

Sustainable Drainage Assessment

Discharge to Sewer

The proposed Sustainable Drainage Scheme (SuDS) strategy is comprised of rainwater harvesting butts and permeable paving (Type C - non-infiltrating) to attenuate surface water runoff during the 1 in 100 plus 45% climate change event.

Surface water will discharge via a new connection to the public surface water sewer, subject to confirmation from the sewer utility provider and the incorporation of SuDS.



Report prepared for

Momentum Fitness Charity
Unit 3B Barton Park
Chickenhall Lane
Eastleigh, SO50 6RR

Site Address

Scouts Hut
Brickfield Lane
Chandler's Ford
Eastleigh, SO53 4DP

Date

21/08/2026

Site Area

1490 m²

Grid Reference

443120, 120104

Report Status

FINAL

Report Reference

93886R1

SuDSmart Design

Version Control

Report Version	Date	Report Author	Report Checker & Reviewer
93386R1	21/08/2026	Cian Greatorex Consultant	David South Principal Consultant

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 Detailed Drainage Design has been completed 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	Low
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?	N/A
	Is the surface water feature a protected resource?	N/A

*Whilst SD50 screening data would suggest a Moderate infiltration potential across the Site, Site specific infiltration testing (Freeflush Water Management, 2026; report included within Appendix F) has confirmed the permeability of the underlying geology to be insufficient to support infiltration into ground.

Summary of existing and proposed development

The Site is currently used within a commercial capacity as a Scout hut. At present there is a single building with car park and landscaped areas.

Development proposals comprise the extension of the existing building to form a new mixed use scout hut and gym space. Site plans and drawings are provided in Appendix A.

National Standard 1: Runoff Destinations

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

There are no known issues identified relating to Site contamination or the presence of a SPZ.

According to GeoSmart's SD50 screening data, the Site has Moderate potential for infiltration; however, Site-specific infiltration testing (Freeflush Water Management, 2026; report included within Appendix F) has confirmed infiltration to ground is not feasible.

Infiltration SuDS are not proposed for the Site due to the identified low permeability of the underlying geology.

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 Southern Water asset location plan obtained for the Site (Appendix E), there is a public surface water sewer located adjacent to the south of the Site; therefore, discharge to sewer is likely to be appropriate.

Due to the relatively short distance to the nearby surface water sewer, discharge of runoff to this location is likely to be feasible, and is proposed.

Priority 5: Discharge to combined sewer

According to the Southern Water asset location plan obtained for the Site (Appendix E), there are no public combined sewers within the vicinity of the Site.

The asset location plan also confirms that there is a public foul sewer within c. 30 m of the Site.

Runoff rate and attenuation requirements

Discharging off-Site requires 59.40 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. This volume is subject to the discharge rate being restricted to 1 l/s (as close to the Greenfield 1 in 1 year rate as possible, without increasing the potential for blockages).

A detailed drainage layout is included in Appendix B, and the associated calculations and management and maintenance plan are included within Appendices C and D, respectively.

Recommendations / Next steps

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

Design subject to geotechnical / structural engineer review due to attenuation of water above adjacent natural ground level. Risk of failure of retaining wall / embankment.

2. 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 Test and Itchen Management Catchment the following climate change allowances are applicable.

Table 1. Test and Itchen Management Catchment peak rainfall allowances

Test and Itchen 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%	40%	40%	45%
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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.

Local policy

Eastleigh Borough Local Plan (Eastleigh Borough Council, 2022):

Policy DM6, Sustainable surface water management and watercourse management

1. New development (excluding extensions to dwellings and changes of use) will only be permitted if it incorporates Sustainable Drainage Systems (SuDS). Wherever feasible, naturalized filtration should be included within the treatment train as follows:

a) On sites of 1 hectare or more, or within 100m of the River Itchen SAC or Solent Maritime SAC, SuDS schemes should include at least three forms of naturalised filtration. On sites within 100m of headwaters and tributaries draining into a SAC, SuDS schemes should include at least three forms of naturalised filtration unless hydrological studies and project-level Habitats Regulations Assessment demonstrate this to be unnecessary to protect the integrity of the SAC and its qualifying features;

b) On other sites of between 0.5 hectares and 1 hectare, SuDS schemes should include at least two forms of naturalised filtration; and

c) On other sites of less than 0.5 hectares non-naturalised SuDS e.g. permeable paving will be considered where justified.

2. In order to reduce flooding and maintain water quality (in accordance with DM8) SuDS schemes should:

be designed and monitored in accordance with the CIRIA C753 SuDs Manual or equivalent national or local guidance, noting that all receiving waters in the Borough should be classified as protected waters;

manage surface water runoff as close to its source as possible;

ensure that discharge rates are reduced as far as possible and that on greenfield sites these should at least mirror greenfield rates before development;

be provided as part of any application for outline or full planning permission;

where discharge is to a wetland or wet woodland habitat, flows off site must mirror the natural hydrological pathways;

include clear arrangements for their whole life management and maintenance.

3. Where a watercourse is present on a development site, it should be retained or restored into a natural state and enhanced where possible. The culverting of any watercourse will not generally be permitted, and development should wherever possible remove any existing culverts and increase on-site flood storage. Development should be laid out to enable maintenance of the watercourse.

4. Where development drains into a waterway connected to the Natura 2000 or Ramsar network a site-specific Construction Environment Management Plan must be prepared before permission.

3. Site analysis

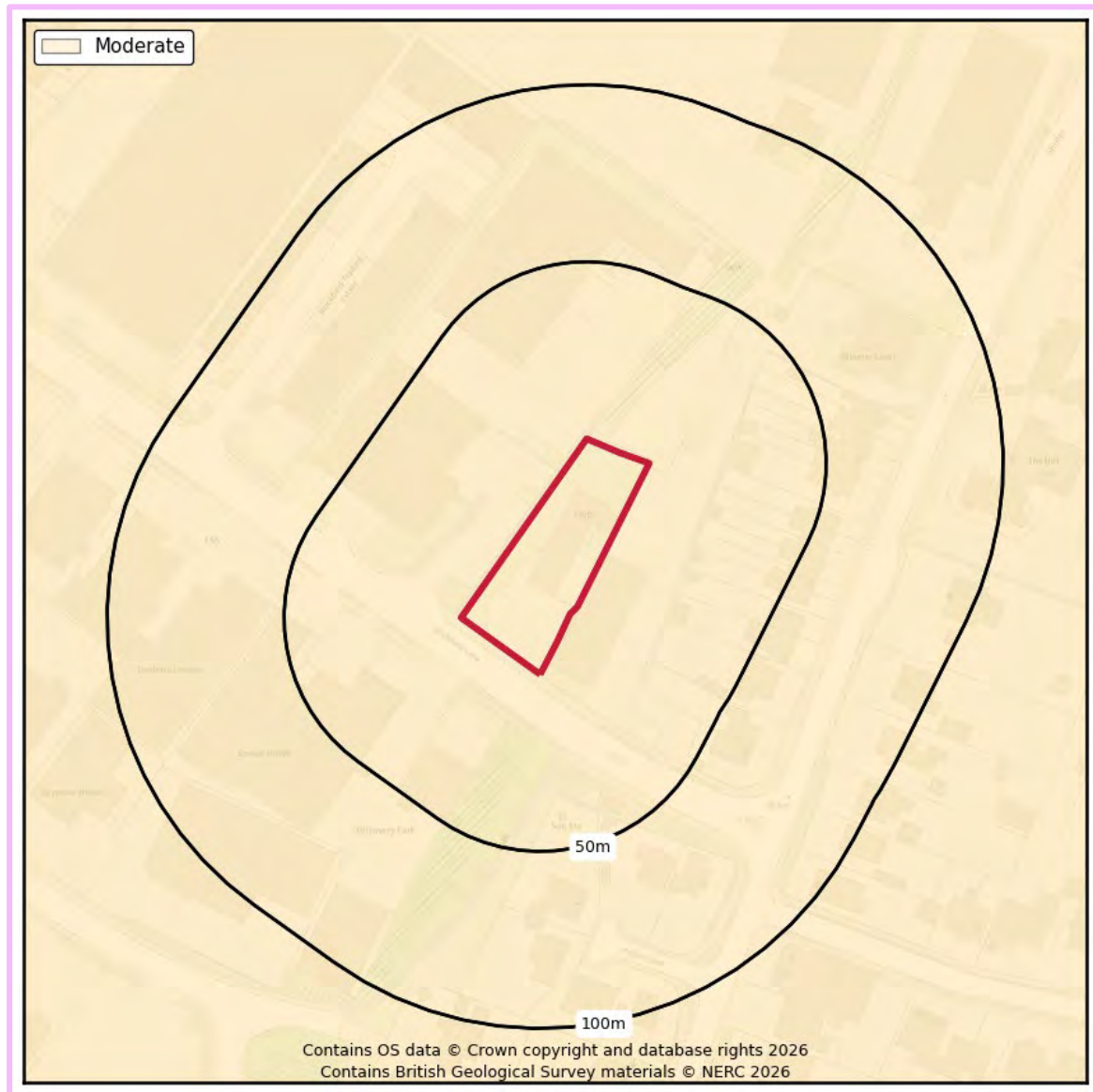
Site location

Figure 1. Aerial Imagery (Bluesky, 2026)



Infiltration suitability

Figure 2. SuDS infiltration suitability (SD50) map (GeoSmart, 2026)

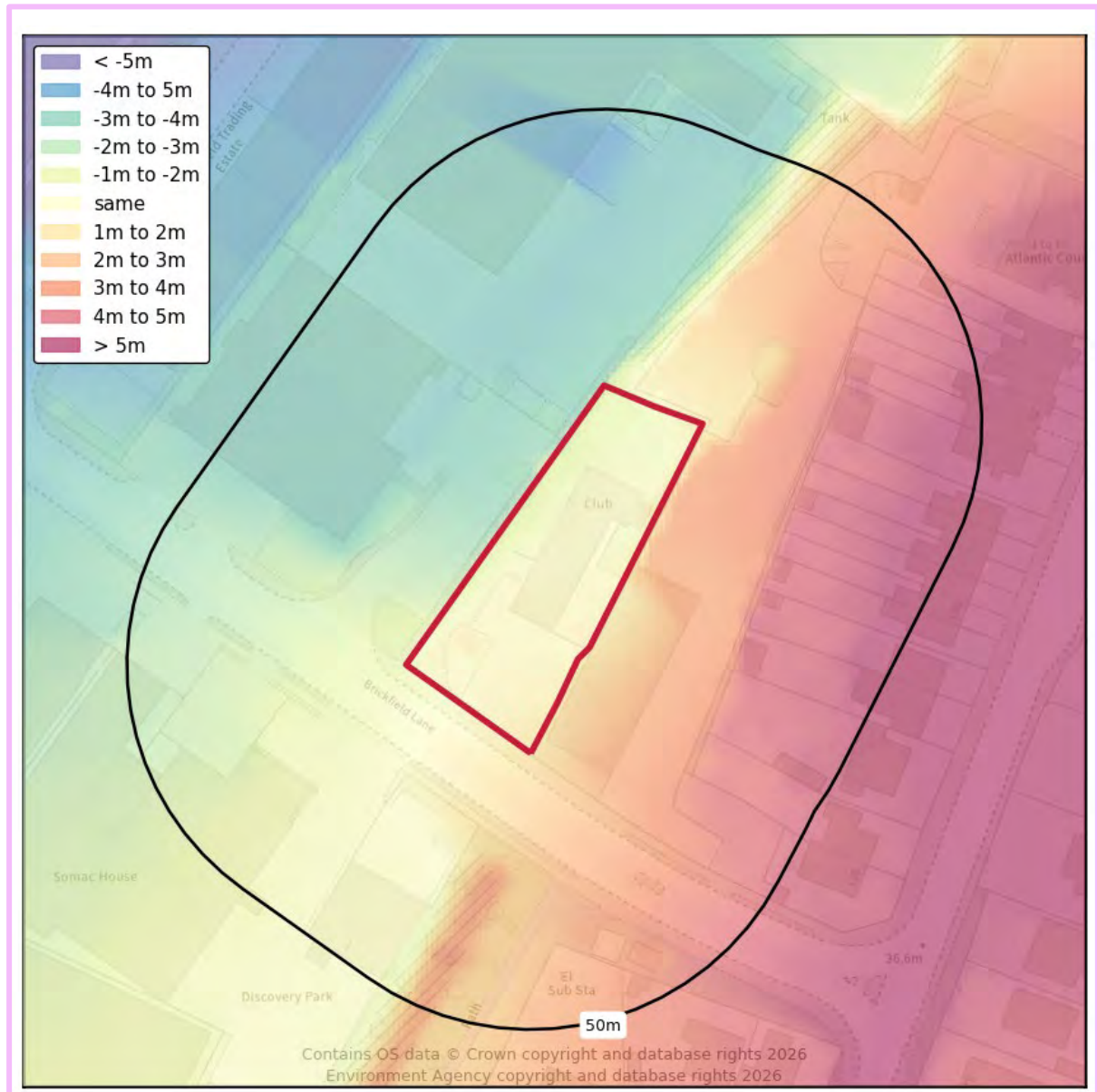


According to GeoSmart's SD50 mapping, there is a Moderate potential for infiltration SuDS across the Site. It is likely that the underlying geology at the Site has modest permeability and an infiltration SuDS scheme may be possible at the Site.

