GeoSmart Information

SuDSmart

Foul Drainage Assessment

Site Address

Land adjacent Orchard Farm
Comberton
Orleton
Herefordshire
SY8 4HF

Grid Reference

349301, 267815

Report Prepared for

Mr. Richard Florence

Date

2025-02-12

Report Status

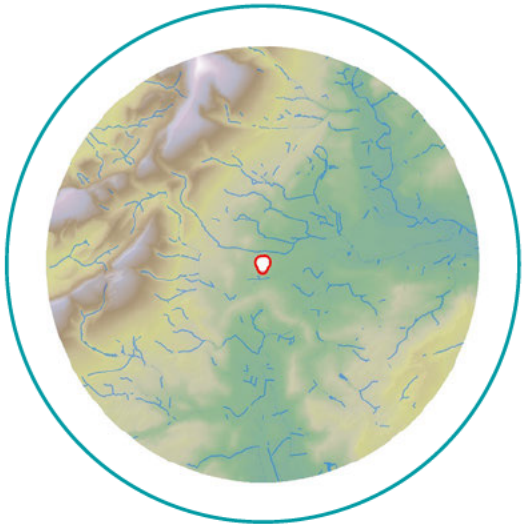
FINAL

Site Area

0.37 ha.

Report Reference

82985R2



Infiltration to ground

Foul water is proposed to be treated via a package treatment plant and infiltrated to ground via a drainage field. By infiltrating foul water to ground there will be no pathway for nutrients to enter the River Teme (located c.2.4km away) and the development will therefore have no adverse effect on the River Teme.

Percolation testing has been undertaken at the site and confirmed a percolation rate of 90-95 Vp.

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1 Executive summary

This report assesses the drainage options for discharging foul flows generated by a proposed development at Land adjacent Orchard Farm, Comberton, Orleton, Herefordshire, SY8 4HF (the Site). The proposed development is for 4 mobile homes, 4 touring caravans and a utility/dayroom.

The destination of foul water drainage should be assessed using the order of preference outlined in the Building Regulations Part H document (HM Government, 2015), each option must be considered and discounted in the following order:

1. Connection to the public sewer.
2. Package sewage treatment plant (PTP) (which can be offered to the Sewerage Undertaker for adoption).
3. Septic Tank.
4. If none of the above are feasible a cesspool.

In accordance with the general binding rules (2021) a public sewer is the first priority to discharge foul water into with a minimum buffer of 30 m multiplied by the number of dwellings. In this instance, due to the absence of any formal foul drainage at the present Site a 120 m buffer has been applied to the Site.

The nearest public foul water sewer has been identified approximately 125 m to the south west the Site boundary. The foul sewer is therefore outside of the 120 m buffer applied to the Site. Given that a connection to this sewer is a significant distance from the site and would require large amounts of pipework crossing third party land, it is not considered to be appropriate.

According to OS mapping there are no nearby surface watercourses for the Site to discharge into.

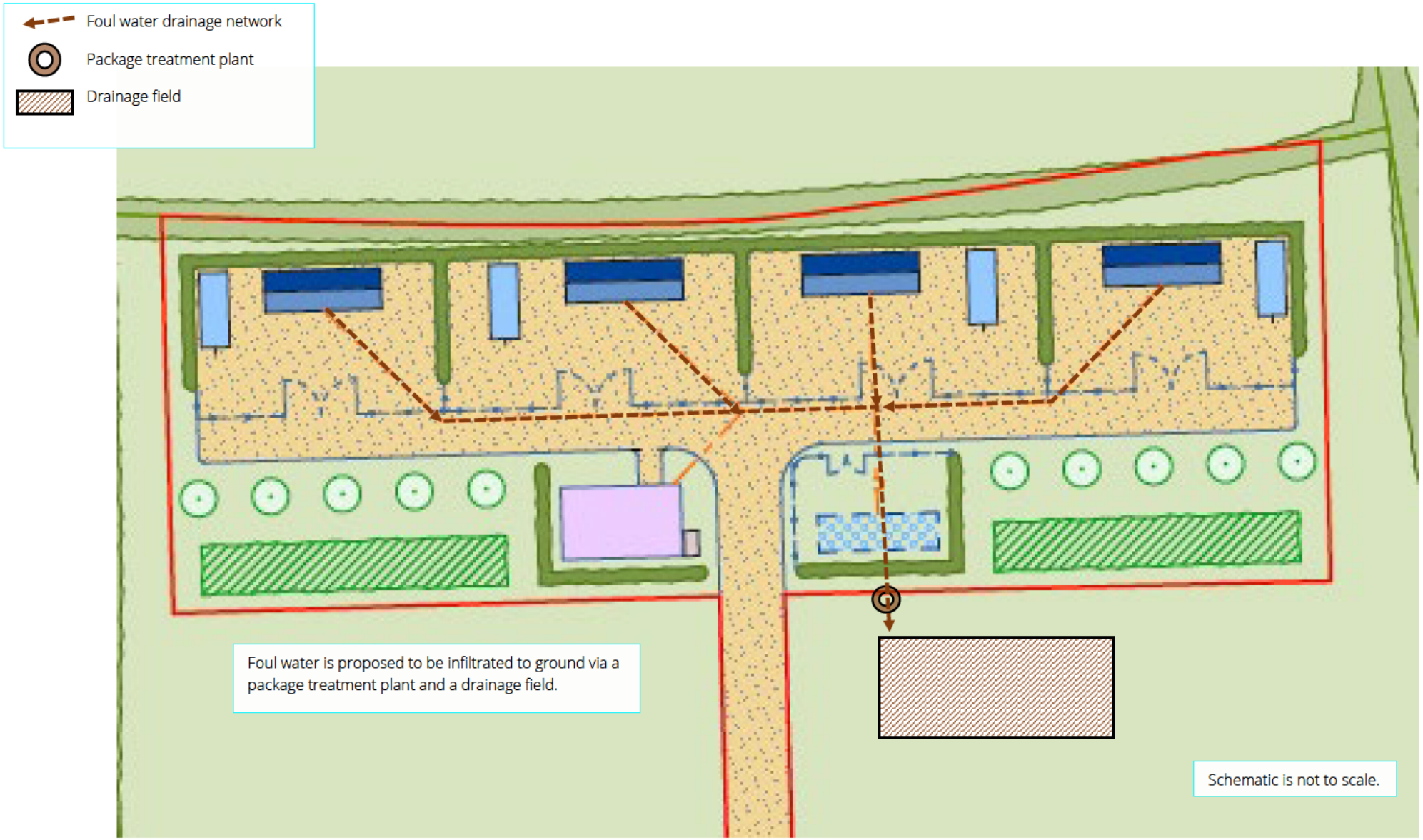
According to GeoSmart's SD50 mapping the Site is identified to have a Moderate potential for infiltration with underlying sand and gravel. Percolation testing has been undertaken at the Site by EMS Group which confirmed a percolation rate of 90-95 Vp. As infiltration to ground is an efficient way of removing nutrients from foul discharge, infiltration to ground is proposed for the Site.

