ARDENT
CONSULTING ENGINEERS
AN EMPLOYEE OWNED COMPANY

ESQUIRE DEVELOPMENTS

ROSE FARM, ISTEAD RISE

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

REPORT REF.
2500920-ACE-XX-XX-RP-C-0301

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HEAD OFFICE (LONDON): 3rd Floor, The Hallmark Building, 52-56 Leadenhall Street, London, EC3M 5JE **T** | 020 7680 4088
SUFFOLK: Suffolk Enterprise Centre, 44 Felaw Street, Ipswich, IP2 8SJ **T** | 01473 407 321
ESSEX: 1 - 2 Crescent Court, Billericay, Essex, CM12 9AQ **T** | 01277 657 677
NOTTINGHAM: Office 3, Garage Studios, 41-43 St Mary's Gate, Lace Market, Nottingham, NG1 1PU **T** | 0115 697 0940
KENT: Suite 10, Building 40, Churchill Business Centre, Kings Hill, Kent, ME19 4YU **T** | 01732 752 155
BRISTOL: Temple Studios, Temple Gate, Bristol, BS1 6QA **T** | 0117 456 4994
EDINBURGH: 4-5 Lochside Way Edinburgh EH12 9DT **T** | 0131 516 8111
MANCHESTER: Chancery Place, 50 Brown Street, Manchester, M2 2JG **T** | 020 7680 4088

Email: enquiries@ardent-ce.co.uk

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1. Introduction

Preface

1.1 Ardent Consulting Engineers (hereafter referred to as Ardent) has been commissioned by Esquire Developments to prepare a Flood Risk Assessment and Drainage Strategy for a proposed residential development at Rose Farm, Instead Farm (hereafter referred to as the "Site").

1.2 The assesment has been prepared to accompany a planning application for the 154 unit development to Kent County Council (KCC) in its role of Local Planning Authority and as the Lead Local Flood Authority.

1.3 The Site is in Flood Zone 1. The combined development area is 9.64ha in size and the site is not located within a critical drainage area.

1.4 The contents of this FRA assess the implications of flood risk on the proposed development. This FRA has been prepared with specific reference to the requirements of **National Planning Policy Framework (NPPF – December 2024)** and the **Planning Practice Guidance**, which superseded the Technical Guidance to the NPPF (PPG - March 2014 – flood risk section updated in September 2025).

1.5 Surface water design is aligned to the **National Standards for Sustainable Drainage Systems (SuDS)** (published June 2025; updated July 2025) and best practice in **CIRIA C753 – The SuDS Manual**.

1.6 A Sustainable Drainage Strategy has also been included within this document to demonstrate how surface water flows from the development will be managed appropriately.

2. Baseline Parameters

Existing Site

2.1 The site is located within the village of Instead Rise, Kent. The site is located to the south of Istead Rise, covering an area of roughly 9.64 hectares. Refer to **Figure 2-1**.

Figure 2-1: ***Location Plan***

2.2 The site is bounded to the north-east by existing dwellings and accessed in this direction from Downs Road. The south-east of the development is bounded by Istead Rise Primary School and the majority of the south to north-west is bounded by undeveloped farmland.

2.3 The site is currently undeveloped farm land, with the exception of a single dwelling and farm buildings contained within the northern portion of the site. The existing site area is 9.64 ha with the majority of the site being soft landscaping.

Development Proposals

2.4 The proposed development will comprise 154 residential and associated access and landscaping.

2.5 The proposed site area will be 9.6 ha with circa 6.85 ha in soft landscaping and 2.75 ha of hardstanding.

2.6 Drainage headlines:

- Surface water: 28,373 m² impermeable (27,486 m² + 887 m² urban creep) attenuated to 1 in 100-year + 45% CC with primary treatment via infiltration basins.
- Foul: 2 No connections to the foul network via an onsite diversion in the western half of the site, and via a connection on Downs Road for the northern portion of the site.

2.7 The proposed Site layout plans can be found at **Appendix A**, and an extract of the layout in **Figure 2-2** below.

Figure 2-2: ***Proposed Development***

Topography

2.8 The site is currently mostly undeveloped farmland, with existing trees contained within an area in the centre of the site and interspaced on field boundaries. The site has varying topography but roughly falls from South-west to North-East with the lowest level being 38.37m AOD and the highest being 57.46m AOD.

Hydrology

2.9 There are no existing watercourses contained within the site boundary, however, the EA surface water flood map indicated an existing overland flood route running through the centre of the site.

Ground Conditions

2.10 According to the British Geological Survey geological mapping available online, the bedrock geology comprises the Lewes Nodular Chalk Formation (**Figure 2-3**). Superficial geology is recorded as Head - clay, silt, sand and gravel, for the majority of the site with minor areas of the south western boundary indicating no superficial geology (**Figure 2-4**).