Site-specific infiltration testing (Freeflush Water Management, 2026; report included within Appendix F) has confirmed infiltration to ground is not feasible.

Topography

Figure 3. Site topography (GeoSmart, 2026)



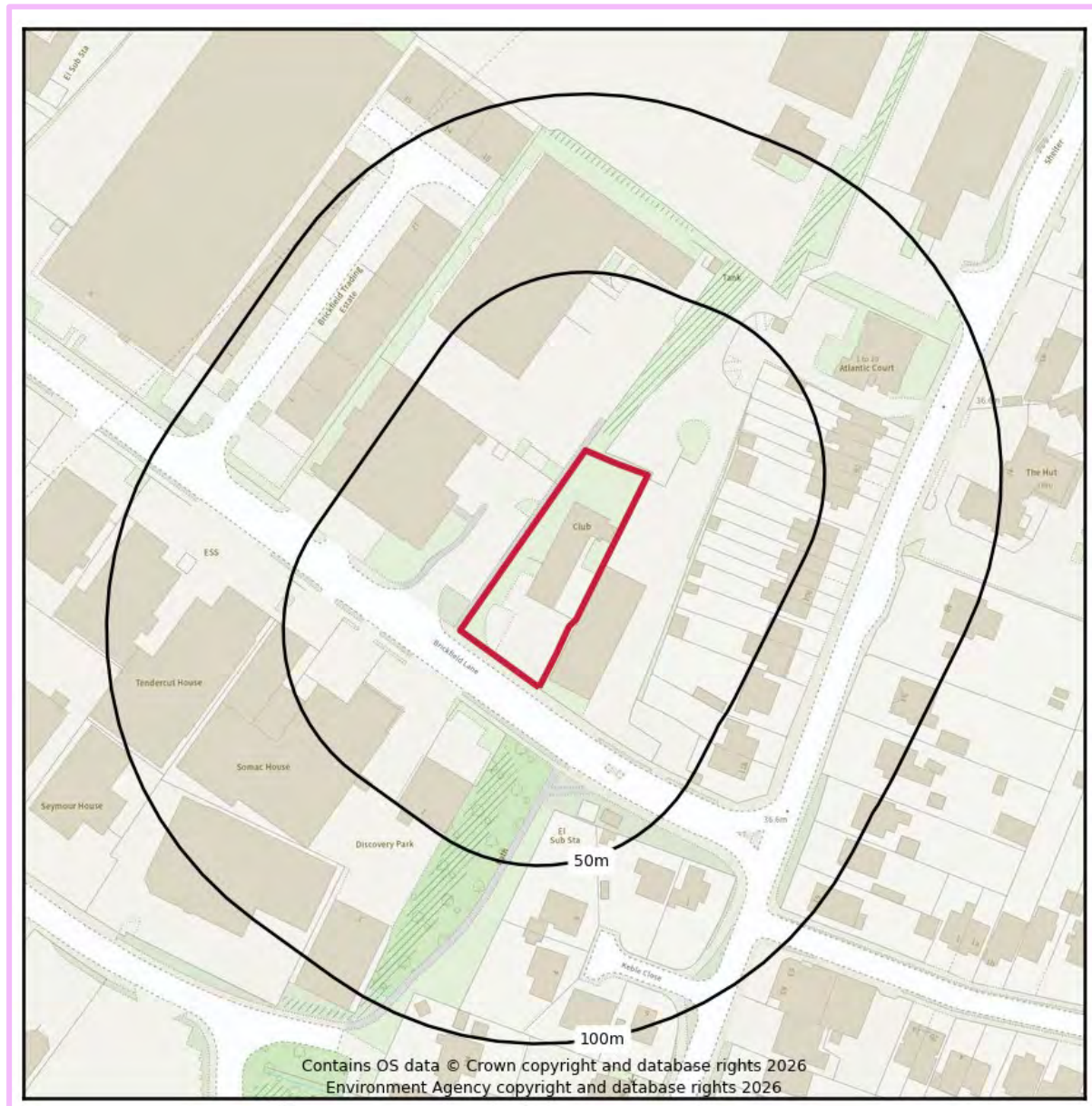
According to a review of the LiDAR DTM5 elevation data for the prevailing area, the ground levels within the vicinity of the Site typically fall to the north-west.

The topography on-Site typically falls to the north-west, with ground levels ranging from 32.41 to 29.71 mAOD. This is based upon a Site specific topographic survey undertaken by the Survey House Ltd in 2026.

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

Land designations

Figure 4. Source protection zone map (EA, 2026)

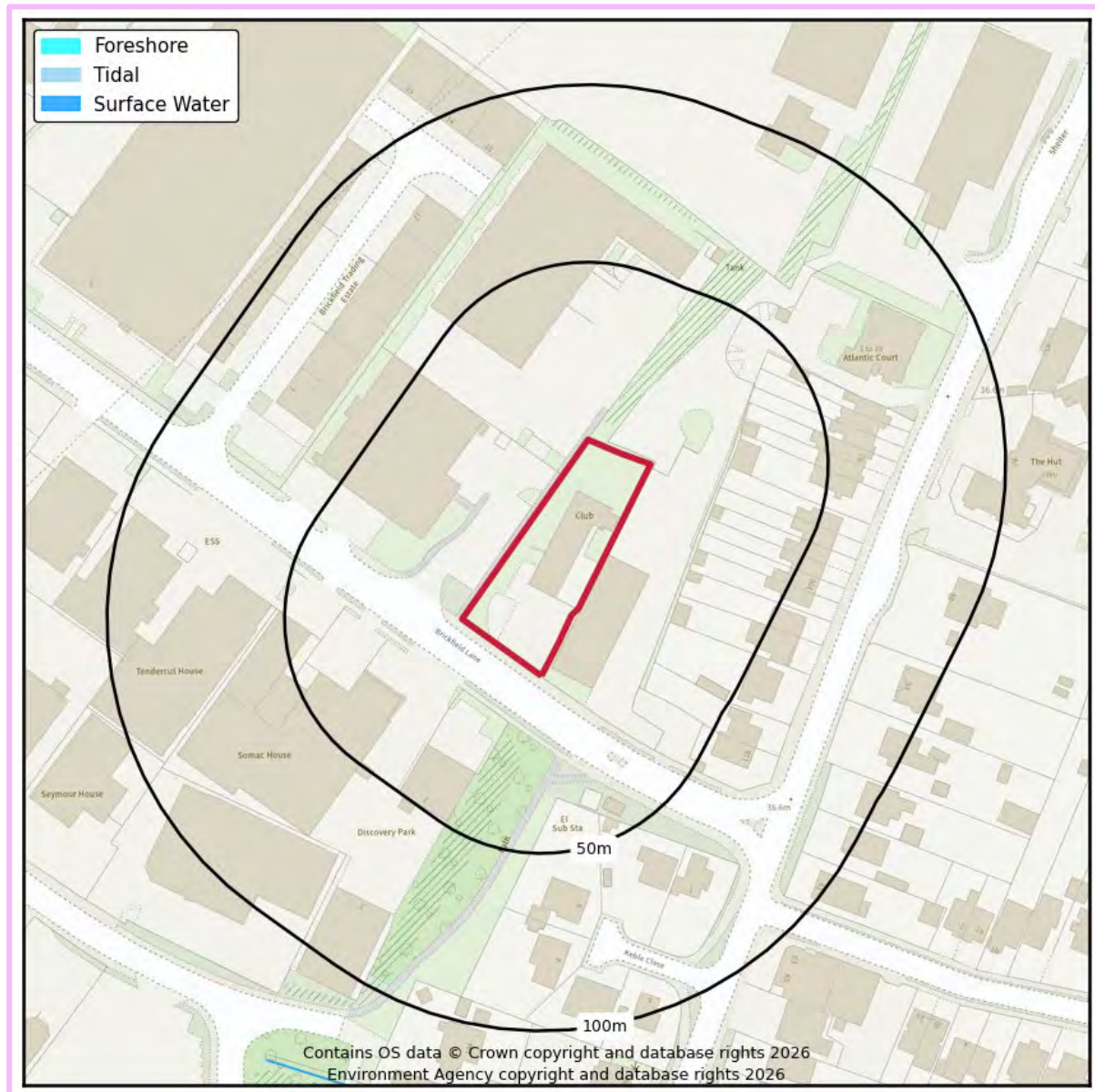


According to DEFRA's Magic Map, the Site is not located within a groundwater Source Protection Zone (SPZ). The mapping also confirms that the Site is not within 250m of a SSSI or SPA.

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 5. Surface water features map (EA, 2026)

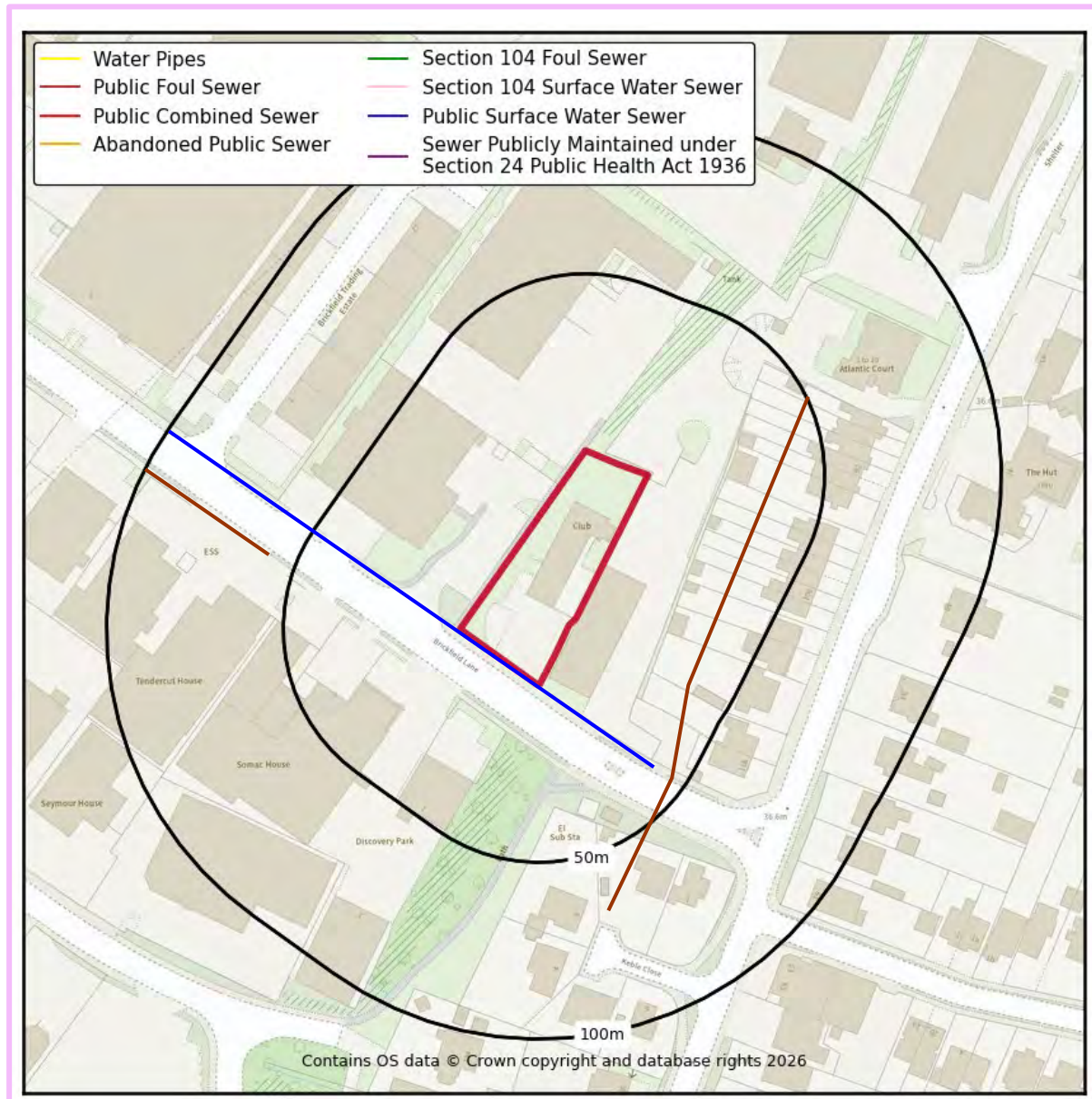


Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site. Therefore, discharge to surface water feature is not feasible.