GeoSmart Information

Foul drainage suitability

Risk	Issue	Result
Discharge Location	What is the potential to discharge to sewers?	Low
	What is the potential to discharge to surface water features?	Low
	What is the infiltration potential at the Site?	Medium
Flooding	What is the river (fluvial) flood risk at the Site?	Very Low
	What is the surface water (pluvial) flood risk at the Site?	Very Low
	What is the groundwater flood risk at the Site?	Negligible
Pollution	Is the groundwater a protected resource?	No
	Is the surface water feature a protected resource?	Yes

Figure 1. Proposed Foul drainage layout

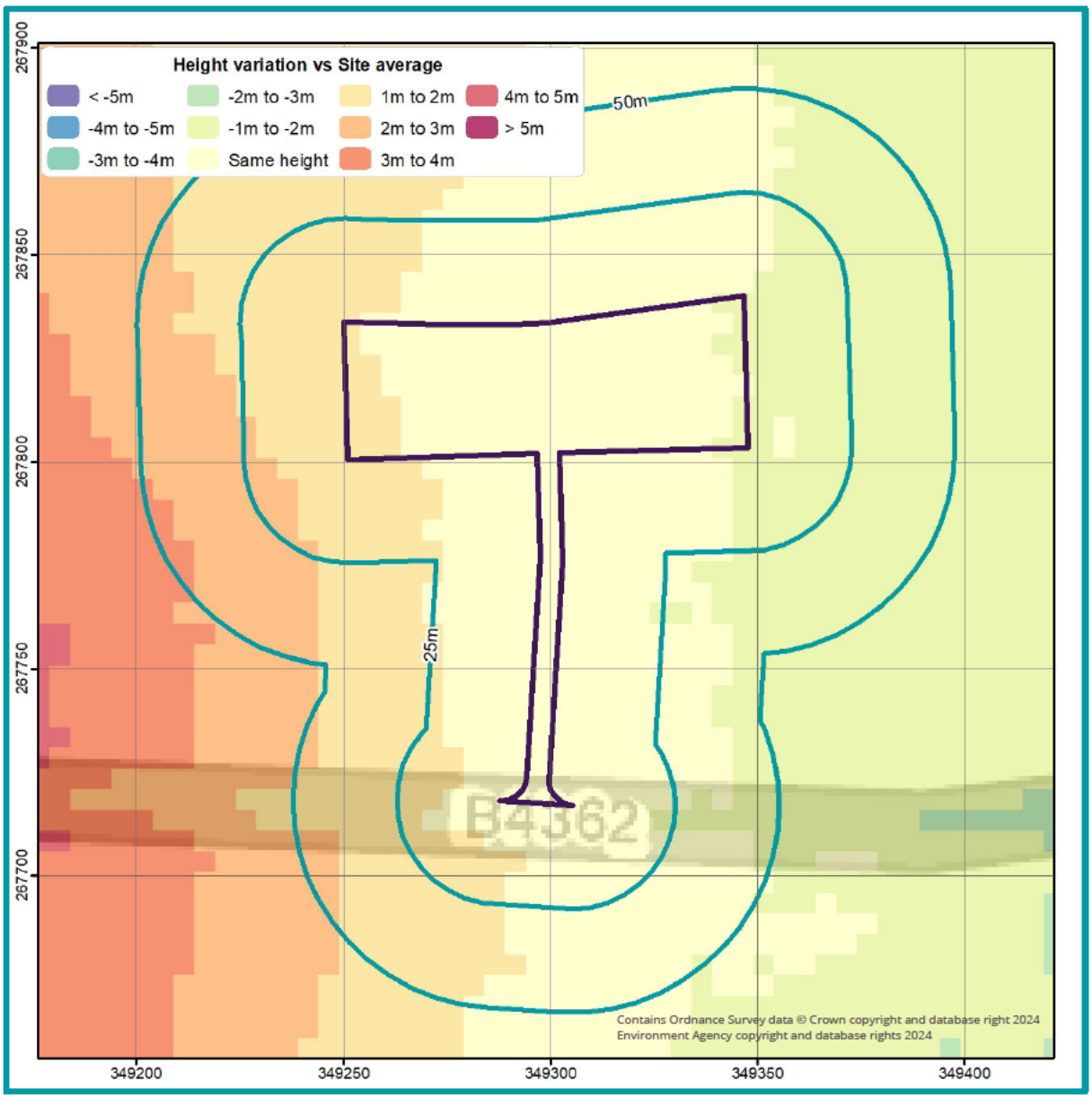


2 Site analysis

Site location

Figure 2. Aerial Imagery (Bluesky, 2024)

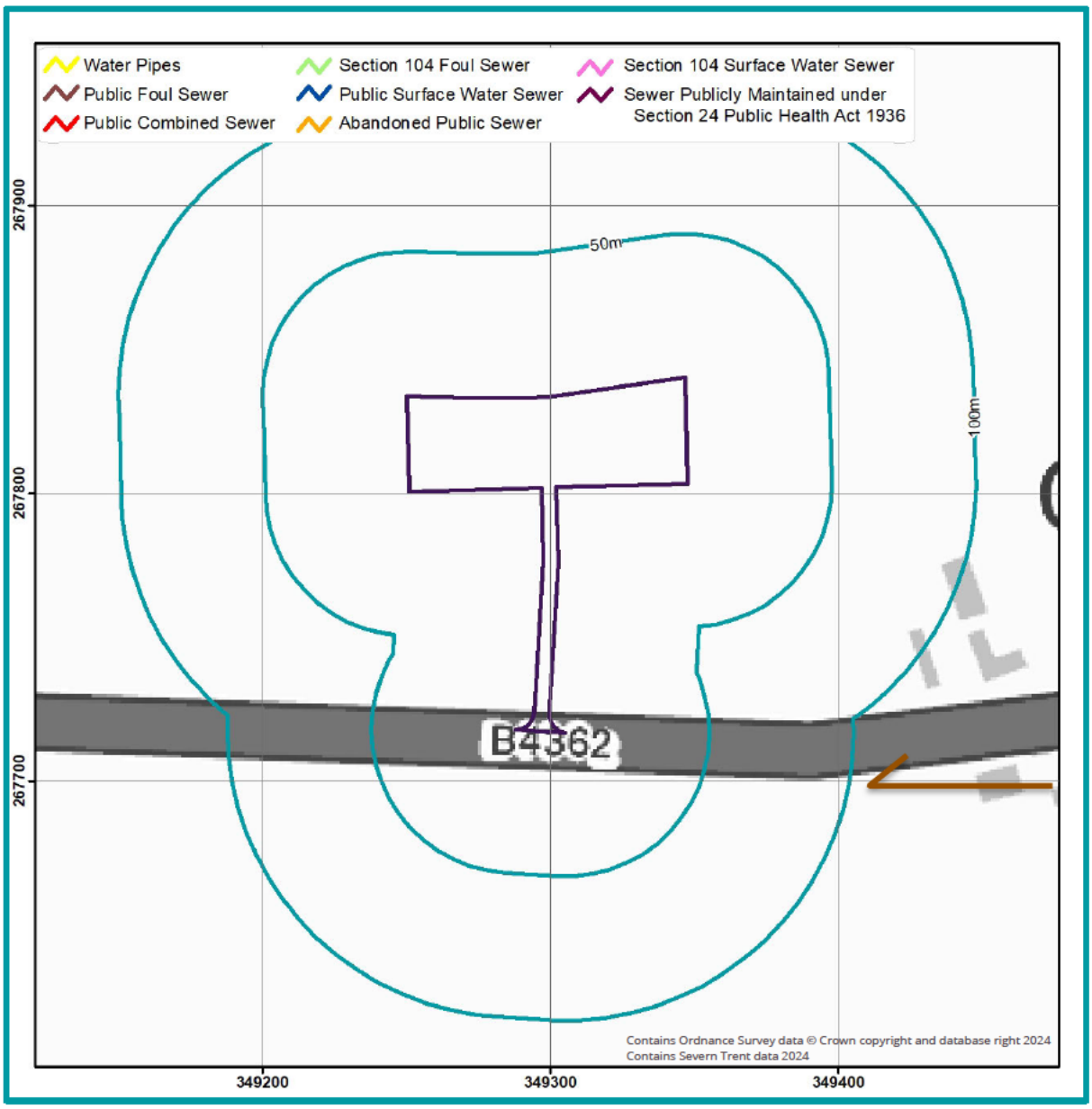
Figure 3. Site topography (GeoSmart, 2024)



An assessment of the topography at the Site has been undertaken using LiDAR DTM5 elevation data to identify the general slope and any localized depressions. The mapping shows a comparison between average ground levels on the Site with ground levels in the surrounding area. The mapping confirms the Site is on a slope falling to the west from 86.71 mAOD to 85.16 mAOD. This is based on EA elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ±150 mm (EA, 2024).