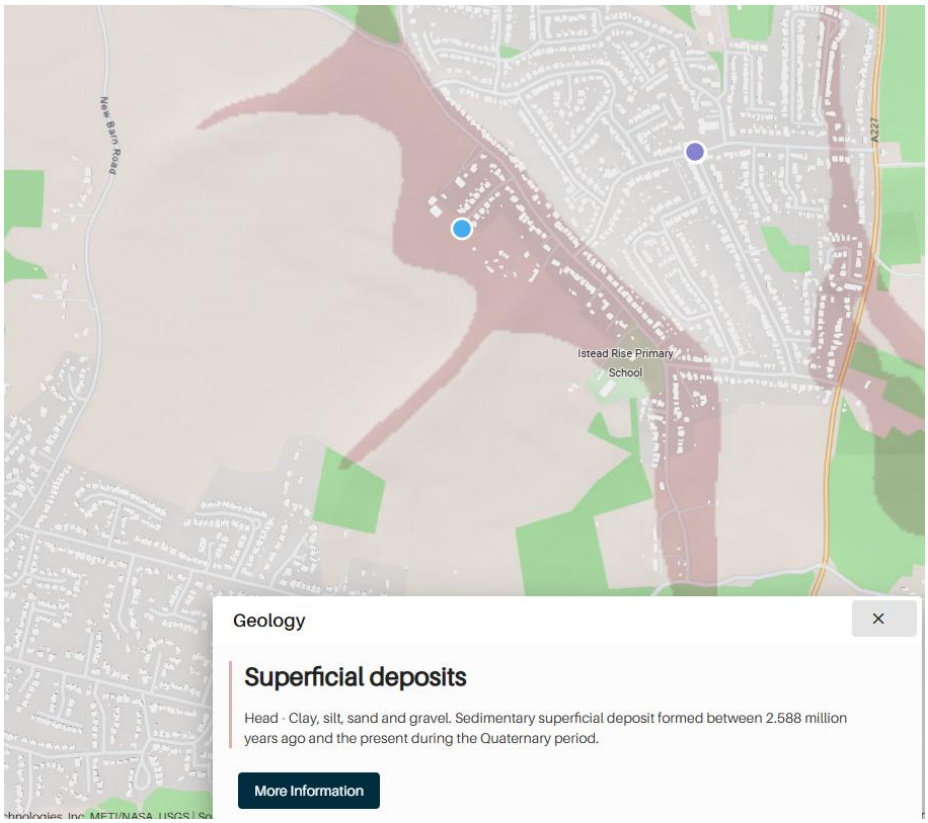


Figure 2-3: ***BGS Superficial Deposits Geology viewer***

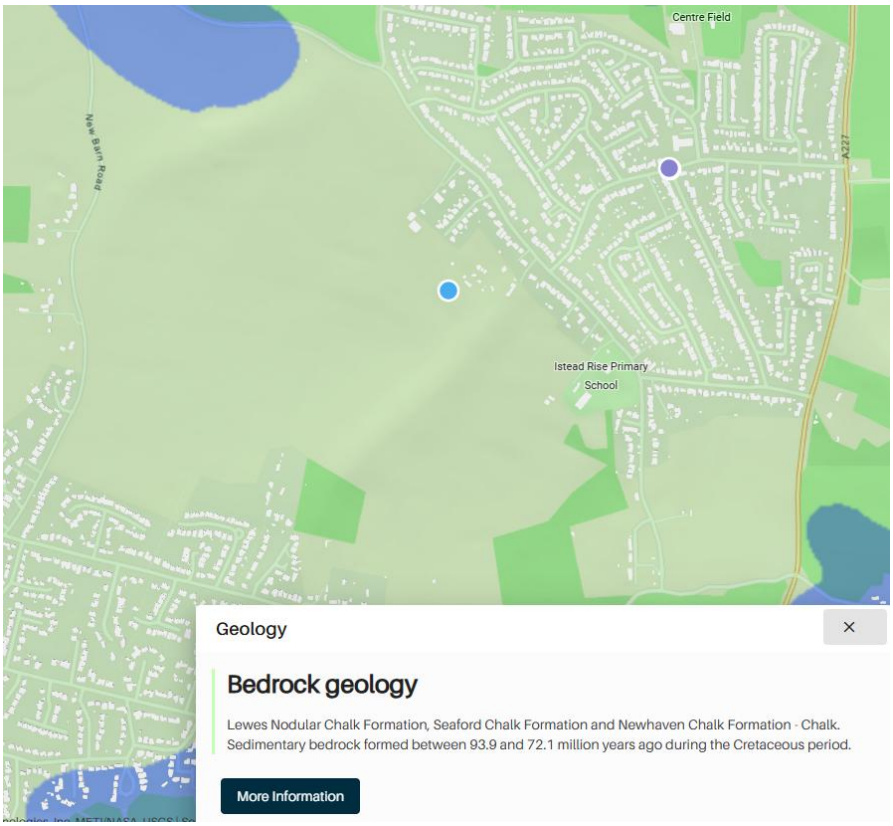


Figure 2-4: *BGS Bedrock Geology viewer*

2.11 According to Department for the Environment, Food and Rural Affairs (DEFRA) 'Magic Maps', the Site is located largely within Source Protection Zones 2 (Outer Protection Zone) and 3 (Total Catchment), whilst slightly creeping into Zone 1 (Inner Protection Zone). Refer to **Figure 2-4**. As such infiltration

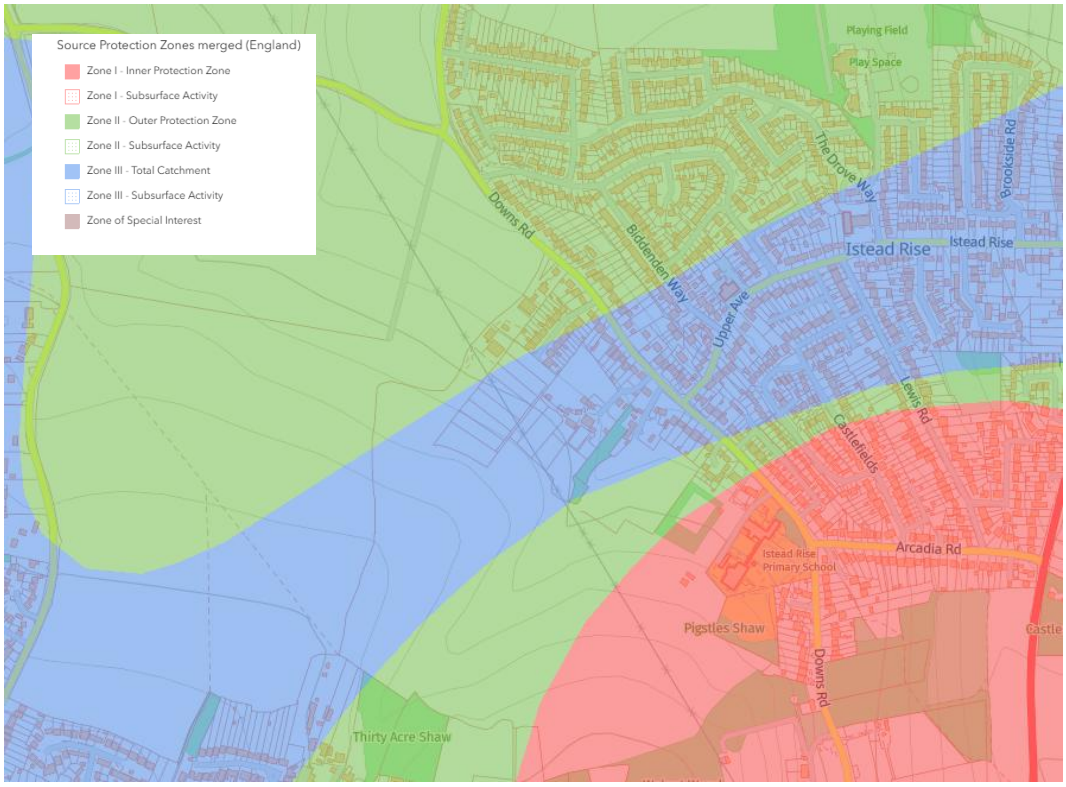


Figure 2-*4*: *Magic Maps* Source Protection Zone *Map*

Existing Sewer Infrastructure

2.12 Referring to the topographical survey, this indicates that the hardstanding and dwelling has no formal surface water drainage features and therefore is assumed to fall with the existing surface levels from South-west to North-east.

2.13 There is a Southern Water foul sewer running through the site from South to North, and also a foul sewer running west along Downs Road to the North of the site. However, there are no surface water sewers in the vicinity of the development. Refer to **Appendix B** for the Southern Water Asset Plans.

3. Policy Context

National Planning policy Framework

3.1 The National Planning Policy Framework (NPPF) was introduced on 27 March 2012. This document was revised most recently in February 2025; where paragraphs 170 to 182 inclusive establish the Planning Policy relating to flood risk management.

3.2 It states all plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – to avoid where possible, flood risk to people and property. They should do this and manage residual risk, by:

a) applying the sequential test, and if necessary, the exception test;

b) safeguarding land from development that is required for current and future flood management;

c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and

d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development including housing, to more sustainable locations.

