fixed orifice or a throttle such as a short pipe.

Drainage protection devices

A non-return flap valve is recommended for outflow pipes to reduce the risk of backflow from the sewer during a large scale rainfall event.

Exceedance flows

Exceedance flow routes are included within the proposed SuDS drainage layout. Where possible, exceedance flows should be directed into non-essential areas of the Site such as gardens and driveways. The SuDS system recommended for the Site should provide enough storage that this method would only be utilised during a worst case scenario.

Amenity and biodiversity

The inclusion of rain gardens where feasible will provide sufficient biodiversity and amenity benefits to the areas of proposed development. The rain gardens will introduce green features that enhance the local area, support pollinator-friendly planting, and create small-scale habitats that increase biodiversity. The rain gardens should be populated by native vegetation that is happy with occasional inundations. Meanwhile, the use of rainwater harvesting butts will provide a non-potable water supply that can be used to water vegetation and ensure their long-term viability as amenity features.

10. SuDS maintenance

Regular maintenance is essential to ensure effective operation of the SuDS features over the intended lifespan of the proposed development. The SuDS Manual (C753) (CIRIA, 2015) provides a maintenance schedule for SuDS with details of the necessary required actions as shown in the Table below.

Table 15. SuDS operation and recommended maintenance requirements

Asset type	Maintenance schedule (and frequency)
Permeable pavements	Regular maintenance: - Brushing and vacuuming (three times per year). - Trimming any roots and surrounding grass and weeds that may be causing blockages (annually or as required). Monitoring: - Initial inspection (monthly). - Inspect for poor performance and inspection chambers (annually).
Hydro-Brake Flow Control	Low amounts of maintenance required as there are no moving parts within the Hydro-Brake® Flow Control. Initial monthly inspection at the manhole once the construction phase is over. If blockages occur they normally do so at the intake. Hydro-Brake® Flow Controls are fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur. Inspection should be undertaken annually or when a storm event occurs.
Underground drainage pipe network	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).
Rainwater harvesting	Regular maintenance: - Inspection of tank for debris and sediment build up (annually and following poor performance). - Inspection of inlets, outlets, overflow areas, pumps and filters (annually and following poor performance). - Cleaning of tank, inlets, outlets, gutters, roof drain filters and withdrawal devices (annually or as required). Remedial actions:

Asset type	Maintenance schedule (and frequency)
	Repair or overflow erosion damage or damage to tank and associated components (as required)
Rain gardens	Regular maintenance: - Remove litter and debris from basin (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).

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.

11. Background information

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 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 (2024). 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 runoff will be disposed of via 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 effect.

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.

12. Additional Products

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

Additional GeoSmart Products		
	Additional assessment: 	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: 	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.

13. References and glossary

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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.

Source Protection Zone (SPZ) **Areas where groundwater supplies are at risk from potentially polluting activities and accidental releases of pollutants. They are a policy tool used to control activities close to water supplies intended for human consumption.**

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.