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

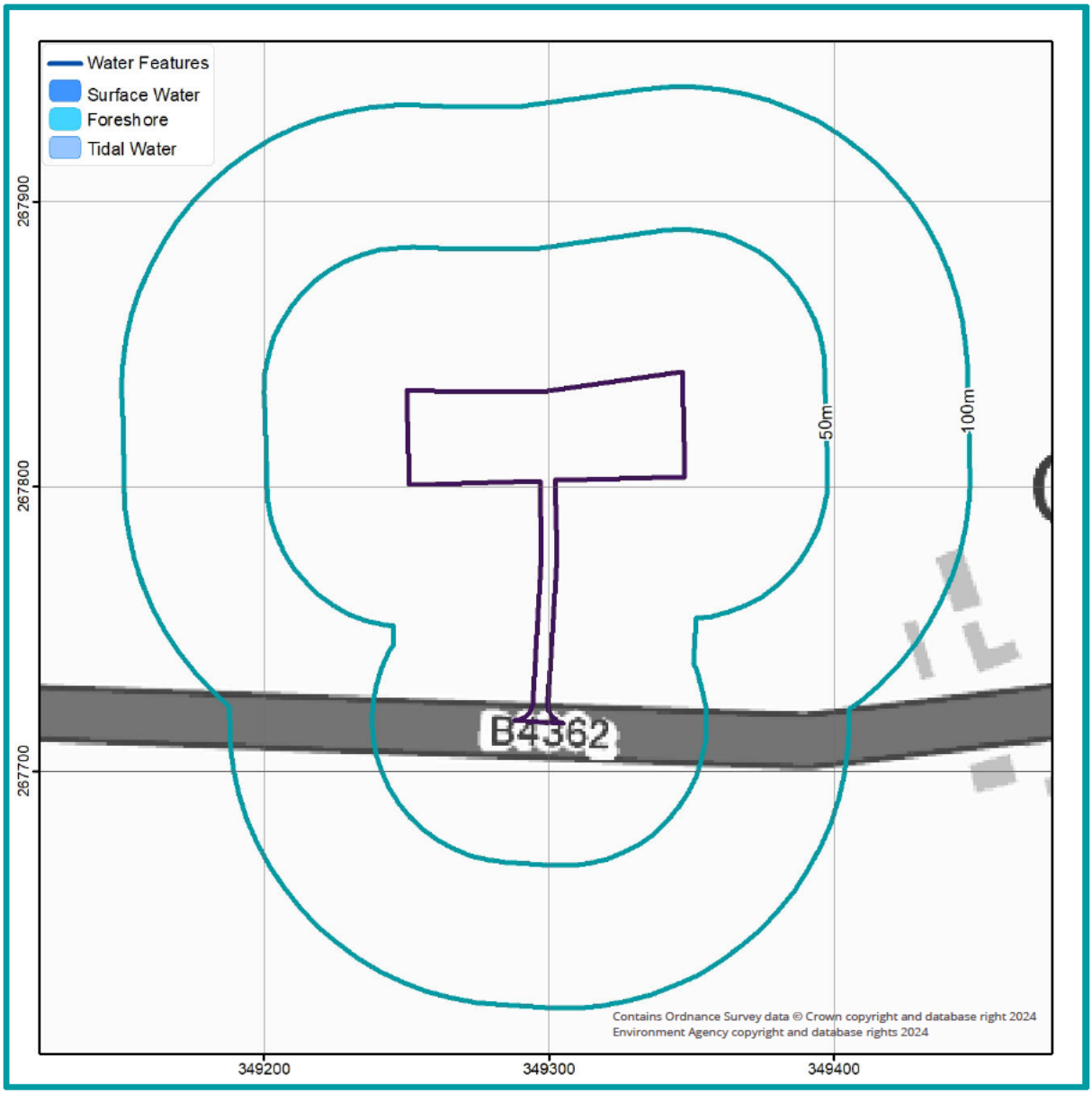
Figure 4. Sewer features map (OS & Severn Trent Water, 2024)



GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. A public foul sewer is located c.125m south west of the Site. A connection to this sewer may be feasible but would require third party land access.

Further analysis of the connections and condition of the private and public foul water drainage system could 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 and permission with the private owners would be required to determine that sufficient capacity is available to accept the proposed discharge as well as confirmation from the water authority where an indirect connection to the public sewer is utilised.

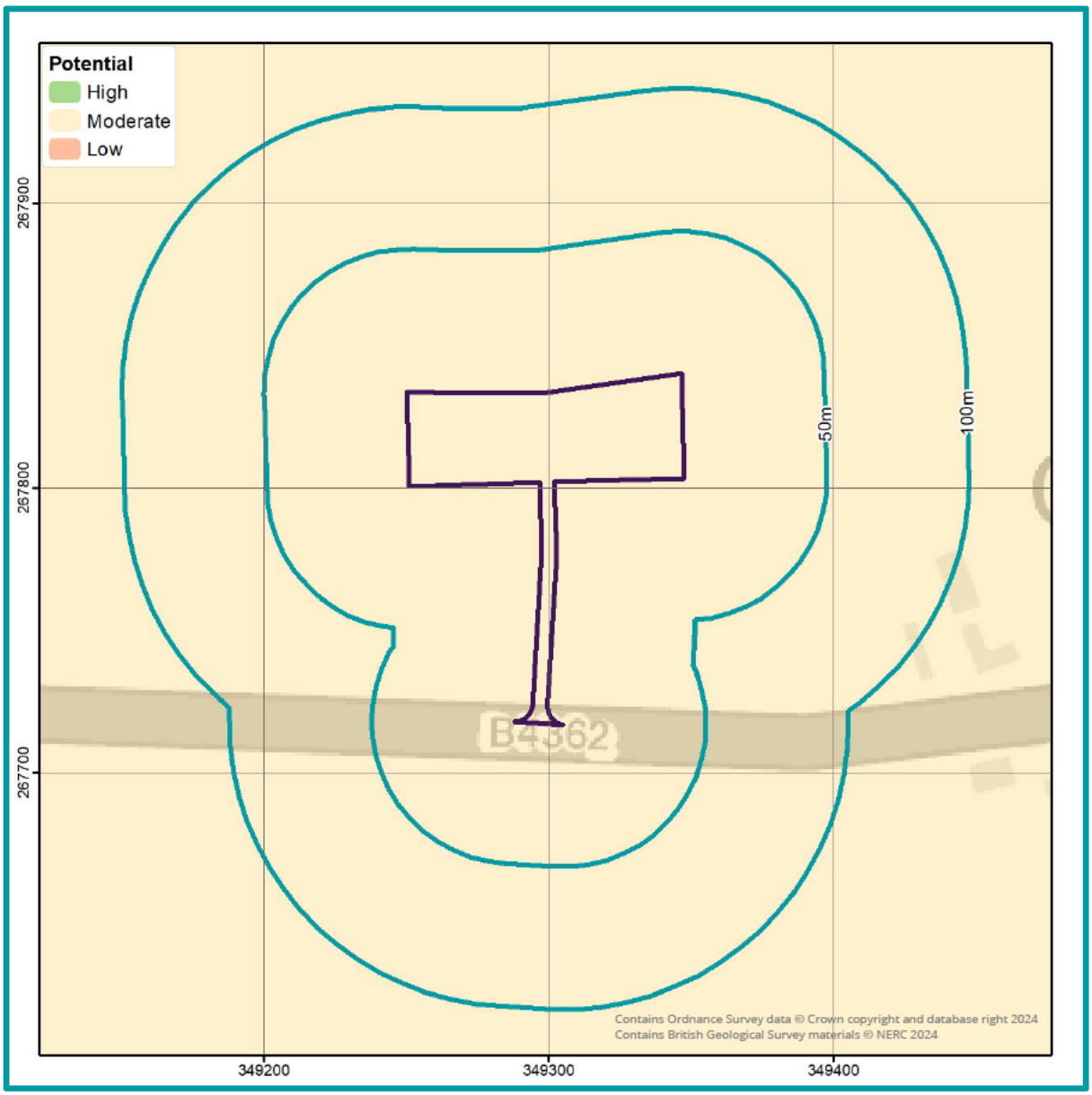
Figure 5. Surface water features map (EA, 2024)



OS mapping confirms that there are no nearby surface watercourses for the Site to discharge into. The Site is c. 2.4 km from the River Teme which is designated as a SSSI.