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 6. Sewer features map (OS & Southern Water, 2026)



According to the Southern Water asset location plan obtained for the Site (Appendix E), there is a public surface water sewer, located adjacent to the south of the Site. Therefore, discharge to sewer is likely to be appropriate.

The asset location plan also confirms that there is a public foul sewer within c. 30 m of the Site.

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 7. 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 8. Risk of surface water flooding map (EA, 2026)

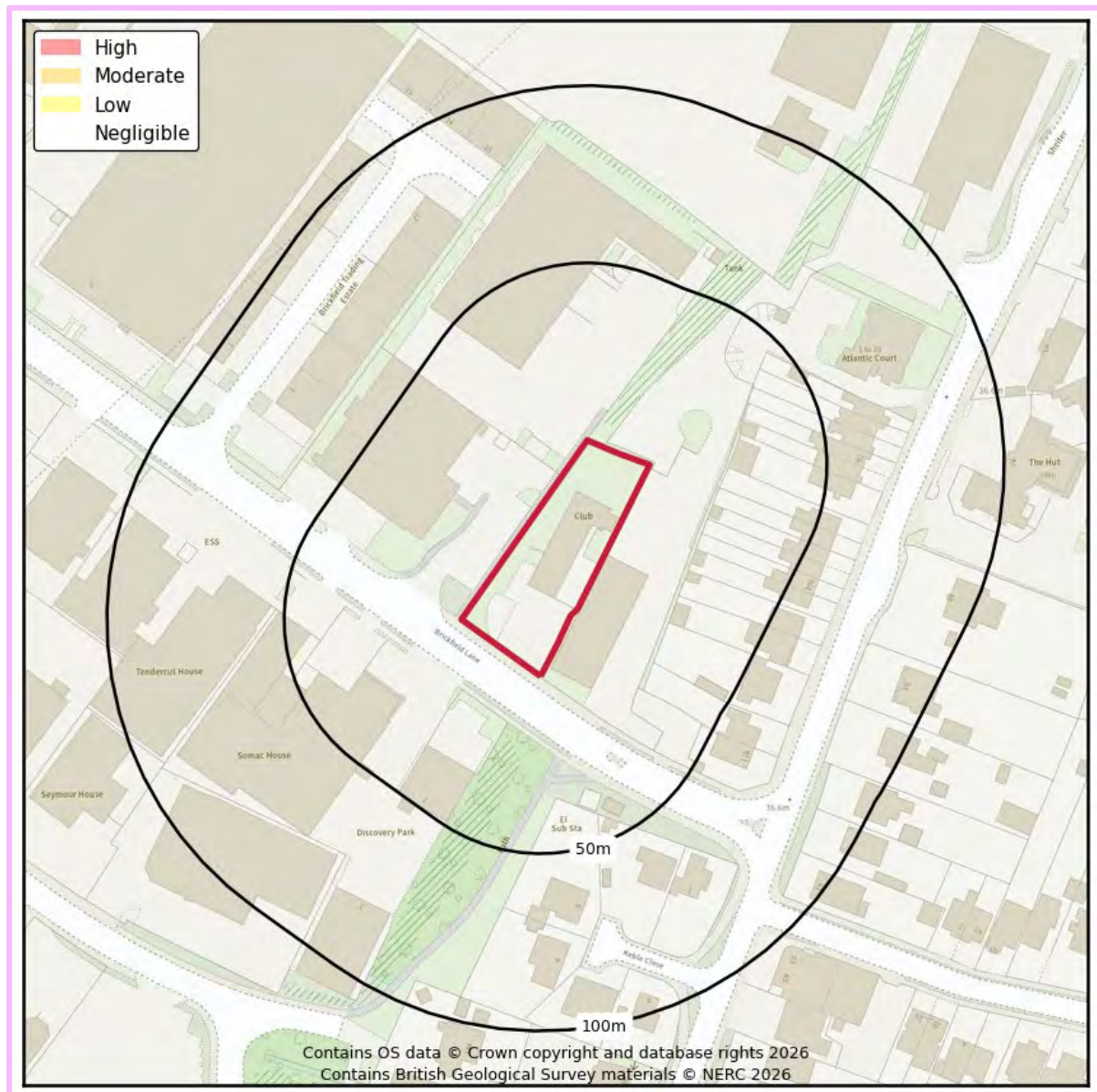


The EA's Surface Water Spatial Planning mapping confirms the Site is considered to be at Very Low to High risk of surface water flooding during both the present day and climate change (2070s) scenarios.

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 9. 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.

4. 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 Scouts Hut, Brickfield Lane, Chandler's Ford, Eastleigh SO53 4DP ('the Site'). The Site is located within a setting of predominantly mixed commercial and residential land use.

Development

The Site is currently used within a commercial capacity as a scout hut. At present there is a single building with car park and landscaped areas.

Development proposals comprise the extension of the existing building to form a new mixed use scout hut and gym space. 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 2. Site Geology

Geology present on-Site		Likely to be permeable?
Superficial geology (Figure 11)	No underlying superficial deposits	N/A
Bedrock geology (Figure 12)	Wittering Formation (WTT) - sand, silt and clay	✓

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: SU41NW726) is located c. 175 m to the south-west at an elevation of 32 mAOD (taken from the borehole record).

A summary of the geological strata encountered by the borehole is provided within the table below:

Table 3. Summary of BGS borehole information

Strata encountered	BGS borehole SU41NW726	
	Depth to base of stratum (m bgl)	Strata composition
Wittering Formation	0.2	Reddish brown-stained pale grey stiff clay
	0.6	Loose orange-brown medium-grained sand
	1.0	Laminated clay with partings and a few thin (5 to 10 mm) bands of fine-grained sand (the upper 0.2 m weather yellowish brown and the lower 0.2 m greyish brown lignite). Fragments common on some partings.

Figure 10. Superficial Geology (BGS, 2026)

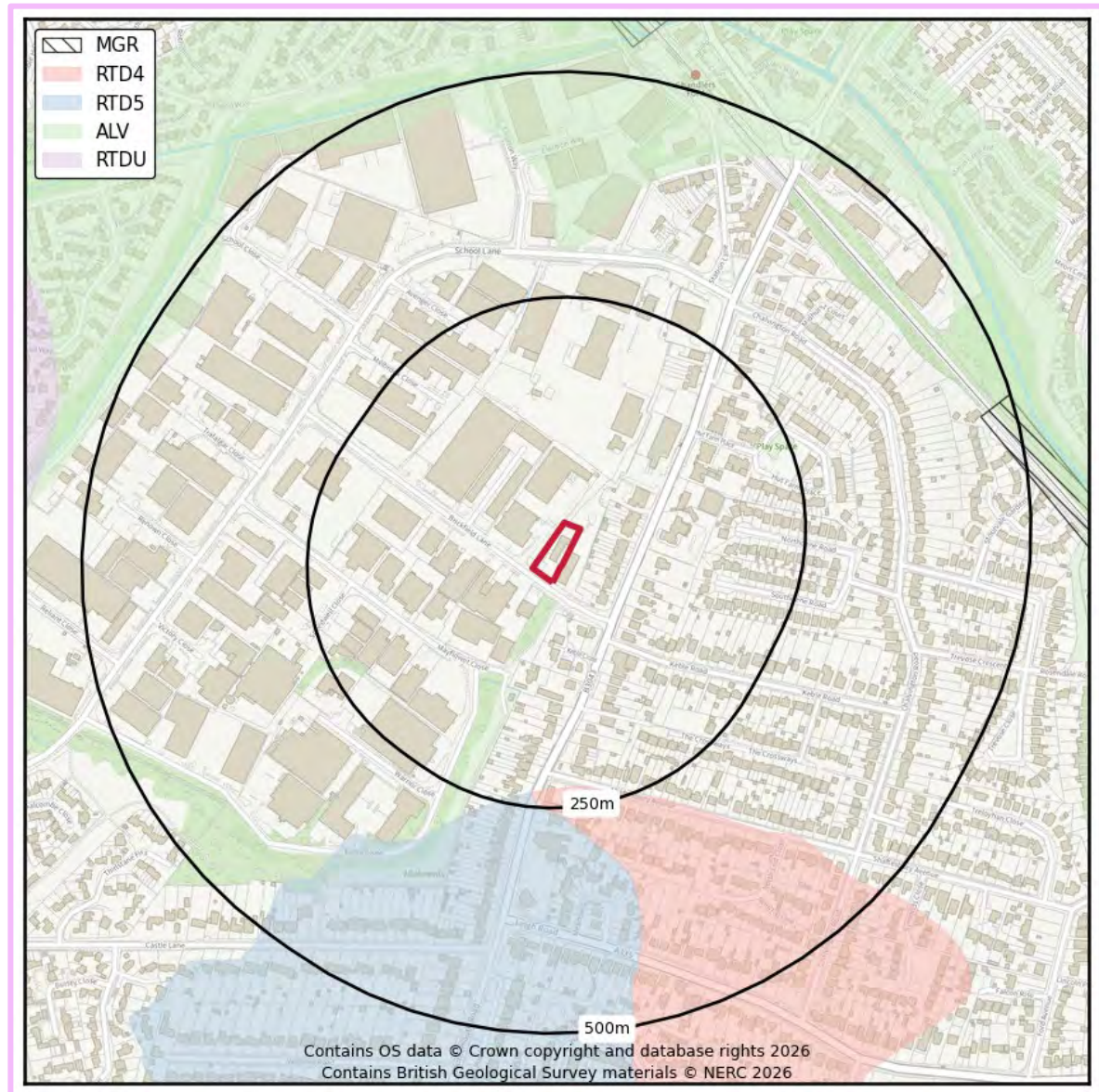
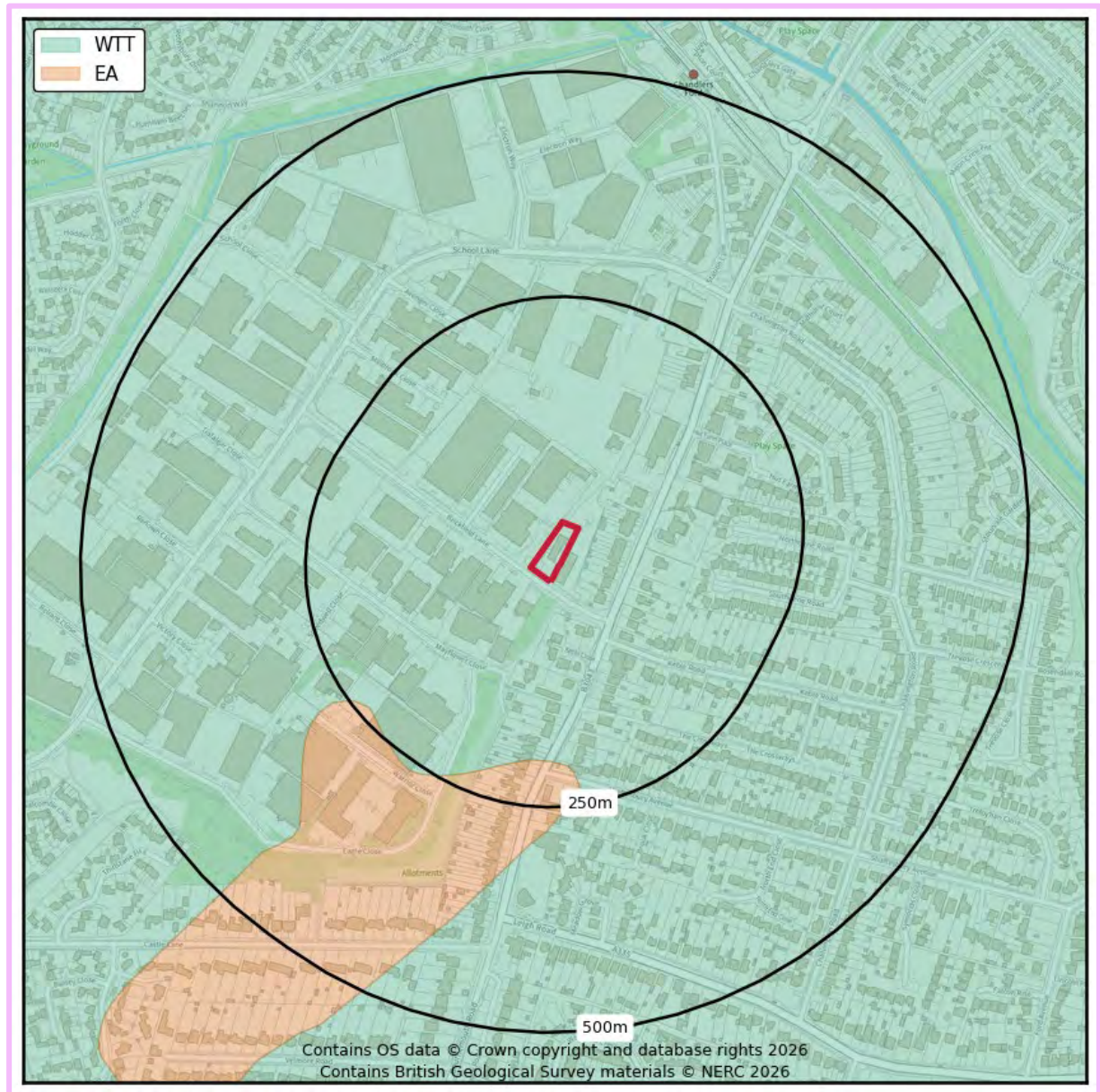