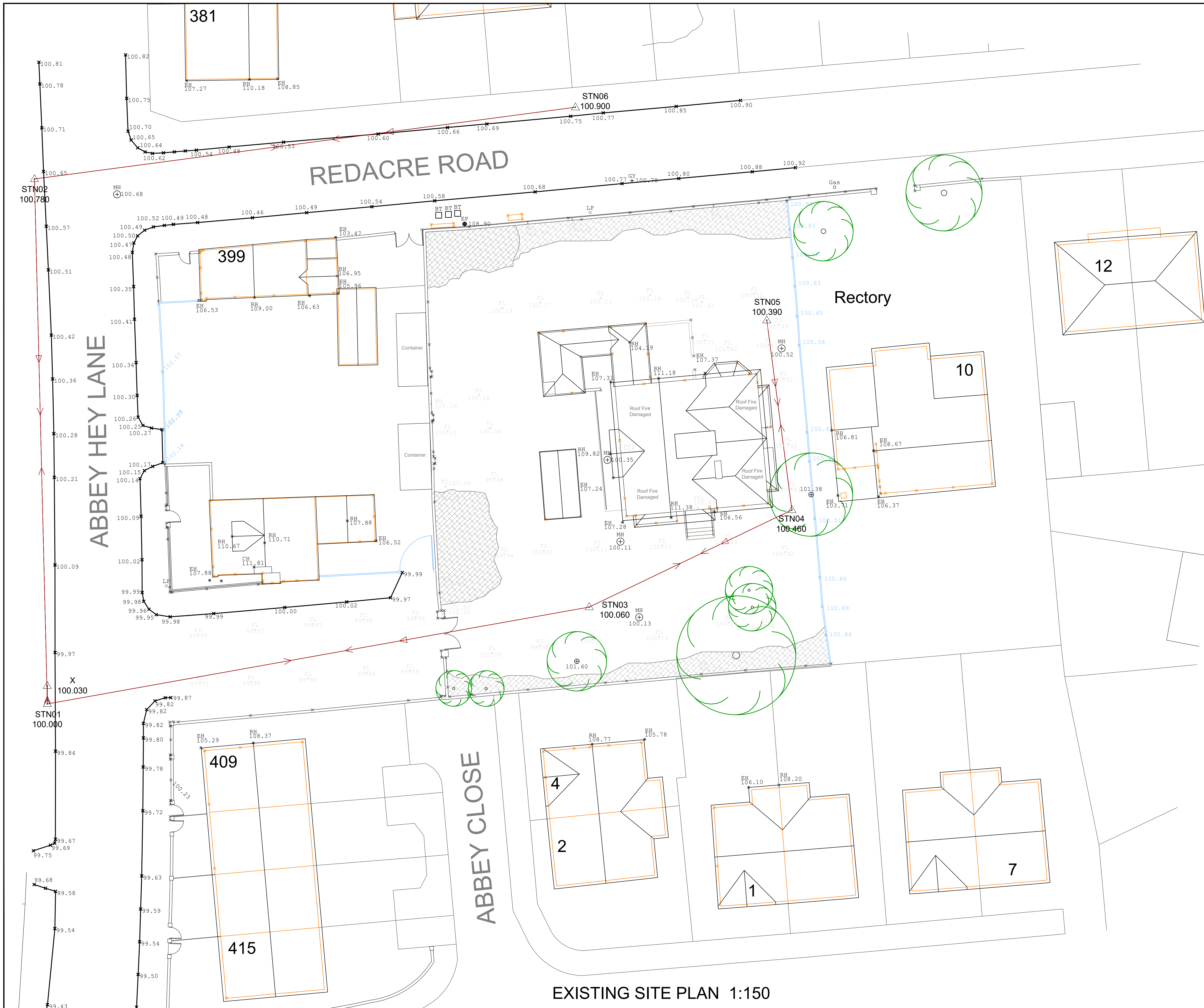
Data sources

Aerial Photography	Contains Ordnance Survey data © Crown copyright and database right 2026 BlueSky copyright and database rights 2026
Bedrock & Superficial Geology	Contains British Geological Survey materials © NERC 2026 Ordnance Survey data © Crown copyright and database right 2026
Flood Risk (RoFRS/Pluvial/Surface Water Features/SPZ)	Environment Agency copyright and database rights 2026 Ordnance Survey data © Crown copyright and database right 2026
Flood Risk (Groundwater) and SuDS infiltration suitability (SD50)	GeoSmart, BGS & OS GW5 (v2.4) Map (GeoSmart, 2026) Contains British Geological Survey materials © NERC 2026 Ordnance Survey data © Crown copyright and database right 2026
Sewer Location	Contains Ordnance Survey data © Crown copyright and database right 2026 Contains United Utilities search data 2026
Topographic Data	OS LiDAR/EA Contains Ordnance Survey data © Crown copyright and database right 2026 Environment Agency copyright and database rights 2026

14. Appendices

Appendix A

Site plans



NOTES

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO ANY MANUFACTURING OR FABRICATION AND ANY ANOMALIES TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

North

Topographical Survey Legend

Level prefix descriptions

- Existing Tree
- Site Boundary
- Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.
- Area not surveyed
- Foliage
- Grass