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 unmapped surface water features.

Figure 6. SuDS infiltration suitability (SD50) map (GeoSmart, 2024)

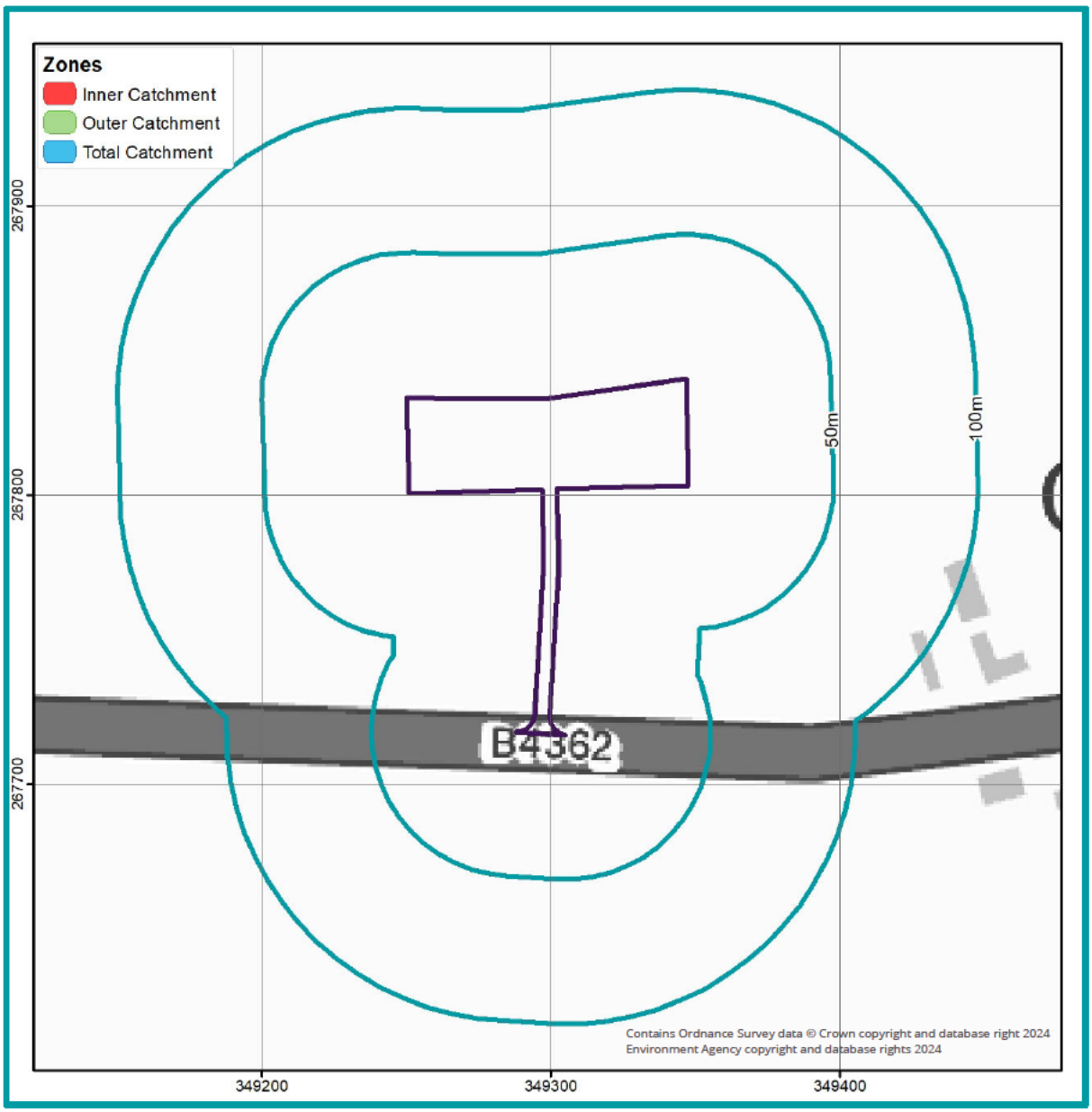


The GeoSmart SuDS Infiltration Suitability Map (SD50) screens the potential for infiltration drainage at the Site and indicates where further assessment is recommended. The map combines information on the thickness and permeability of the underlying material and the depth to the high groundwater table.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

There is a Moderate potential for infiltration SuDS across the Site. It is likely that the underlying geology at the Site has a variable permeability and infiltration to ground via a drainage field should be possible at the Site.

Percolation testing has been undertaken at the Site by EMS Group which confirmed a percolation rate of 90-95 Vp.

Figure 7. Source protection zone map (EA, 2024)