Figure 11. Bedrock Geology (BGS, 2026)



Depth to groundwater

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

Borehole ref: SU41NW726 did not encounter groundwater to its maximum depth of 1.0 m bgl in 1993. There is insufficient information to confirm whether a shallow groundwater body beneath the Site; however, GeoSmart's Groundwater Flood Risk (GW5) map, shallow groundwater is unlikely to be an issue at the Site.

Ground conditions

Infiltration testing undertaken as part of the ground investigation (Freeflush Water Management; report included within Appendix F) has confirmed infiltration testing was abandoned due to minimal infiltration. Infiltration to ground is therefore not feasible.

Water quality

The Site does not lie within an SPZ and infiltration is not proposed. Further consultation with the water company and further consideration of the historical land uses (and any associated contamination risks) are unlikely to be required.

5. 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

There are no known issues identified relating to Site contamination or the presence of a SPZ.

According to GeoSmart's SD50 screening data, the Site has Moderate potential for infiltration; however, Site-specific infiltration testing (Freeflush Water Management, 2026; report included within Appendix F) has confirmed infiltration to ground is not feasible.

Infiltration SuDS are not proposed for the Site due to the identified low permeability of the underlying geology.

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 Southern Water asset location plan obtained for the Site (Appendix E), there is a public surface water sewer located adjacent to the south of the Site; therefore, discharge to sewer is likely to be appropriate.

Due to the relatively short distance to the nearby surface water sewer, discharge of runoff to this location is likely to be feasible, and is proposed.

Priority 5: Discharge to combined sewer

According to the Southern Water asset location plan obtained for the Site (Appendix E), there are no public combined sewers within the vicinity of the Site.

The asset location plan also confirms that there is a public foul sewer within c. 30 m of the Site.

6. 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.

As the development proposals comprise the extension of an existing building, no Urban Creep uplift factor is required to be applied to the impermeable surface area and as such the standard proposed impermeable area has been utilised within the calculations.

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 4. Change in impermeable area associated with the development

Total Site area	1490 m ²
Impermeable area (and as a percentage of the total area of the proposed development footprint of 1490 m ²)	
Pre-development	Post-development
820 m ² (55%)	1073 m ² (72%)
Impermeable land use: 283 m ² building roof and 537 m ² hardstanding Permeable land use: 670 m ² landscaped areas	New impermeable land use: 572 m ² building roof with extension, 82 m ² hardstanding and 419 m ² lined permeable paving* New permeable land use: 57 m ² porous timber decking and 360 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.

Storage requirements for an attenuation SuDS scheme for the development footprint are set out below.

Table 5. Storage requirements for the proposed development

Attenuation scenario	Attenuation required (m³)	Explanation
1 in 100 year including 45% CC	59.40*	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 45% allowance for climate change.

*See Appendix C 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 6. 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	0.92	N/A	N/A	N/A
6 hour 1 in 1 year	0.78	1.32	1.48	0.16
6 hour 1 in 10 year	1.37	1.97	2.19	0.22
6 hour 1 in 30 year	1.77	2.46	2.75	0.29
6 hour 1 in 100 year	2.37	3.01	3.37	0.36
6 hour 1 in 100 year + 20% CC	N/A	N/A	4.04	1.03
6 hour 1 in 100 year + 45% CC	N/A	N/A	4.88	1.87

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 2 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 1 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 7. Total discharge volumes associated with the development

Rainfall event	Greenfield runoff volume (m³)	Existing runoff volume² (m³)	Potential runoff volume without attenuation (m³)	Potential minus existing (m³)
QBAR	18.56	N/A	N/A	N/A
6 hour 1 in 1 year	17.65	28.61	31.99	3.38
6 hour 1 in 10 year	26.78	42.47	47.31	4.84
6 hour 1 in 30 year	32.82	53.18	59.46	6.28
6 hour 1 in 100 year	40.16	65.08	72.76	7.69
6 hour 1 in 100 year + 20% CC	N/A	N/A	87.32	22.24
6 hour 1 in 100 year + 45% CC	N/A	N/A	105.51	40.43

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

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 comprised of Low hazard (runoff from roof, car parking and road). The Site does not lie within an SPZ and therefore additional treatment stages are not required.

Table 8. 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 9. 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 8 and 9, the proposed permeable paving would provide sufficient mitigation indices to treat the Low pollution hazard associated with the Site use.

8. Background information

Health and safety considerations for SuDS

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

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 (2026). For the impermeable surfaces, it has been assumed that 100% runoff will occur (calculations provided in Appendix C). 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.

9. 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.

10. 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.

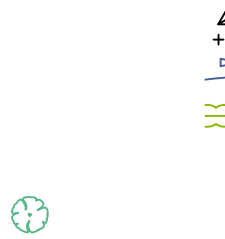
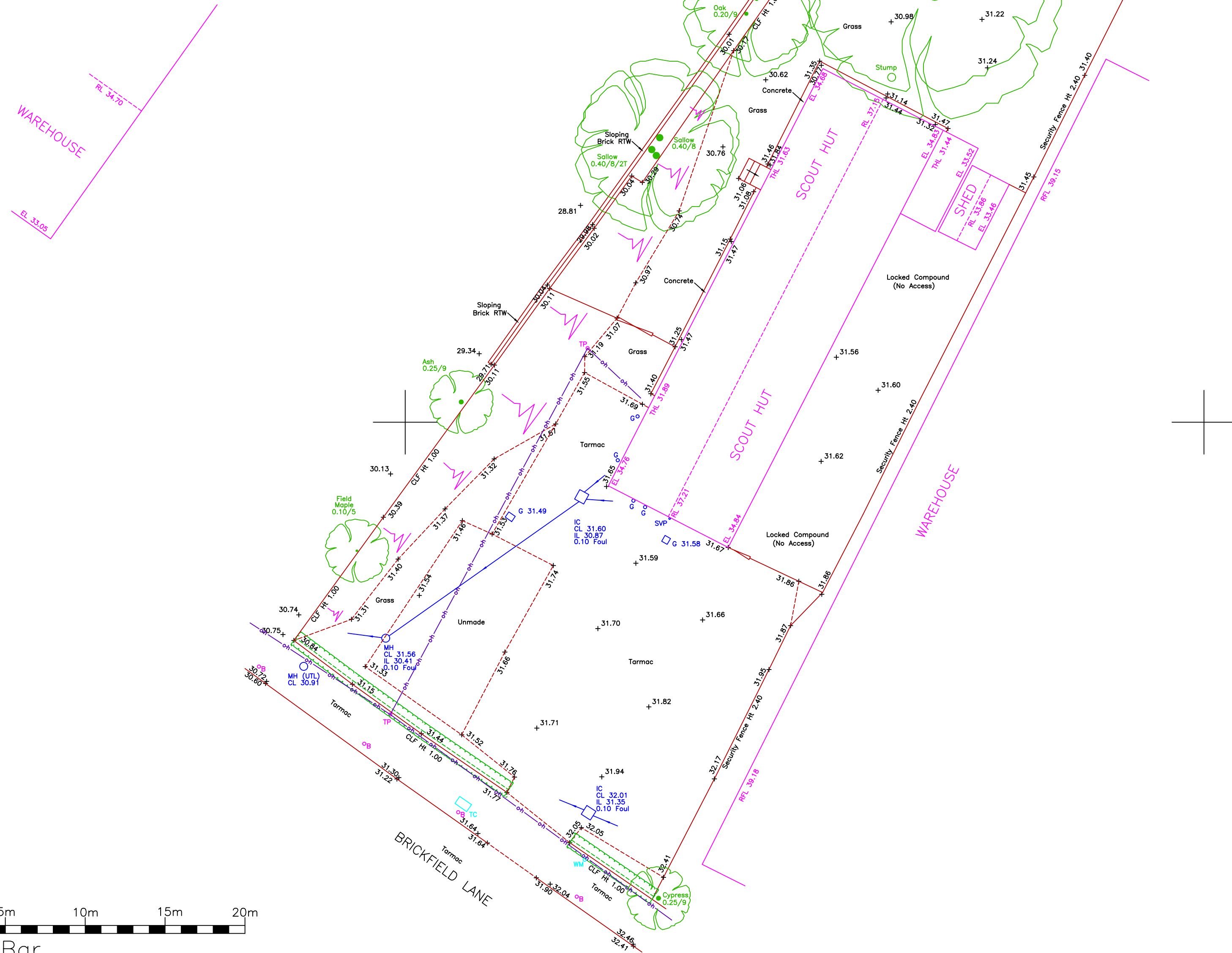
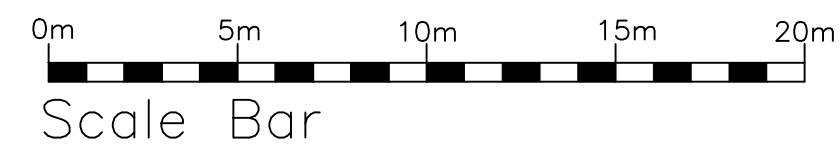
Data sources

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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
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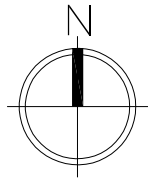
11. Appendices

Appendix A

Site plans

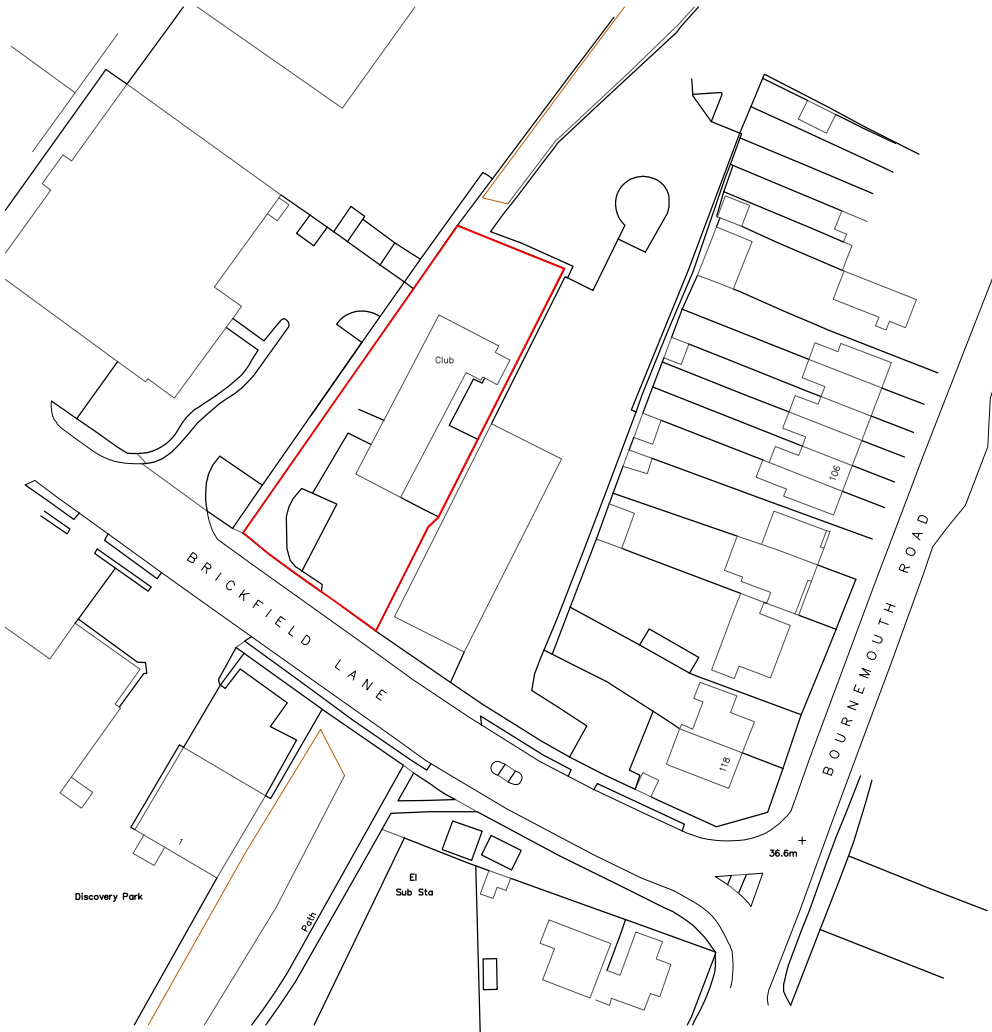


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SURVEY
HOUSE**



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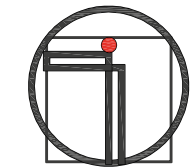
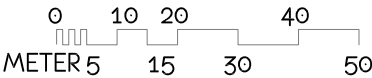
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SITE LOCATION PLAN