BT	British Telecom IC	MH	Manhole Cover
BL	Building Line	RH	Roof/Ridge Level
BBS	Bus Stop Pole (top)	RS	Road Sign
CH	Chimney Height	SH	Sign Height
DR	Door Head	ST	Stop Tap
EH	Eaves Level	TB	Telephone Box (Payphone)
GY	Gully	TL	Traffic Light
GP	Gate Post	TP	Telegraph Pole
IL	Invert Level	TF	Top of fence level
LP	Lamp Post	UB	Utility Box (top)
FFL	Finished floor Level	WC	Window Cill Level
WST	Water stop tap	WH	Window Header Level
FL	Spot/Floor Level	TW	Top of Wall
		STN01	Survey control station
			100.000

0 7.5m

SCALE 1:150

EXISTING

A		FIRST ISSUE		TB	03.02.26	
REV	AMENDMENTS				BY	DATE
PROJECT PROPOSED RESIDENTIAL DEVELOPMENT ST GEORGES RESIDENTIAL HOME ABBHEY HEY LANE GORTON MANCHESTER M18 8RB CLIENT MR EHSAN SHAH						
DRAWING TITLE EXISTING SITE SURVEY						
DRAWN		TB		DATE		03.02.26
CHECKED				SCALE		1:150 (A1)
APPROVED						
 HOWARD & SEDDON A.R.I.B.A. CHARTERED ARCHITECTS 64 WASHWAY ROAD SALE, CHESHIRE, M33 7RE TEL NO. 0161 - 973 8296 FAX NO. 0161 - 962 3485 E-MAIL : ADMIN@HOWARDANDEDSON.CO.UK						
JOB No.		DRG No.		REVISION		
16,129		01		A		

EXISTING SITE PLAN 1:150



Schedule of accomodation:

- No. 6 terraced houses - Type A - 4B/5P
tot gia per unit: 103.66 sq mt
- No. 2 semi-detached houses - Type B - 3B/4P
tot gia per unit: 93.62 sq mt

NO. 8 TOT UNITS
No. 10 tot car parking



SCALE 1:200

C	WASTE STORE AND COLLECTION	II	26.03.26
B	FIRST ISSUE	II	02.03.26
A	FIRST ISSUE - WIP	II	20.02.26
REV	DESCRIPTION	BY	DATE



HOWARD & SEDDON A.R.I.B.A.
CHARTERED ARCHITECTS
64 WASHWAY ROAD
SALE, CHESHIRE, M33 7RE
TEL NO. 0161 - 973 8296
FAX NO. 0161 - 962 3485
E-MAIL : ADMIN@HOWARDANDEDSON.CO.UK

PROJECT
PROP RES DEVE
ST GEORGES, ABBEY HEY LANE
GORTON, MANCHESTER, M18 8RB

CLIENT
MR EHSAN SHAH & USMAN AHMED

TITLE
SITE PLAN AS PROPOSED
ground level

DRAWN
II
DATE
26.03.26
SCALE
1:100 (A3)

DRG No.
16,129
100
AMENDMENT
C

Appendix B

Rainfall runoff calculations

Input parameters for run-off calculations		
Country	England	
Total site area	1500	m ²
Area proposed for development	1250	m ²
Current permeable ground cover	637	m ²
Current impermeable ground cover	613	m ²
Proposed permeable ground cover	320.5	m ²
Proposed impermeable ground cover	845	m ²
Urban Creep Allowance	10%	
Final impermeable ground cover	929.5	m ²
SPR	0.47	
SAAR	907	mm
Region	10	
Climate change factor	45%	
Discharge Rate (l/s)	2.0	
Run-off coefficient	100%	

Current impermeable area as % of total	49%
Proposed impermeable area as % of total	74%
Change in permeable area (m2)	-317
Change in impermeable area (m2)	317
Change in impermeable area as % of total	25%

Rainfall event	Greenfield run-off rates (l/s)	Existing run-off rates(l/s)	Potential run-off rates without attenuation (l/s)	Potential minus existing (l/s)
QBAR	0.82	N/A	N/A	N/A
6 hour 1 in 1 year	0.69	1.02	1.20	0.19
6 hour 1 in 10 year	1.13	1.59	1.87	0.28
6 hour 1 in 30 year	1.37	2.05	2.43	0.38
6 hour 1 in 100 year	1.70	2.59	3.07	0.48
6 hour 1 in 100 year + 20% CC	N/A	N/A	3.68	1.09
6 hour 1 in 100 year + 45% CC	N/A	N/A	4.45	1.86