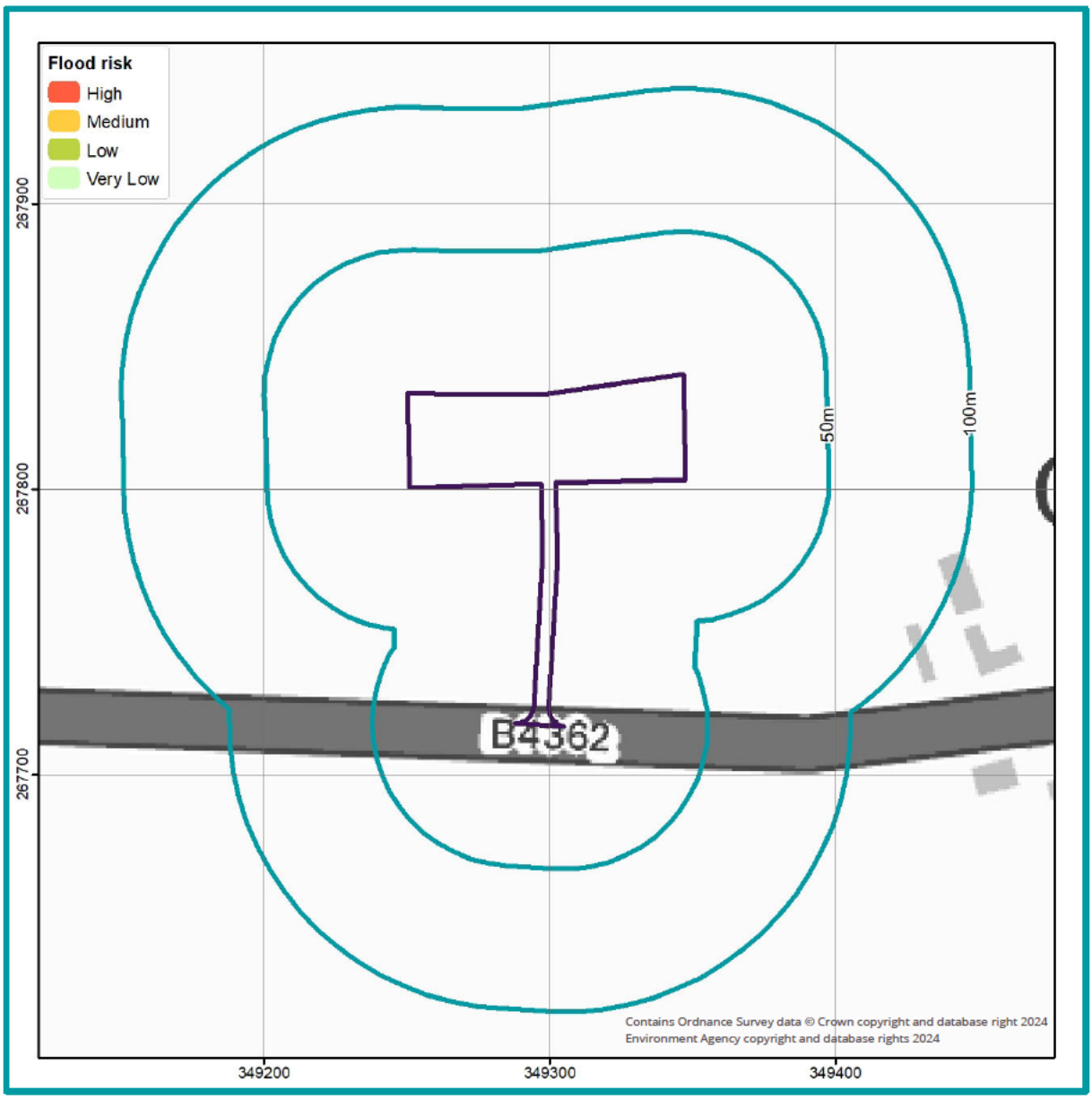


An assessment of the EA's groundwater Source Protection Zones (SPZs) has been undertaken within the vicinity of the Site and confirms the Site is not located within an SPZ.

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.

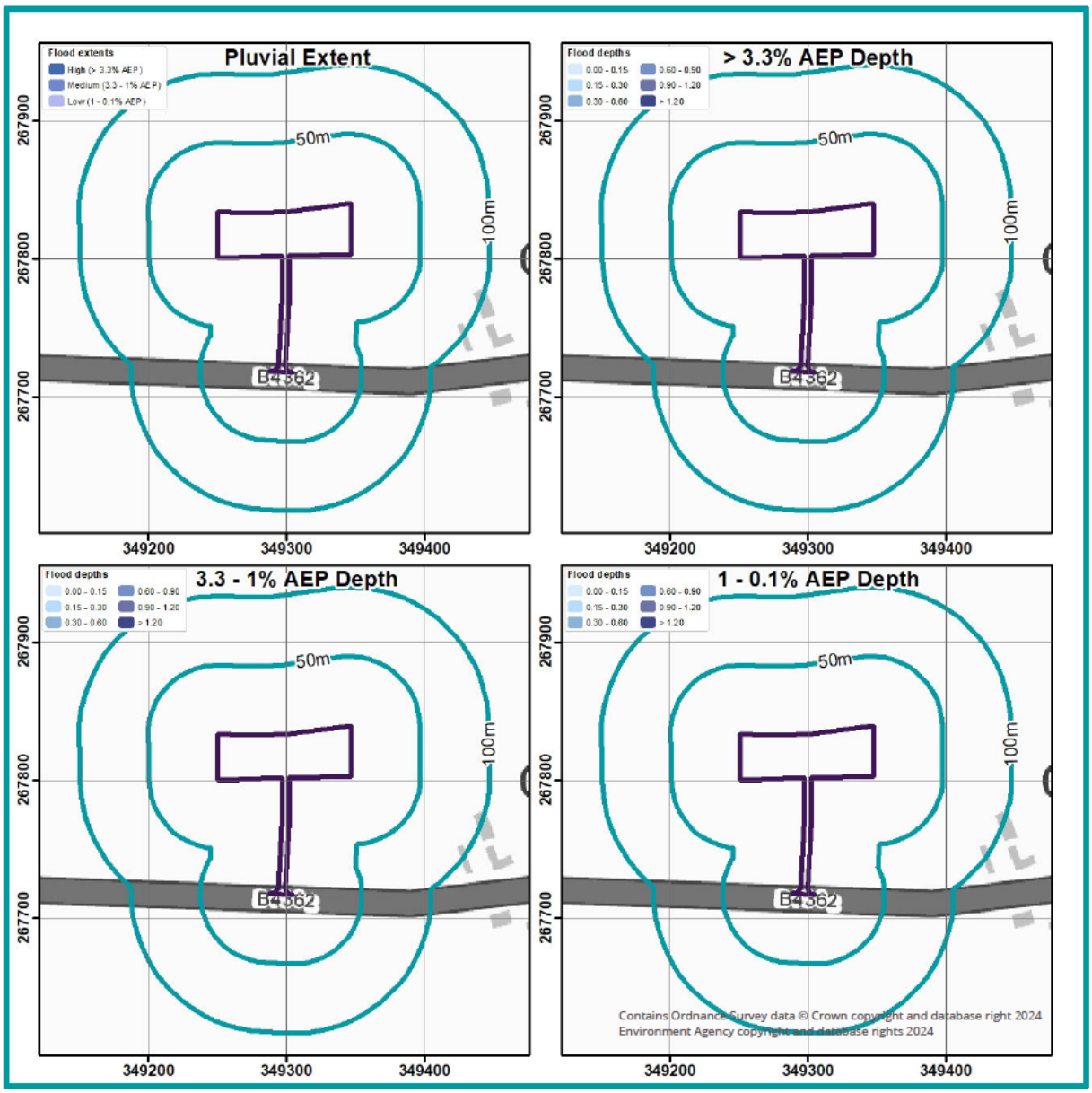
According to Herefordshire Council the Site is located within the River Teme SSSI Catchment. According to Magic Map the Site is not located within an SPA, Ramsar or Nitrate Vulnerable Zone.

Figure 8. Risk of flooding from rivers & sea map (EA, 2024)



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

Figure 9. Risk of surface water flooding map (EA, 2024)