1:1250



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ARCHITECTS

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Client:
Chandler's Ford Scout Group

Drawing Title:
Site Location Plan

Project Ref: Origin: Zone: Level: Type: Role: Number: Rev:
260401 TA - -G -P -A -P01 -

Status:
Concept Design

TA Code: Project Stage: Sheet @ A3: Date:
260401 Concept 1:1250 May 2026

Rev:	Comments:	AP
		Dr: Ch:

<u>EXISTING SITE SURFACE MATERIALS:</u>		
CAR TURNING AREA	-	01 GRAVEL
CAR PARKING SPACES	-	02 GRAVEL
FOOTPATH AREAS	-	03 CONCRETE
GRASS LAWN	-	04 LAWN GRASS
SHRUB PLANTING	-	05 MIXED SHRUB PLANT BEDS
UNKEPT LAWN	-	06 GRASS & WEEDS



General



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Rev:	Comments:	AP	
		Dr:	Ct:



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Project Name and Address:

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Chandler's Ford, Eastleigh. SO53 4DP

Client:

Chandler's Ford Scout Group

Drawing Title:

Existing Site Plan and Elevations

Project Ref:	Origion:	Zone:	Level:	Type:	Role:	No:	Rev:
60401	TA	S		P&E	A	P03	

Status:

Concept Design

A Code:	Project Stage:	Sheet @ A1:	Date:
60401	Concept	As indicated	21/05/2026

EXISTING ELEVATIONS & SECTION A-A

1.8m HARRIS FENCE

ACCESS & CAR PARKING

EAVES @ 34.76m above OS Datum

RIDGE @ 37.21m above OS Datum

FGL @ 31.89m above OS Datum

EAVES @ 33.52m above OS Datum

SHED

2.4m SECURITY FENCE

1ST CHANDLER'S FORD SCOUT GROUP

ACCESS & CAR PARKING FOR
BREWERS & MICRO LINK

BRICK WALL

1.0m CHAIN
LINK FENCE

EAVES @
34.76m above
OS Datum

RIDGE @ 37.21m
above OS Datum

FGL @ 31.89m above OS Datum

EAVES @
33.52m above
OS Datum

SHED

1.0m MATERS
FENCE

2.4m SECURITY FENCE

AG MARTIAL ARTS
(& OTHERS)

RIDGE @ 40.60m
above OS Datum

EAVES @ 39.15m
above OS Datum

1ST CHANDLER'S FORD
SCOUT GROUP

AG MARTIAL ARTS
(& OTHERS)

RIDGE @ 40.60m
above OS Datum

EAVES @ 39.15m
above OS Datum

RIDGE @ 37.21m
above OS Datum

EAVES @ 34.76m
above OS Datum

FGL @ 31.89m above OS Datum

1.0m CHAIN LINK FENCE

2.4m SECURITY FENCE

ACCESS & CAR PARKING

1.0m CHAIN LINK FENCE

1.0m CHAIN LINK FENCE

1.0m CHAIN LINK FENCE

1.0m CHAIN LINK FENCE

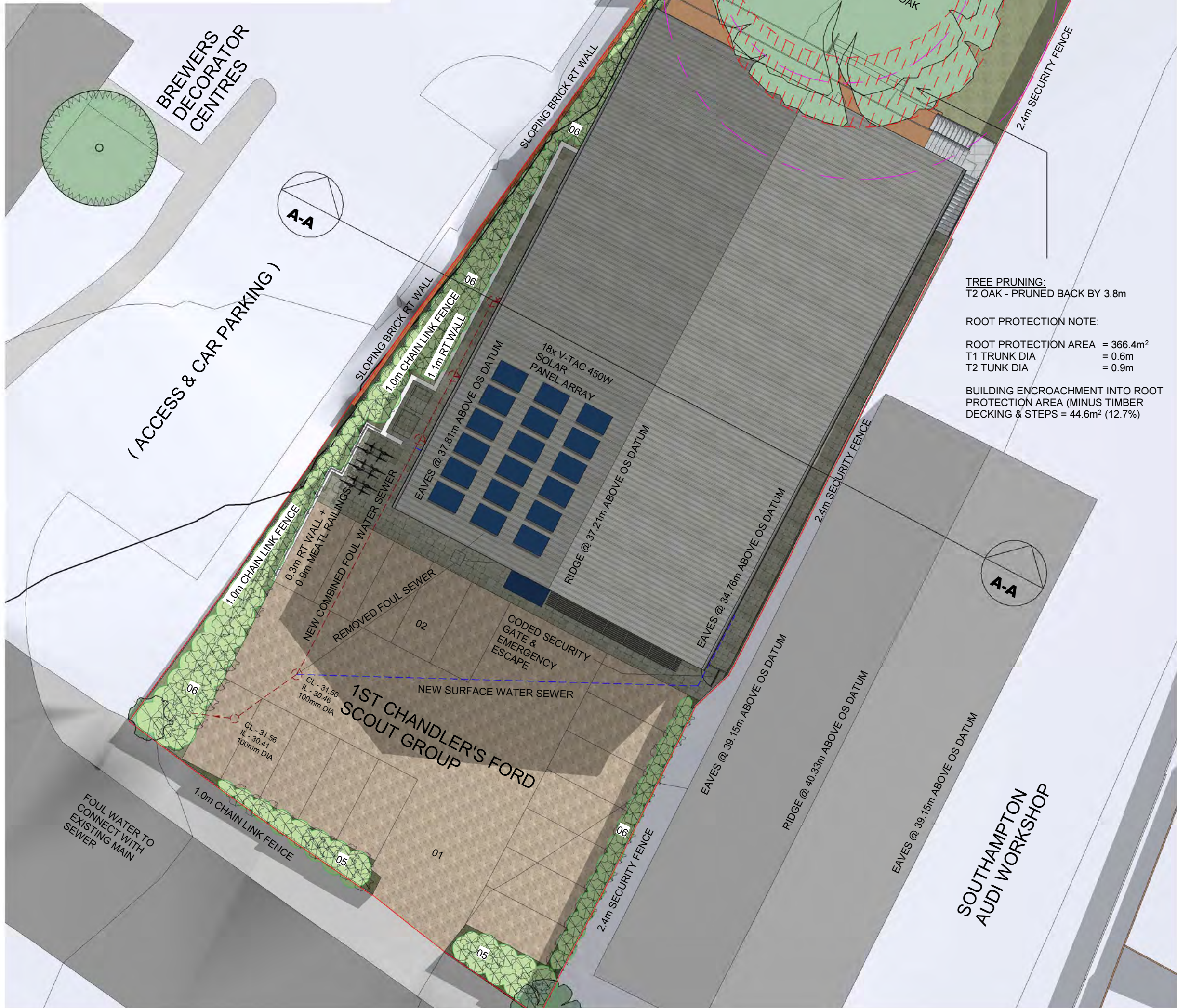
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A Code:	Project Stage:	Sheet @ A1:	Date:
260401	Concept	1 : 100	21/05/2026

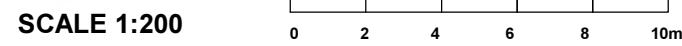
PROPOSED SITE ROOF PLAN & ELEVATIONS

SITE ACCOMMODATION SCHEDULE	No:	AREA:
TOTAL SITE AREA	1	1513.6 sqm
CAR PARKING SPACES	16	/
3x CYCLE STANDS (SHEFFIELD STANDS)	3	/
BIN STORE AREA (2x Euro Bins)	1	/
450W SOLAR PANEL ARRAY ON ROOF	18	/
REAR COMMUNAL AMENITY SPACE	1	237 sqm

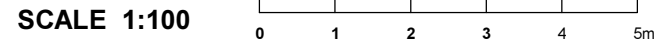
PROPOSED SITE SURFACE MATERIALS:		
CAR TURNING AREA	-	01 PERMEABLE BLOCK PAVING
CAR PARKING SPACES	-	02 PERMEABLE BLOCK PAVING
FOOTPATH AREAS	-	03 PERMEABLE BLOCK PAVING
GRASS LAWN	-	04 LAWN GRASS
SHRUB PLANTING	-	05 MIXED SHRUB PLANT BEDS
BIODIVERSE PLANTING	-	06 BIODIVERSE PLANT BEDS



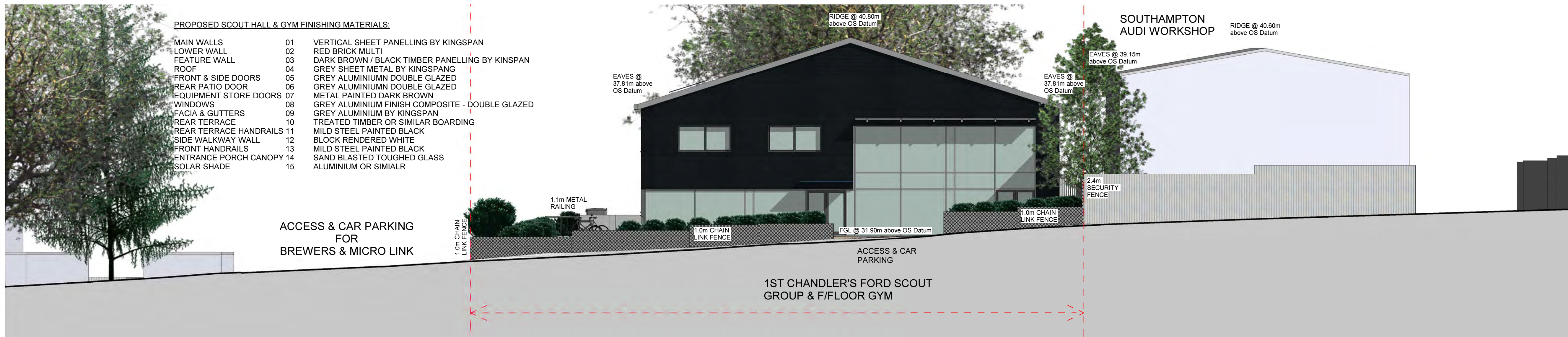
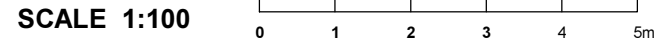
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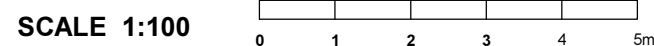
PROPOSED SOUTH ELEVATION



PROPOSED NORTH ELEVATION



PROPOSED SOUTHERN STREET SCENE ELEVATION TO BRICKFIELD LANE



		Date:	
Rev:	Comments:	ADP	
		Dr:	Ct:

PROPOSED ELEVATIONS & SECTION A-A

RIDGE @ 40.80m
above OS Datum

EAVES @
37.81m
above OS
Datum

1.0m CHAIN
LINK FENCE

ACCESS & CAR PARKING

SIDE ACCESS &
EMERGENCY
ESCAPE GATE

FGL @ 31.90m above OS Datum

SIDE ACCESS &
EMERGENCY
ESCAPE STAIRS

2.4m SECURITY FENCE

1ST CHANDLER'S FORD SCOUT GROUP & F/FLOOR GYM

PROPOSED EAST ELEVATION

PROPOSED SCOUT HALL & GYM FINISHING MATERIALS:

MAIN WALLS	01	VERTICAL SHEET PANELLING BY KINGSPAN
LOWER WALL	02	RED BRICK MULTI
FEATURE WALL	03	DARK BROWN / BLACK TIMBER PANELLING BY KINSPAN
ROOF	04	GREY SHEET METAL BY KINGSPAN
FRONT & SIDE DOORS	05	GREY ALUMINIUM DOUBLE GLAZED
REAR PATIO DOOR	06	GREY ALUMINIUM DOUBLE GLAZED
EQUIPMENT STORE DOORS	07	METAL PAINTED DARK BROWN
FACIA & GUTTERS	08	GREY ALUMINIUM BY KINGSPAN
REAR TERRACE	09	TREATED TIMBER OR SIMILAR BOARDING
REAR TERRACE HANDRAILS	10	MILD STEEL PAINTED BLACK
SIDE WALKWAY WALL	11	BLOCK RENDERED WHITE
FRONT HANDRAILS	12	MILD STEEL PAINTED BLACK
ENTRANCE PORCH CANOPY	13	SAND BLASTED TOUGHED GLASS
SOLAR SHADE	14	ALUMINIUM OR SIMILAR

ACCESS & CAR PARKING FOR BREWERS & MICRO LINK

1ST CHANDLER'S FORD SCOUT GROUP & F/FLOOR GYM

SOUTHAMPTON AUDI WORKSHOP

Annotations:

- RIDGE @ 40.80m above OS Datum
- EAVES @ 37.81m above OS Datum
- RIDGE @ 40.60m above OS Datum
- EAVES @ 38.15m above OS Datum
- EAVES @ 37.81m above OS Datum
- 2.4m SECURITY FENCE
- EXISTING GROUND LEVEL
- NEW RT EMBANKMENT
- 1.0m CHAIN LINK FENCE
- BRICK RT WALL
- W / TOILET & SHOWERS
- MAIN GYM AREA
- MEETING ROOM - A
- MEETING ROOM - B
- MASSAGE ROOM - Z
- FGL @ 31.90m above OS Datum
- SIDE ACCESS & EMERGENCY ESCAPE

Scale: 1:100

Dimensions: 0 1 2 3 4 5m

PROPOSED SECTION A-A

SOUTHAMPTON AUDI WORKSHOP

SCALE 1:100

RIDGE @ 40.80m above OS Datum

EAVES @ 37.81m above OS Datum

18x V-TEC 450W SOLAR PANEL ARRAY

OBSCURE GLAZED ESCAPE WINDOWS

WALKWAY TO SCOUT HALL

1.1m WALKWAY WALL

FGL @ 31.90m above OS Datum

1.1m WALL & 1.1m METAL HANDRAIL

2.4m SECURITY FENCE

ACCESS & CAR PARKING

1.0m CHAIN LINK FENCE

1ST CHANDLER'S FORD SCOUT GROUP & F/FLOOR GYM

PROPOSED WEST ELEVATION

SCALE 1:100

0 1 2 3 4 5m

General



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Rev:	Comments:	AP	
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Client:

Chandler's Ford Scout Group

Drawing Title:

Proposed Elevations and Section A-A

Project Ref:	Origion:	Zone:	Level:	Type:	Role:	No:	Rev:
260401	TA			E	A	P08	

Status:

Concept Design

TA Code:	Project Stage:	Sheet @ A1:	Date:
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SCALE BAR 1:100

METER

10

5

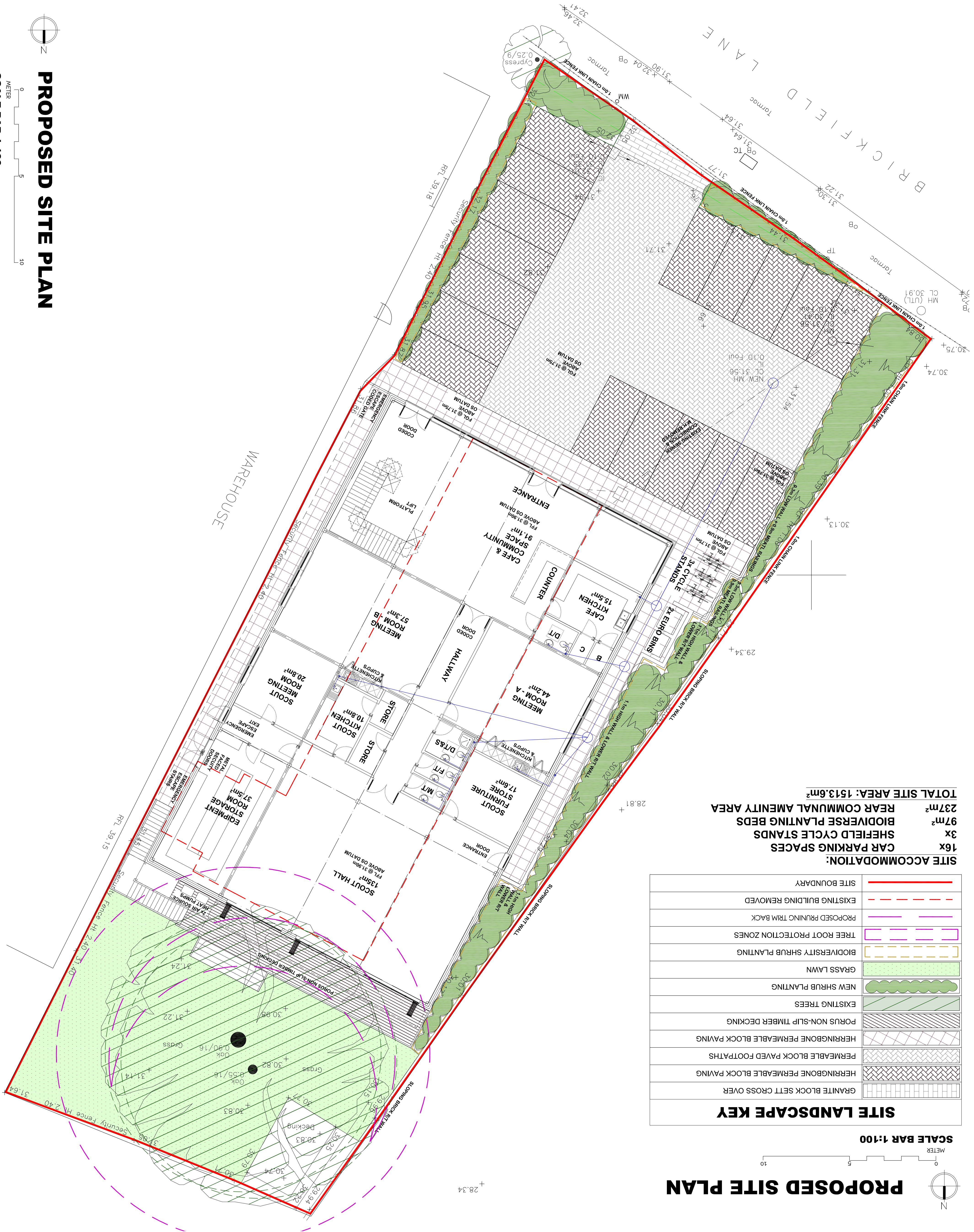
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SITE LANDSCAPE KEY	
GRANITE BLOCK SETT CROSS OVER	
HERRINGBONE PERMEABLE BLOCK PAVING	
PERMEABLE BLOCK PAVED FOOTPATHS	
HERRINGBONE PERMEABLE BLOCK PAVING	
PORUS NON-SLIP TIMBER DECKING	
EXISTING TREES	
NEW SHRUB PLANTING	
GRASS LAWN	
BIODIVERSITY SHRUB PLANTING	
TREE ROOT PROTECTION ZONES	
PROPOSED PRUNING TRIM BACK	
EXISTING BUILDING REMOVED	
SITE BOUNDARY	

SITE ACCOMMODATION:	16x
CAR PARKING SPACES	3x
SHELFED CYCLE STANDS	97m ²
BIODIVERSE PLANTING BEDS	237m ²
REAR COMMUNAL AMENITY AREA	
TOTAL SITE AREA:	1513.6m ²

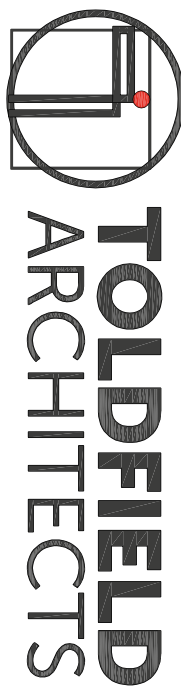
TOTAL SITE AREA: 1513.6m²

SITE ACCOMMODATION:



PROPOSED SITE PLAN

0 5 10
METER
SCALE BAR 1:100



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1st Chandler's Ford Scout Group, Brickfield Lane,
Chandler's Ford, Eastleigh. SO53 4DP

1st Chandler's Ford Scout Group

Drawing Title

Proposed Site Plan

Project Ref:	Origin	Zone	Level:	Type	Role:	Number:	Rev:
260401	TA	- S	-	P	- A	- P09	-

Planning Application

TA Code:	Project Stage:	Sheet @ A1:	Date:
260401	Planning	1.100	16/06/26

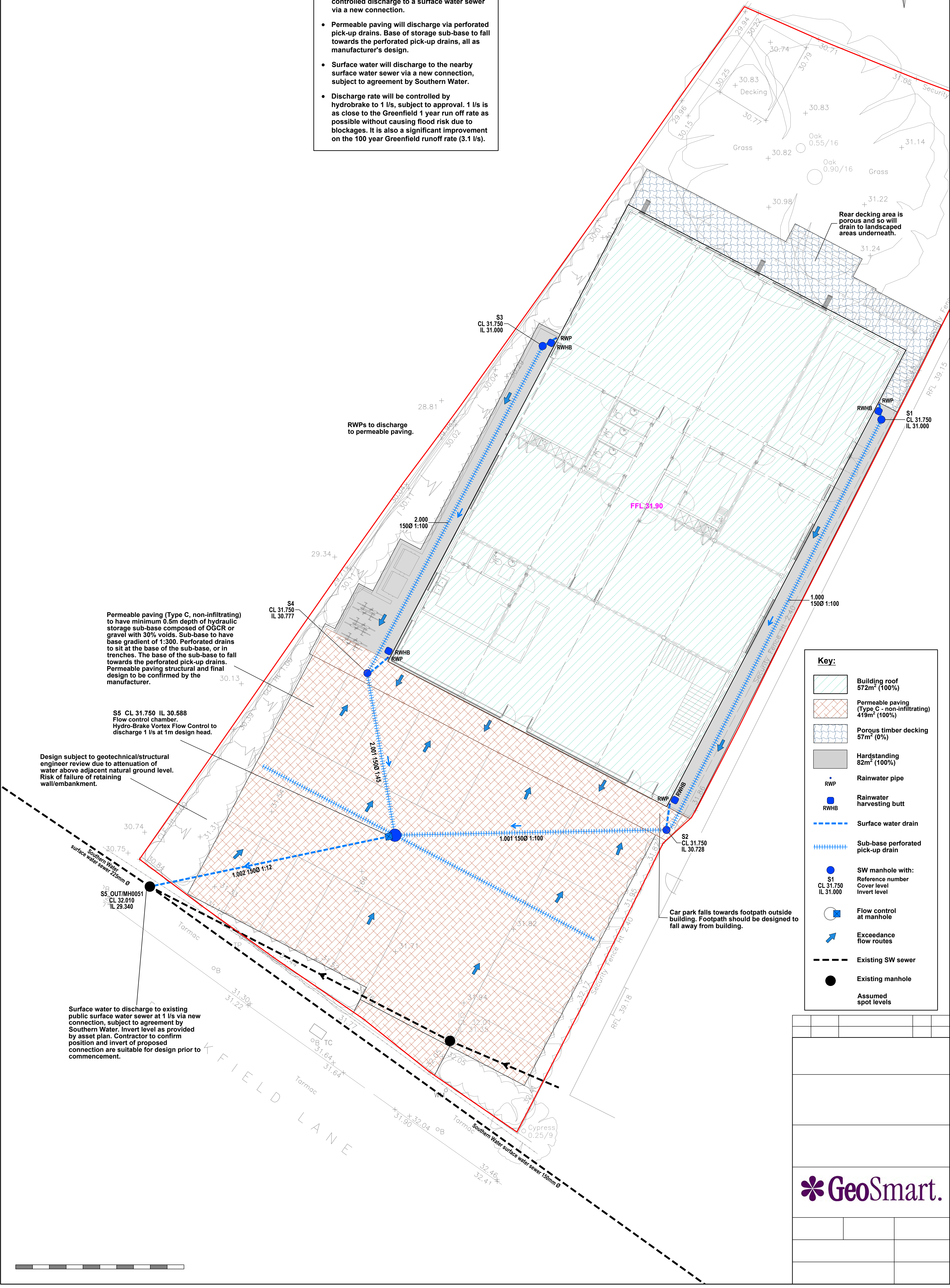
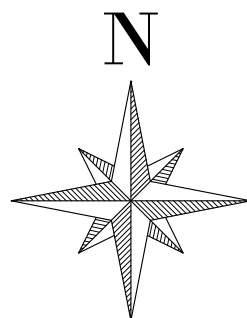
Appendix B