Rainfall event	Greenfield run-off volume (m ³)	Existing run-off volume (m ³)	Potential run-off volume without attenuation (m ³)	Potential minus existing (m ³)
QBAR	14.99	N/A	N/A	N/A
6 hour 1 in 1 year	14.15	21.98	26.02	4.04
6 hour 1 in 10 year	22.65	34.32	40.35	6.03
6 hour 1 in 30 year	28.55	44.33	52.48	8.15
6 hour 1 in 100 year	36.05	55.98	66.28	10.29
6 hour 1 in 100 year + 20% CC	N/A	N/A	79.53	23.55
6 hour 1 in 100 year + 45% CC	N/A	N/A	96.10	40.12

Return Period	Runoff rate restriction (l/s)	Critical Storm Duration (hr)	Attenuation Volume Required (m ³)	Volume required above previous return period
1 in 30 year	2.00	1	21.13	N/A
6 hour 1 in 100 year	2.00	1	29.32	8.19
6 hour 1 in 100 year + 45% CC	2.00	2	47.88	18.56

Appendix C

United Utilities Asset Location Plan

GeoSmart Information

Suite 9-11, Old Bank Buildings
Bellstone,
Shropshire,
SY1 1HU

FAO:

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Your Ref: 91637
Our Ref: UUPS-ORD-731395
Date: 20/05/2026

Dear Sirs

Location: 399 ABBEY HEY LANE, ABBEY HEY, MANCHESTER, M18 8RB

I acknowledge with thanks your request dated 19/05/2026 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

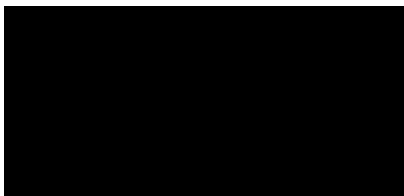
The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

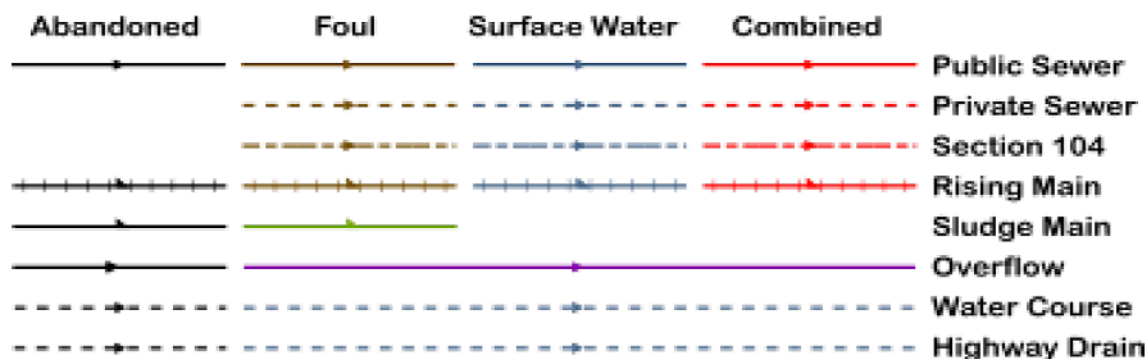
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