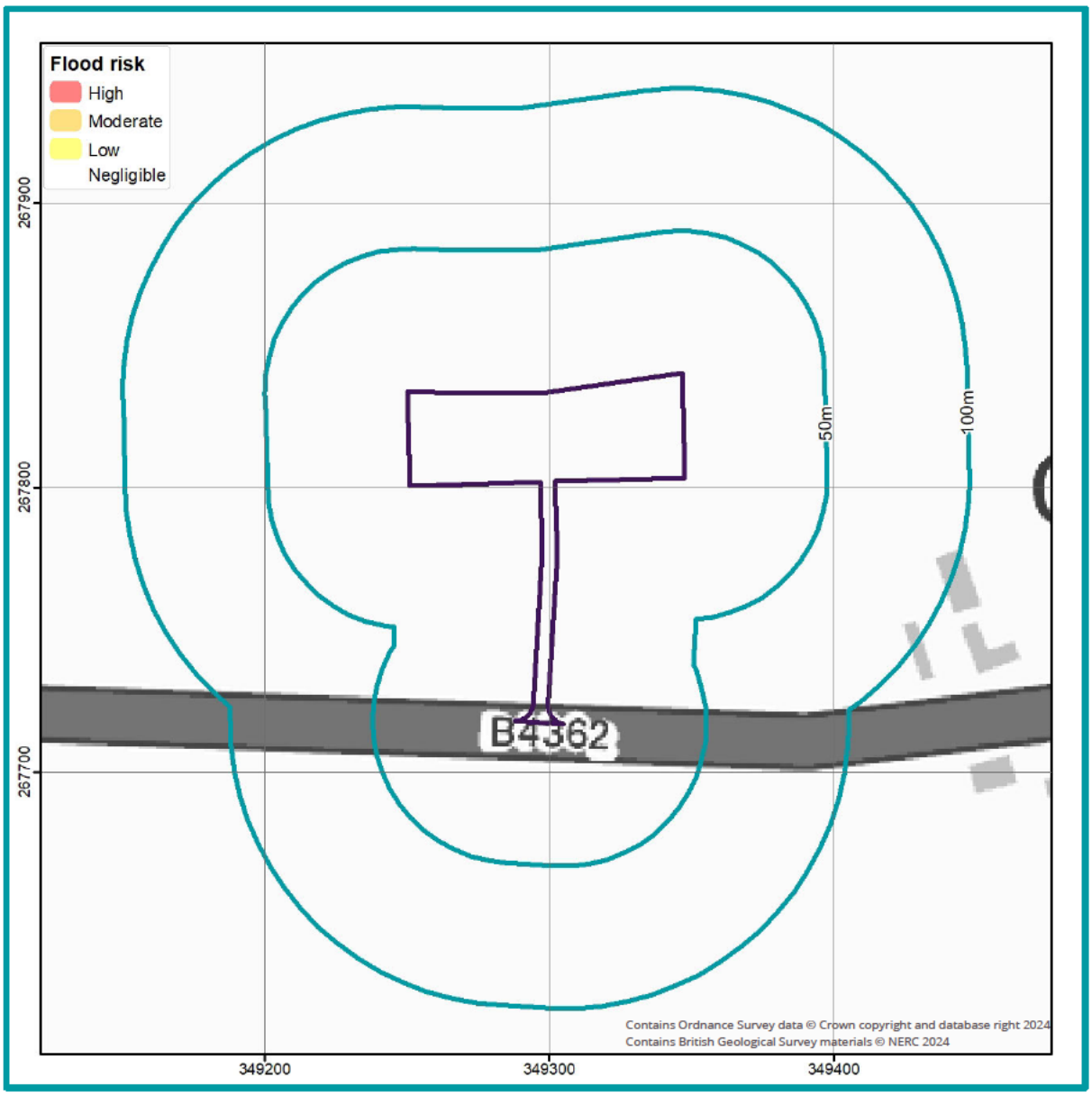


GeoSmart have undertaken an assessment of the risk of flooding from surface water (pluvial) sources within the vicinity of the Site using the EA's Risk of Flooding from Surface Water (RoFSW) mapping. According to the EA's RoFSW (pluvial) flood mapping, the Site has a Very Low risk of pluvial flooding.

The above map shows the extent and depth of flooding during a 1% annual probability (1 in 100 year) event, this confirms there are no areas on the Site which would be affected by flooding in the 100 year event.

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

Figure 10. Groundwater flood risk (GW5) map (GeoSmart, 2024)



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

3 Flows, loads and volume calculations

The existing and proposed flows, loads and runoff volumes have been calculated for foul water to ensure these are managed effectively as part of the development over its lifetime.

Total foul discharge and volume (loading)

The British Water Code of Practice 4 Flows and Loads (Sizing Criteria, Treatment Capacity for Sewage Treatment Systems) document (2014) has been used to confirm the most likely usage volumes associated with the existing and proposed development, when the maximum number of occupants are envisaged to be using the Site. It is assumed for the purposes of the report that the occupancy of each caravan is four persons.

- The proposed development is for 4 mobile homes, 4 touring caravans and a utility/dayroom.
- A Mobile home type caravans with full services = 150 litres per person per day.
- Each caravan has two bedrooms and is assumed to have a max occupancy of four persons.
- The touring caravans will not be connected to the onsite drainage as these will primarily be used when the occupants are away from the Site.
- The utility/dayroom will have no individual occupants and is instead used as amenity space for the occupants of the mobile homes. It will therefore not contribute to the on-Site drainage.

Proposed

- 150 l x 4 persons per caravan x 4 = 2,400 l = 2.4 m^3 per day

4 Foul Drainage Strategy

The destination of foul water drainage should be assessed using the order of preference outlined in the Building Regulations Part H document (HM Government, 2015):

1. A public sewer;
2. A private sewer communicating with a public sewer;
3. A Package Treatment Plant;
4. A septic tank.

Discharge to sewer

In accordance with the general binding rules (2021) a public sewer is the first priority to discharge foul water into with a minimum buffer of 30 m multiplied by the number of dwellings. In this instance, due to the absence of any formal foul drainage at the present Site a 120 m buffer has been applied to the Site.

The nearest public foul water sewer has been identified approximately 125 m to the south west the Site boundary. The foul sewer is therefore outside of the 120 m buffer applied to the Site.

Given that a connection to this sewer is a significant distance from the site and would require large amounts of pipework crossing third party land, it is not considered to be appropriate.

Discharge to surface watercourse

According to OS mapping there are no nearby surface watercourses for the Site to discharge into.

Discharge to ground

According to GeoSmart's SD50 mapping the Site is identified to have a Moderate potential for infiltration with underlying sand and gravel. Percolation testing has been undertaken at the Site by EMS Group which confirmed a percolation rate of 90-95 Vp.

As infiltration to ground is an efficient way of removing nutrients from foul discharge, infiltration to ground is proposed for the Site.

Drainage Field Sizing

As infiltration to ground is potentially feasible, foul water should be treated by a package treatment plant and infiltrated to ground via a drainage field.

Percolation testing has been undertaken at the Site by EMS Group which confirmed a percolation rate of 90-95 Vp.

The proposed volume of foul water has been calculated using the British Water guidance "Flows and Loads" (2014) based on the following 'Schedules of Accommodation' (Appendix A):

- 150 l x 4 persons per caravan x 4 = 16P = 2,400 l = 2.4 m^3 per day

Area of drainage field = Vp x P x 0.25 = 95 x 16 x 0.25 = 380m².

Based on a trench width of 0.3m (typical excavator bucket size), the required total trench length is 114m (380m^2 x 0.3m = 114m). 6 trenches of 19m length will provide this 114m total trench length. Each trench should have a minimum of 2m space between each trench.

The Vp value is to be confirmed prior to commencement via correct testing procedure as described in Building Regulations Part H.

The drainage field is to be at least 15m from buildings and with sufficient distance from any other potential surface water infiltration features.

Nutrient betterment

The proposed foul drainage strategy for the Site is to infiltrate foul water via a package treatment plant and drainage field. Therefore, given the distance from the River Teme (c.2.4km), phosphates are unlikely to reach the river and therefore there is no pathway for impacts. The proposed development will therefore not have an adverse effect on the River Teme SSSI.

5 Maintenance

Regular maintenance is essential to ensure effective operation of the drianage features over the intended lifespan of the proposed development.

Table 1. SuDS operation and recommended maintenance requirements

Asset type	Maintenance schedule (and frequency)
Underground drainage pipe network and manholes	Regular maintenance: • 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).
Package Treatment Plant	Regular maintenance: • Service (annually or as required/recommended by manufacturer). Monitoring: • Survey inside of tank for sludge or scum build-up and remove (annually or as required/recommended by manufacturer). • Check the electrical components, blowers, pumps, UV-units, are operational (weekly or as required/recommended by manufacturer). • Check air vents for obstructions (weekly or as required/recommended by manufacturer). Refer to manufacturers operation and maintenance manual for further details.

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.