Detailed surface water drainage layout

Notes:

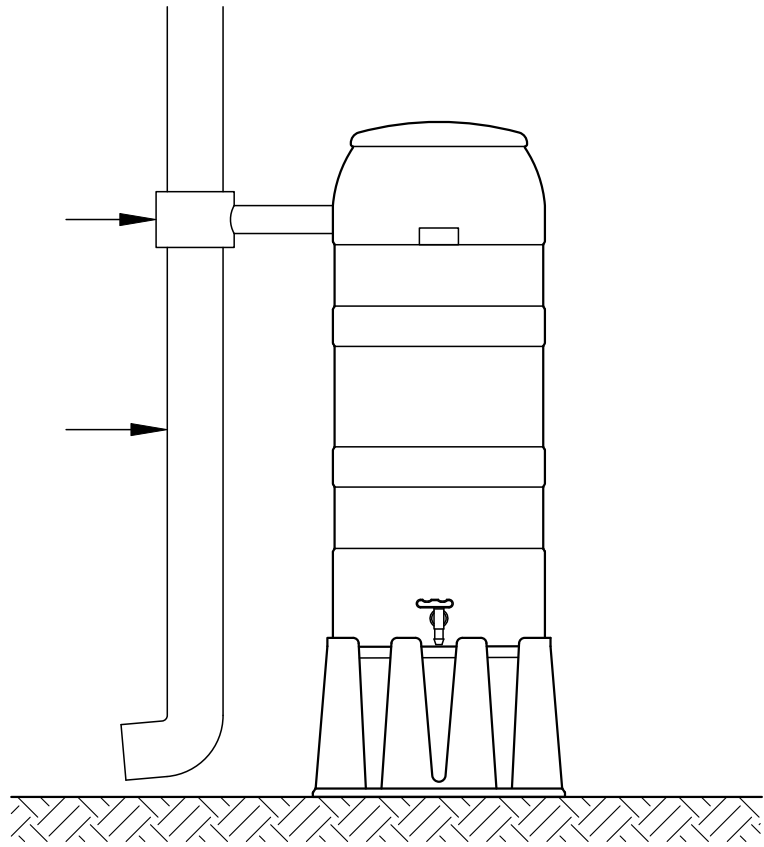
Drainage Strategy

- Drainage strategy consists of rain water harvesting butts, permeable paving and controlled discharge to a surface water sewer via a new connection.
- Permeable paving will discharge via perforated pick-up drains. Base of storage sub-base to fall towards the perforated pick-up drains, all as manufacturer's design.
- Surface water will discharge to the nearby surface water sewer via a new connection, subject to agreement by Southern Water.
- Discharge rate will be controlled by hydrobrake to 1 l/s, subject to approval. 1 l/s is as close to the Greenfield 1 year run off rate as possible without causing flood risk due to blockages. It is also a significant improvement on the 100 year Greenfield runoff rate (3.1 l/s).

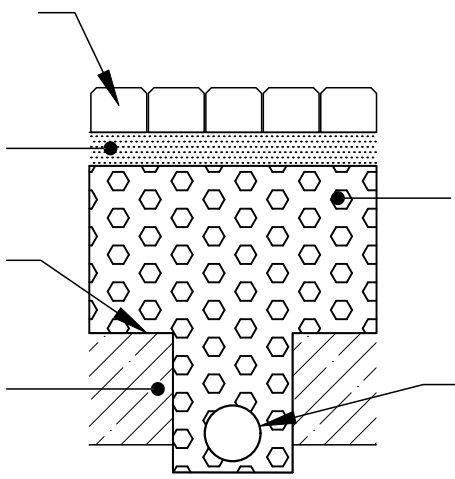


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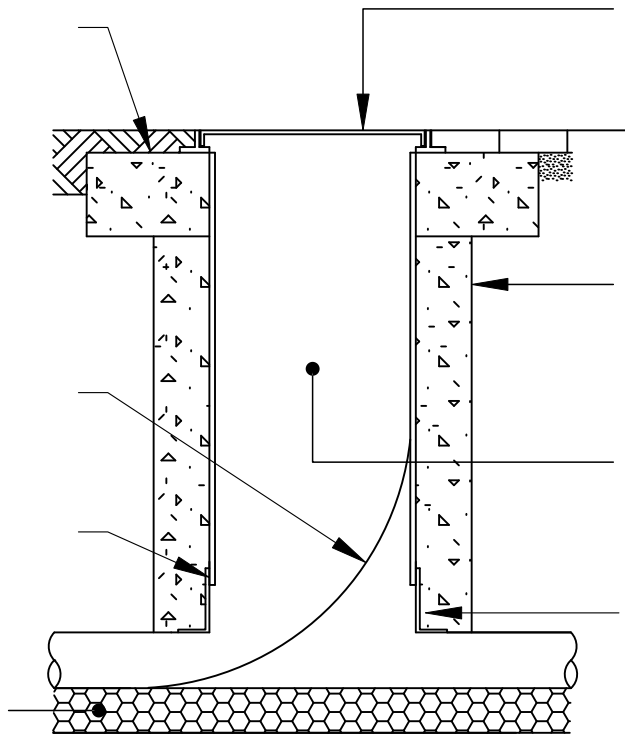
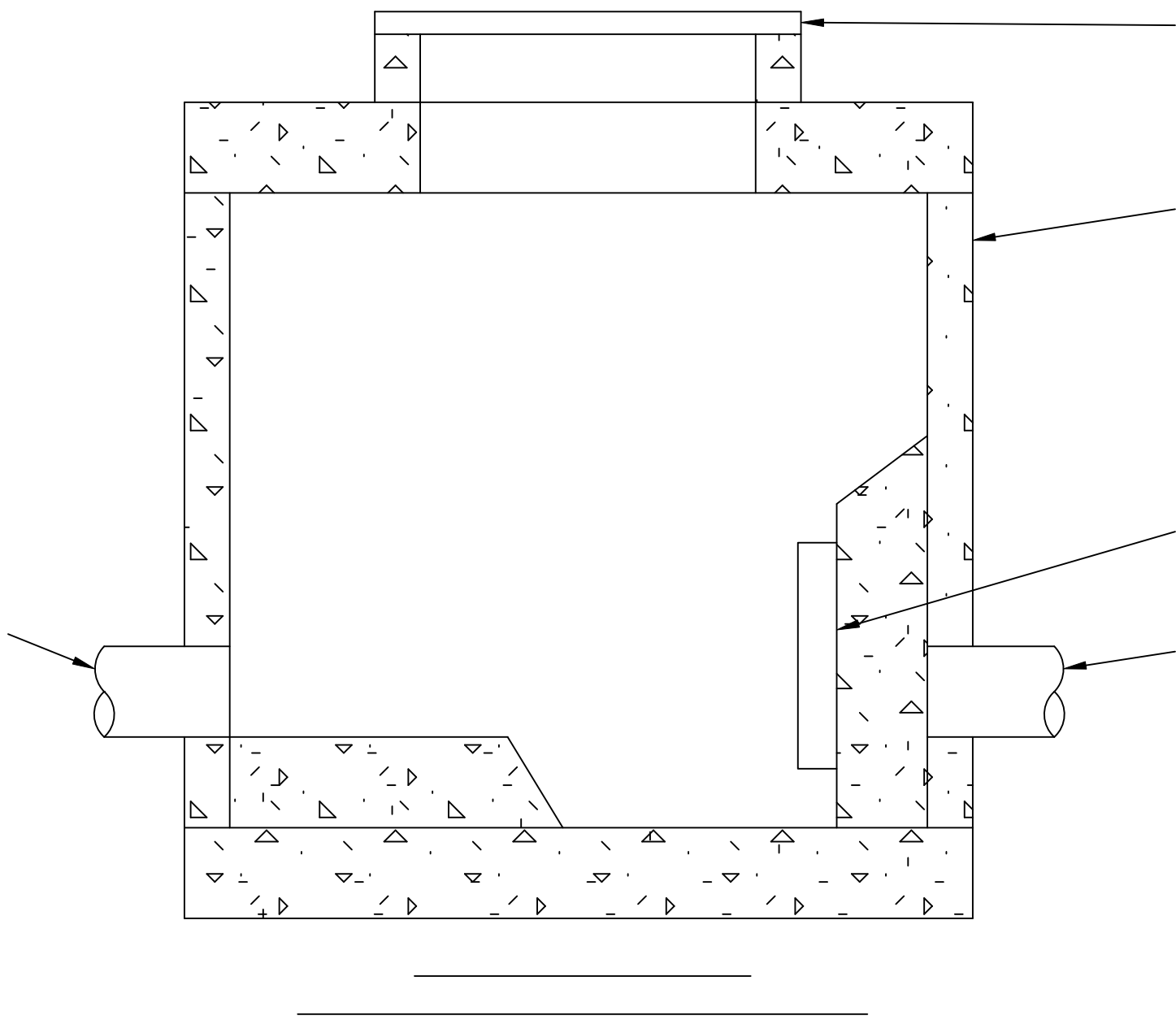
	Building roof 572m² (100%)
	Permeable paving (Type C - non-infiltrating) 419m² (100%)
	Porous timber decking 57m² (0%)
	Hardstanding 82m² (100%)
	Rainwater pipe
	Rainwater harvesting butt
	Surface water drain
	Sub-base perforated pick-up drain
	SW manhole with: Reference number Cover level Invert level
	Flow control at manhole
	Exceedance flow routes
	Existing SW sewer
	Existing manhole
	Assumed spot levels



Typical Rain Water Harvest Butt



**Typical Permeable Paving Detail with Perforated Pick Up
Pipe within Trench**



Typical Inspection Chamber



*GeoSmart.				