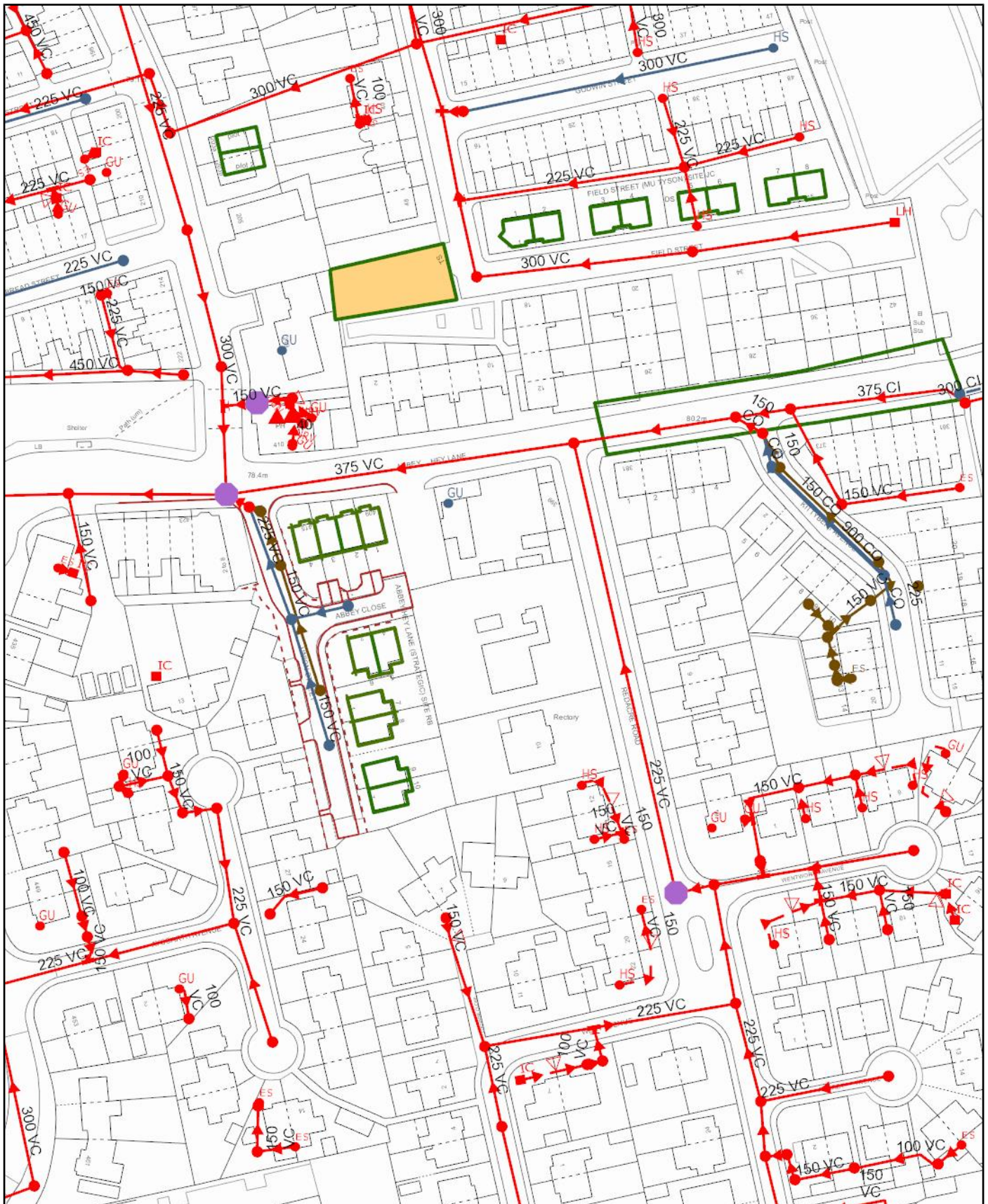
- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	DNM Network Monitoring Point
Drop Shaft	Change of Characteristic
Orifice Plate	



Scale: 1:1250
Date: 20/05/2026

SEWER RECORDS

Address or Site Reference: 399 ABBEY HEY LANE, ABBEY HEY,
MANCHESTER, M18 8RB

Printed by: Property Searches



Water for the North West

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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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.

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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.

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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:



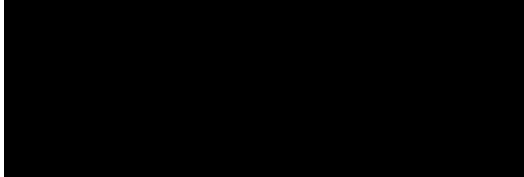
Finance Manager

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU



15. Terms and conditions, CDM regulations and data limitations

Terms and conditions can be found on our website:

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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/>