6 Further information

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

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

Glossary

General terms

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

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

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

Data Sources

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

7 Appendices

GeoSmart Information

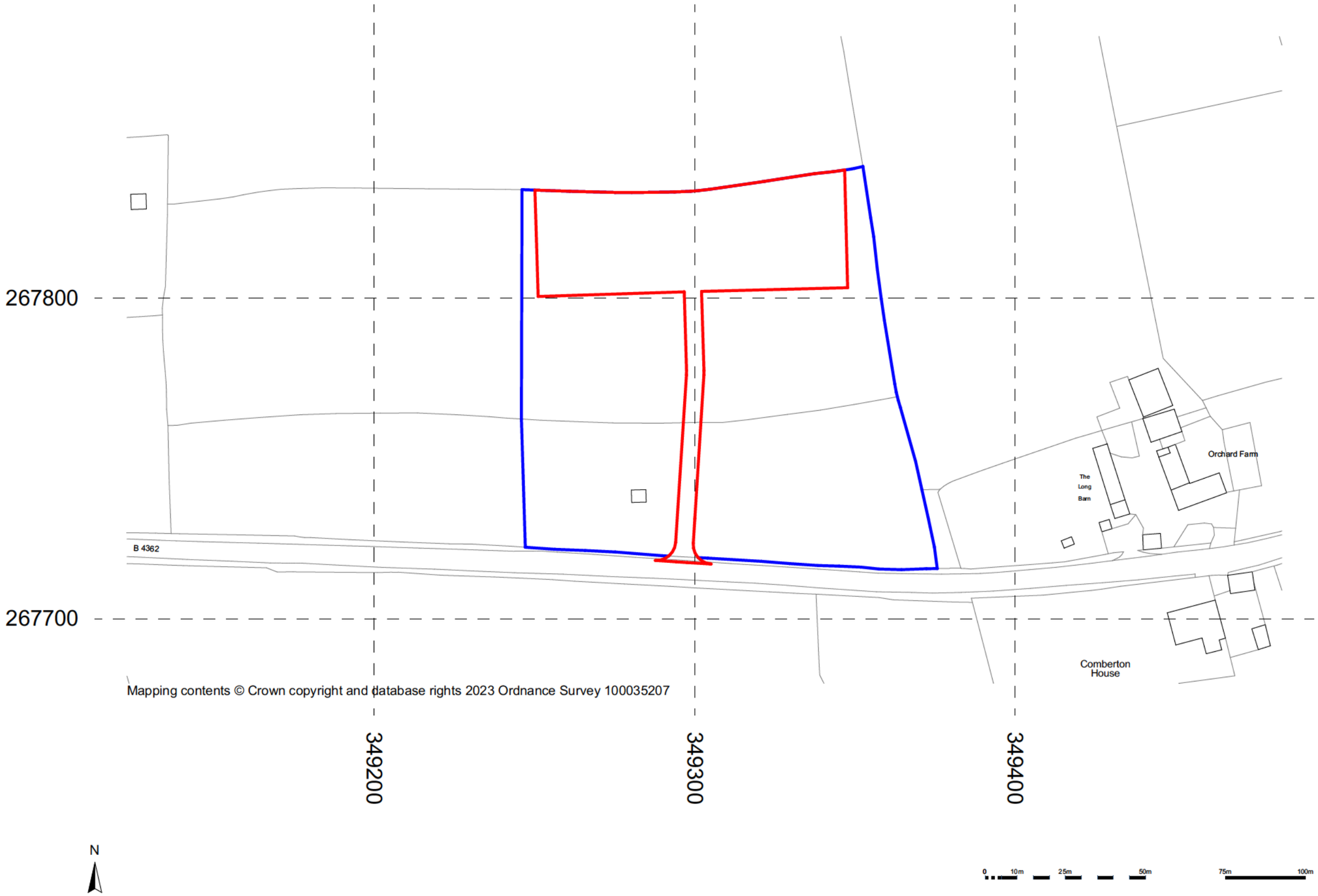
Appendix A

Site plans

Line/Hatch Key

Blue Line Boundary

Red Line Boundary



Location Plan 1:1250

Issue ID	Issue Name	Current Revision	Initials	Date
P01	Initial Transmittal	P01	EG	06/11/2023

Green Planning Studio

Client
Richard Florence

Project
22_1256 Land adj. Orchard Farm - Land Use
Land adj. Orchard Farm,
Comberton,
Orleton,
Herefordshire,
SY8 4HF

Drawing Title
Site Location Plan

Scale @A3	Date	Drawn
1:1250	06/11/2023	EG

Case No	Status
22_1256	Initial Status

DRAWING No	Rev
22_1256-001	P01

ISO 19650 No:
22_1256-GPS-ZZ-GF-DR-A-001

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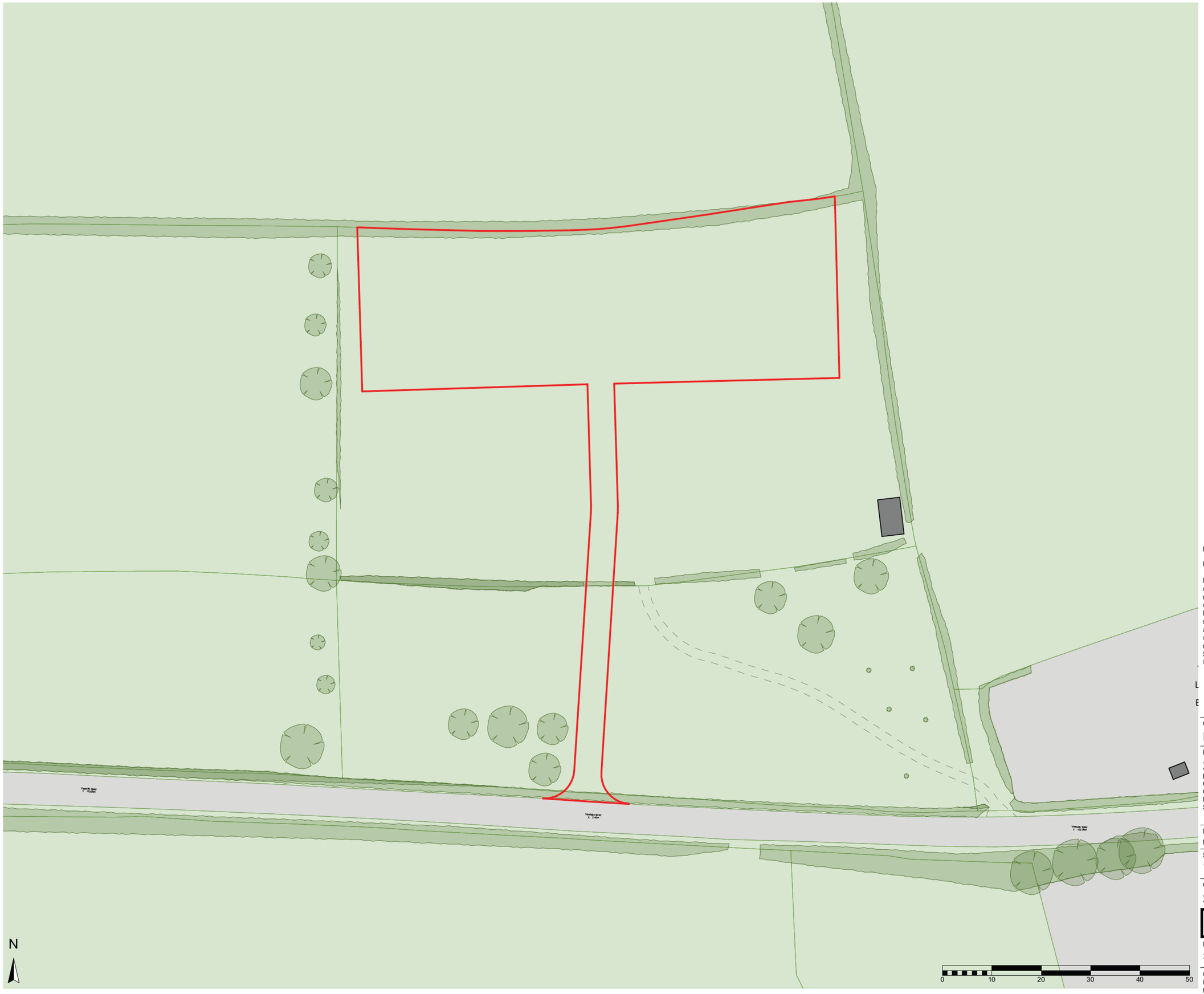
RIBA Chartered Practice