Appendix C

Causeway Flow surface water 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)	Invert Level (m)
1	0.018	5.00	31.750	600	443137.099	120112.102	0.750	31.000
2	0.018	5.00	31.750	600	443124.473	120087.999	1.022	30.728
3	0.018	5.00	31.750	600	443117.065	120116.798	0.750	31.000
4	0.018	5.00	31.750	600	443106.735	120097.077	0.973	30.777
5	0.039	5.00	31.750	1200	443108.205	120087.756	1.185	30.565
5_OUT			32.010	600	443093.649	120084.705	2.670	29.340

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	27.210	0.600	31.000	30.728	0.272	100.0	150	5.45	50.0
1.001	2	5	16.270	0.600	30.728	30.565	0.163	100.0	150	5.72	50.0
2.000	3	4	22.263	0.600	31.000	30.777	0.223	100.0	150	5.37	50.0
2.001	4	5	9.436	0.600	30.777	30.565	0.212	44.5	150	5.47	50.0
1.002	5	5_OUT	14.872	0.600	30.565	29.340	1.225	12.1	150	5.81	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	1.005	17.8	2.4	0.600	0.872	0.018	0.0	38	0.709
1.001	1.005	17.8	4.9	0.872	1.035	0.036	0.0	54	0.858
2.000	1.005	17.8	2.4	0.600	0.823	0.018	0.0	38	0.709
2.001	1.512	26.7	4.9	0.823	1.035	0.036	0.0	43	1.150
1.002	2.907	51.4	15.0	1.035	2.520	0.111	0.0	55	2.527

Simulation Settings

Rainfall Methodology	FEH-22	Additional Storage (m³/ha)	20.0
Rainfall Events	Singular	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	✓
Winter CV	0.840	1 year (l/s)	0.8
Analysis Speed	Normal	100 year (l/s)	3.1
Skip Steady State	✓	Check Discharge Volume	x
Drain Down Time (mins)	1440		

Storm Durations

15	60	180	360	600	960
30	120	240	480	720	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	45	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 1 year	0.85
Greenfield Method	FEH	Growth Factor 100 year	3.19
Positively Drained Area (ha)	0.108	Betterment (%)	0
SAAR (mm)	866	QMed	0.9
Host	1	QBar	1.0
BFIHost	0.302	Q 1 year (l/s)	0.8
Region	7	Q 100 year (l/s)	3.1
QBar/QMed conversion factor	1.136		

Node 5 Online Hydro-Brake® Control

Flap Valve	x
Replaces Downstream Link	x
Invert Level (m)	30.565
Design Depth (m)	1.000
Design Flow (l/s)	1.0
Objective	(HE) Minimise upstream storage
Sump Available	✓
Product Number	CTL-SHE-0047-1000-1000-1000
Min Outlet Diameter (m)	0.075
Min Node Diameter (mm)	1200

Node 5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Width (m)	23.000
Side Inf Coefficient (m/hr)	0.00000	Length (m)	18.000
Safety Factor	2.0	Slope (1:X)	300.0
Porosity	0.30	Depth (m)	0.600
Invert Level (m)	31.000	Inf Depth (m)	
Time to half empty (mins)	544		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.21%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	1	118	31.099	0.099	0.9	0.0754	0.0000	OK
120 minute winter	2	118	31.099	0.371	1.7	0.2353	0.0000	SURCHARGED
120 minute winter	3	114	31.099	0.099	0.9	0.0752	0.0000	OK
120 minute winter	4	118	31.099	0.322	1.7	0.2100	0.0000	SURCHARGED
120 minute winter	5	116	31.099	0.534	5.3	9.4796	0.0000	SURCHARGED
120 minute winter	5_OUT	36	29.353	0.013	0.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	1	1.000	2	0.8	0.262	0.045	0.4069	
120 minute winter	2	1.001	5	1.7	0.127	0.093	0.2864	
120 minute winter	3	2.000	4	0.8	0.332	0.046	0.3325	
120 minute winter	4	2.001	5	1.7	0.169	0.063	0.1661	
120 minute winter	5	1.002	5_OUT	0.8	1.074	0.016	0.0114	16.7

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	180	31.242	0.242	1.4	0.1843	0.0000	SURCHARGED
180 minute winter	2	180	31.241	0.513	2.7	0.3261	0.0000	SURCHARGED
180 minute winter	3	180	31.242	0.242	1.4	0.1843	0.0000	SURCHARGED
180 minute winter	4	180	31.241	0.464	2.7	0.3033	0.0000	SURCHARGED
180 minute winter	5	180	31.241	0.676	8.4	27.4688	0.0000	SURCHARGED
180 minute winter	5_OUT	180	29.353	0.013	0.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	1	1.000	2	1.3	0.290	0.075	0.4790	
180 minute winter	2	1.001	5	2.7	0.152	0.151	0.2864	
180 minute winter	3	2.000	4	1.3	0.342	0.075	0.3919	
180 minute winter	4	2.001	5	2.7	0.168	0.100	0.1661	
180 minute winter	5	1.002	5_OUT	0.8	1.077	0.016	0.0115	38.4

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.31%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	176	31.303	0.303	1.8	0.2314	0.0000	SURCHARGED
180 minute winter	2	180	31.303	0.575	3.5	0.3654	0.0000	SURCHARGED
180 minute winter	3	180	31.303	0.303	1.8	0.2315	0.0000	SURCHARGED
180 minute winter	4	180	31.303	0.526	3.5	0.3438	0.0000	SURCHARGED
180 minute winter	5	180	31.303	0.738	10.7	35.2916	0.0000	SURCHARGED
180 minute winter	5_OUT	180	29.354	0.014	0.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	1	1.000	2	1.7	0.290	0.097	0.4790	
180 minute winter	2	1.001	5	3.4	0.196	0.194	0.2864	
180 minute winter	3	2.000	4	1.7	0.342	0.097	0.3919	
180 minute winter	4	2.001	5	3.4	0.196	0.129	0.1661	
180 minute winter	5	1.002	5_OUT	0.9	1.090	0.017	0.0119	46.7

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	11	31.530	0.530	11.3	0.4044	0.0000	FLOOD RISK
360 minute winter	2	352	31.471	0.743	2.9	0.4718	0.0000	FLOOD RISK
360 minute winter	3	352	31.471	0.471	1.5	0.3593	0.0000	FLOOD RISK
360 minute winter	4	352	31.471	0.694	2.9	0.4531	0.0000	FLOOD RISK
360 minute winter	5	352	31.471	0.906	8.9	56.3754	0.0000	FLOOD RISK
360 minute winter	5_OUT	352	29.354	0.014	1.0	0.0000	0.0000	OK

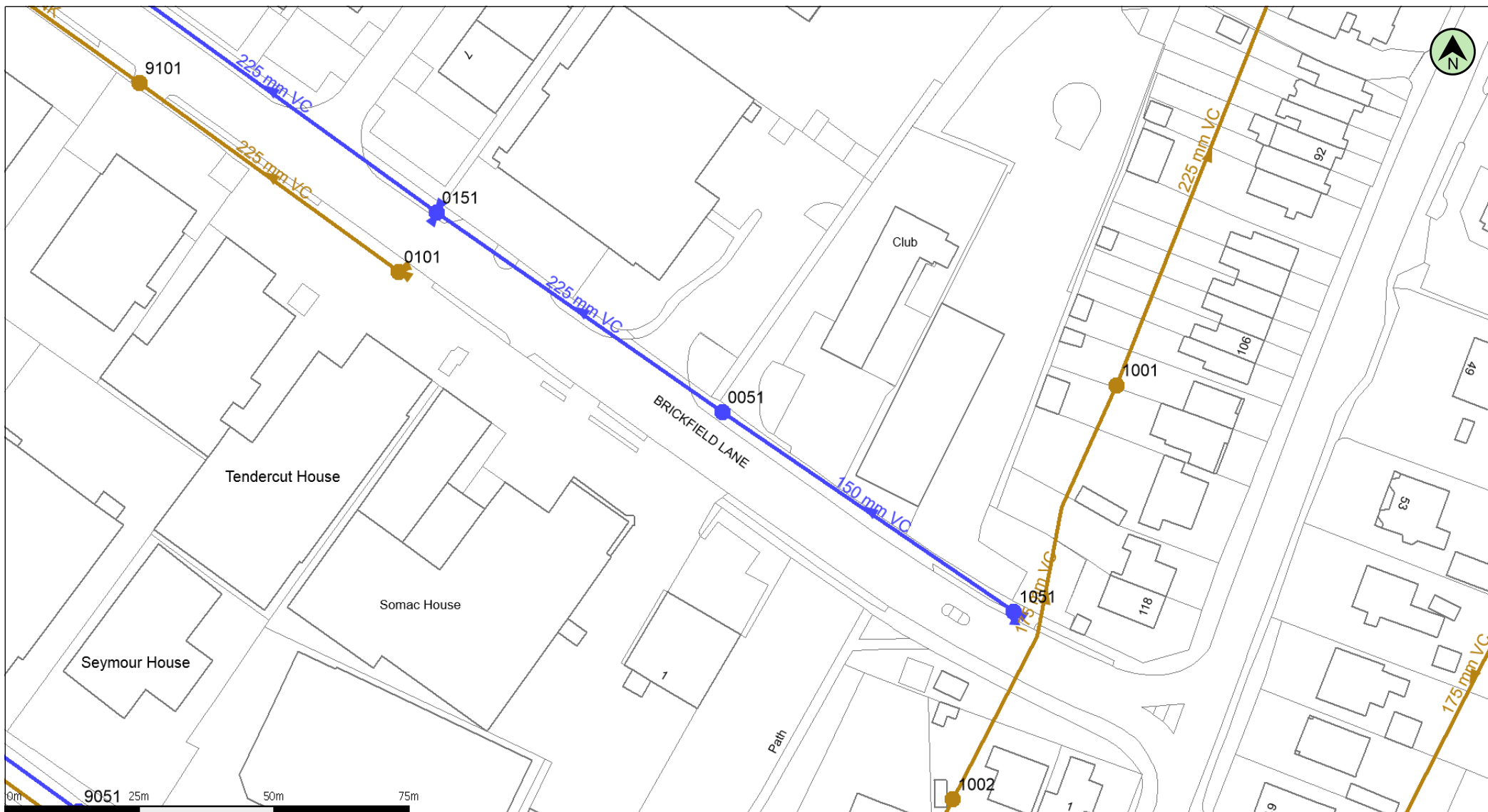
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	10.4	0.588	0.583	0.4790	
360 minute winter	2	1.001	5	2.9	0.163	0.161	0.2864	
360 minute winter	3	2.000	4	1.4	0.302	0.081	0.3919	
360 minute winter	4	2.001	5	2.9	0.163	0.107	0.1661	
360 minute winter	5	1.002	5_OUT	1.0	1.119	0.019	0.0127	77.8

Appendix D

Management & maintenance plan

Appendix E

Southern Water Asset Location Plan



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Date: 13/08/26

Scale: 1:1000

Map Centre: 443099,120084

Data updated: 16/07/26

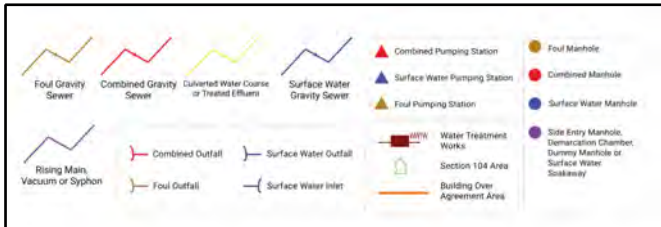
Our Ref: 2190244 - 1

Wastewater Plan A4
Powered by digdat

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.



davidsouth@geosmartinfo.co.uk

93386



Appendix F

Infiltration Testing Results (Freeflush Water Management, 2026)

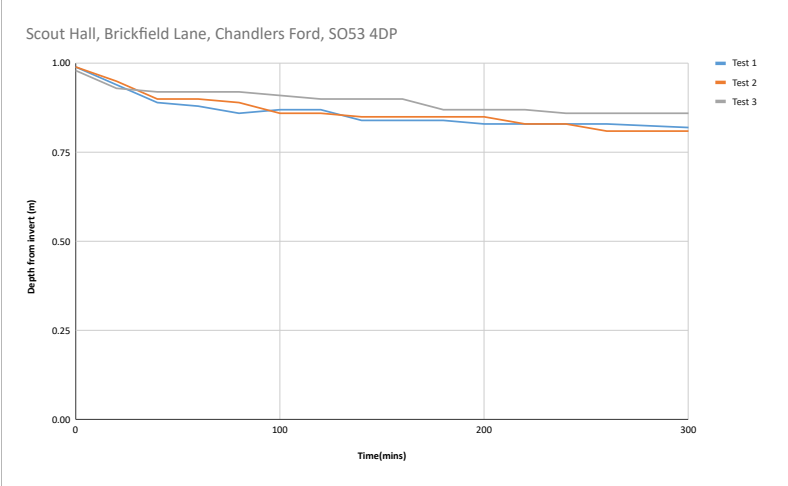
	Freeflush Water Management, Unit 3 Astra Business Park, Guinness Road, Trafford Park, Manchester M17 1SU
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Test Type	Infiltration Test BRE 365
Site	Scout Hall, Brickfield Lane, Chandlers Ford, SO53 4DP
Date	25/05/2026
Supervised By:	J Patel CEng MICE
Weather Conditions on the day	Dry
5 day Antecedent conditions	Dry
Observations	130mm topsoil, claggy clay to invert
Trial pit location	Centered on Proposed Soakaway.
Notes	N/A

Depth of Trial Pit (m)	1.2	m
Effective Depth (m) h75-25	0.500	m
Plan Length	1	m
Plan Width	0.3	m

V 75-25	0.150	m3
P	2.6	m
a 50	1.600	m2
t 75-25	N/A	s
Soil Infiltration rate <i>f</i>	N/A	m/s
Does the Trial pit drain 50% in 24 hrs	No	

TEST ABANDONDED DUE TO MINIMAL INFILTRATION



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Tel: 01743 298 100

Email: info@geosmartinfo.co.uk

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- handle complaints speedily and fairly.
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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

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- 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.

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Liz Lloyd

Finance Manager

GeoSmart Information Limited

Suite 1, 1 Bellstone Court

Bellstone, Shrewsbury, SY1 1JB

Tel: 01743 298 100

support@geosmartinfo.co.uk

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