00 Site Level (1)

1:500

Line/Hatch Key

- Existing buildings/structures
- Existing Hardstanding
- Existing Planting
- Blue Line Boundary
- Red Line Boundary

Site Plan Key

Symbol	Description
	Existing Tree

Issue ID	Issue Name	Current Revision	Initials	Date
P01	Initial Transmittal	P01	EG	06/11/2023

Green Planning Studio

Client
Richard Florence

Project
22_1256 Land adj. Orchard Farm - Land Use
Land adj. Orchard Farm,
Comberton,
Orleton,
Herefordshire,
SY8 4HF

Drawing Title
Existing Site and Block Plan

Scale @A2	Date	Drawn
1:500	06/11/2023	EG

Case No	Status
22_1256	Initial Status

DRAWING No	Rev
22_1256-002	P01

ISO 19650 No:
22_1256-GPS-ZZ-GF-DR-A-002

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RIBA Chartered Practice

00 Site Level (3)

1:500

Line/Hatch Key

- Existing buildings/structures
- Existing Hardstanding
- Existing Planting
- Blue Line Boundary
- Red Line Boundary
- Proposed loose bound permeable hardstanding
- Proposed tarmacadam surface
- Proposed native hedge & tree planting
- Proposed neutral grasslan (wildflower meadows)
- Proposed Soakaway
- Proposed Foul drainage
- Proposed post & rail timbe fence
- Proposed gate

Site Plan Key

Symbol	Description
	Refuse Store
	Existing Tree
	Proposed Native Tree
	Single Mobile Home
	Touring Caravan

Issue ID	Issue Name	Current Revision	Initials	Date
P01	Initial Transmittal	P01	EG	06/11/2023

Green Planning Studio

Client
Richard Florence

Project
22_1256 Land adj. Orchard Farm - Land Use
Land adj. Orchard Farm,
Comberton,
Orleton,
Herefordshire,
SY8 4HF

Drawing Title
Proposed Site Plan

Scale @A2	Date	Drawn
1:500	06/11/2023	EG

Case No	Status
22_1256	Initial Status

DRAWING No	Rev
22_1256-003	P01

ISO 19650 No:
22_1256-GPS-ZZ-GF-DR-A-003

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RIBA Chartered Practice

GeoSmart Information

Appendix B

Severn Trent asset location plan

Date: 08/10/24 Scale: 1:1250 Map Centre: 349322,267764 Data updated: 14/09/24 Our Ref: 1588473 - 1

Wastewater Plan A4
Powered by digdat

- Public Foul Gravity/Lateral Drain
- Public Combined Gravity/Lateral Drain
- Public Surface Water Gravity/Lateral Drain
- Pressure Foul
- Pressure Combined
- Pressure Surface Water
- Highway Drain
- Overflow Pipe
- Disposal Pipe
- Culverted Water Course
- Pumping Station
- Fitting
- Manhole Foul
- Manhole Surface
- Abandoned Pipe
- Chamber

Section 104 sewers are shown in green

Private sewers are shown in magenta

davidsouth@geosmartinfo.co.uk

82985

SEVERN TRENT

GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your contractor on site. If any damage is caused to Severn Trent Water Limited (STW) apparatus (defined below), the person, contractor or subcontractor responsible must inform STW immediately on:
0800 783 4444 (24 hours)

a) These general conditions and precautions apply to the public sewerage, water distribution and cables in ducts including (but not limited to) sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991(a legal agreement between a developer and STW, where a developer agrees to build sewers to an agreed standard, which STW will then adopt); mains installed in accordance with an agreement for the self-construction of water mains entered into with STW and the assets described at condition b) of these general conditions and precautions. Such apparatus is referred to as “STW Apparatus” in these general conditions and precautions.

b) Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.

c) On request, STW will issue a copy of the plan showing the approximate locations of STW Apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan and the information supplied with it is furnished as a general guide only and STW does not guarantee its accuracy.

d) STW does not update these plans on a regular basis. Therefore the position and depth of STW Apparatus may change and this plan is issued subject to any such change. Before any works are carried out, you should confirm whether any changes to the plan have been made since it was issued.

e) The plan must not be relied upon in the event of excavations or other works in the vicinity of STW Apparatus. It is your responsibility to ascertain the precise location of any STW Apparatus prior to undertaking any development or other works (including but not limited to excavations).

f) No person or company shall be relieved from liability for loss and/or damage caused to STW Apparatus by reason of the actual position and/or depths of STW Apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any STW Apparatus the following should be observed:

1. All STW Apparatus should be located by hand digging prior to the use of mechanical excavators.

2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to STW Apparatus. You or your contractor must ensure the safety of STW Apparatus and will be responsible for the cost of repairing any loss and/or damage caused (including without limitation replacement parts).

3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.

4. During construction work, where heavy plant will cross the line of STW Apparatus, specific crossing points must be agreed with STW and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW Apparatus at other locations must be prevented.

5. Where it is proposed to carry out piling or boring within 20 metres of any STW Apparatus, STW should be consulted to enable any affected STW Apparatus to be surveyed prior to the works commencing.

6. Where excavation of trenches adjacent to any STW Apparatus affects its support, the STW Apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.

7. Where a trench is excavated crossing or parallel to the line of any STW Apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the STW Apparatus. In special cases, it may be necessary to provide permanent support to STW Apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW Apparatus.

8. No other apparatus should be laid along the line of STW Apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW Apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW Apparatus.

9. A minimum radial clearance of 300 millimetres should be allowed between any plant or equipment being installed and existing STW Apparatus. We reserve the right to increase this distance where strategic assets are affected.

10. Where any STW Apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW Apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged to you.

11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with STW Apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such STW Apparatus in order to determine any necessary alterations in advance of the works.

12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW Apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.

13. You are advised that STW will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants,

14. No explosives are to be used in the vicinity of any STW Apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW Apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW Apparatus.

15. Please ensure that, in relation to STW Apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.

16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.

17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated May2014

18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other STW Apparatus.

19. In certain circumstances, both STW and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main of other STW Apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
4701	F	83.03	81.33	1.7
4702	F	83.64	81.76	1.88

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

GeoSmart Information

Appendix C

Percolation test results

Infiltration rate/Percolation rate

External Inbox Cases/22_1256 / Land Adj. to Orchard Farm / Richard Florence

J [redacted] Wed 5 F

to me

Hi Ethan,

[redacted]

The worked out Vp value for the percolation testing was 90-95 [redacted].

Kind regards

[redacted] **BSc FGS**
Geo-Environmental Engineer
BSc (Hons) Geoscience
[redacted]
(W) www.emsgroupuk.com

EMS ASBESTOS GEOTECH WATER
Hereford | Worcester | Cardiff | London

Reply Forward

Disclaimer

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

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

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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.

The Code's core principles

Firms which subscribe to the Search Code will:

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

Complaints

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

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

TPOs contact details:

The Property Ombudsman scheme

Milford House

43-55 Milford Street

Salisbury

Wiltshire SP1 2BP

Tel: 01722 333306

Fax: 01722 332296

Email: admin@tpos.co.uk

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

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

Complaints procedure

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

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

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

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

Martin Lucass

Commercial Director

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

martinlucass@geosmartinfo.co.uk

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CDM regulations can be found on our website:

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