3.3 The NPPF states that a Flood Risk Assessment is required "*A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.*"

3.4 The Planning Practice Guidance (PPG) provides the methodology required to undertake the Sequential and Exception Tests.

Flood and Water Management Act (2010)

3.5 The Flood and Water Management Act places a duty on all flood risk management authorities to co-operate with each other. The act also provides lead local flood authorities and the Environment Agency with a power to request information required in connection with their flood risk management functions.

Sustainable Drainage Systems - Non-statutory technical standards for sustainable drainage systems March 2015

3.6 The Non-statutory technical standards for sustainable drainage systems were published in March 2015. This document sets out non-statutory technical standards for sustainable drainage systems. They should be used in conjunction with the Planning Practice Guidance. In addition, the Best Practice Guidance for the Non statutory technical standards was published in July 2015 by the Local Authority SuDS Officer Organisation (LASOO).

3.7 The Local Planning Authority (LPA) may set local requirements for planning permission that have the effect of more stringent requirements than these non-statutory technical standards.

3.8 In addition, SuDS should be designed in accordance with CIRIA 753 "The SuDS Manual", which represents current best practice.

National standards for sustainable drainage systems (SuDS)

3.9 The Government's National Standards for SuDS (2025) supersede the 2015 non-statutory standards and set out the principles for managing rainfall runoff from new development. The standards require designers to: (i) follow the destination hierarchy; (ii) manage peak flow and runoff volume to avoid increasing flood risk; (iii) provide appropriate water-quality treatment; and (iv) ensure systems are safe, maintainable and resilient over the lifetime of the development. The approach adopted for this scheme is summarised below and evidenced in Section 5 and the drainage drawings/calculations.

3.10 **Destination hierarchy**. According to the infiltration rate testing carried out externally for this site, infiltration is viable and therefore this will be the method of discharge for the site.

3.11 **Peak flow management.** The site has two infiltration basins and one soakaway (implemented to deal with 12 dwellings independently to mitigate excessively deep

drainage) which have been sized according to the 100yr + 45% climate change (cc) event (see '3.19-Climate Change Allowances') and using FEH-22 rainfall data. It has been ensured that none of these SuDS features flood during the critical 100yr + 45% cc event, as evidenced by the FLOW calculations in **Appendix C.**

3.12 **Runoff volume management & exceedance.** Attenuation storage is sized to accommodate design-event volumes. In the extremely unlikely event of exceedance flows, these will be routed safely within the site via finished levels and landscaped exceedance pathways, away from buildings and off-site receptors.

3.13 **Water quality (Simple Index Approach).** Pollutants are mitigated and filtered via the infiltration basins (as shown in Tables 5.2-5.4).

3.14 **Operation, maintenance and resilience.** The SuDS components are accessible for inspection and maintenance, with tasks and frequencies set out in the O&M plan (**Appendix D**) in accordance with best practice (e.g. CIRIA C753).

3.15 **Health & safety / construction phase.** The design facilitates safe access for routine de-silting and inspection of the Polystorm (or agreed equivalent) crates, basins and chambers. During construction, temporary silt control and pollution prevention measures will protect the site and nearby infrastructure from flooding, with transition to the permanent SuDS prior to occupation.

3.16 **Compliance statement.** On the basis of the above, and as demonstrated by the calculations and drawings, the proposed drainage strategy complies with the National Standards for SuDS (2025) in respect of destination, peak-flow/volume control, water quality, exceedance routing, maintainability and long-term operational resilience.

Kent – Making it Happen - Sustainability

3.17 Kent's guidance on the form of drainage sets out the Drainage principles which should be applied to each development.

(a) impermeable areas are kept to a minimum;

(b) surface runoff is managed at its source, where practicable;

(c) surface runoff is managed on the surface, where practicable;

(d) public space is used and integrated with the drainage system, where it serves more than one property;

(e) design is cost-effective to operate and maintain over the design life of the development,

(f) design of the drainage system accounts for the likely impacts of: climate change and changes in impermeable area, over the design life of the development;

(g) the system is designed to have minimal on/offsite impact if the system's capacity is exceeded during extreme weather events; and,

(h) there is proper access for the maintenance of all elements of the system. We also require that the surface water strategy for a new development should mimic, wherever possible, the natural existing runoff conditions and utilise, wherever feasible, the existing drainage channels and surface water pathways. Drainage measures should be at the surface where possible.

Gravesham Local Plan Core Strategy (2014)

Flood Risk

3.18 The Gravesham Local Plan Core Strategy includes Policy CS 18 relating to climate change which specifies:

3.19 *With the exception of the previously developed sites along the Thames Riverside (see Policies CS03, CS04 and CS05) and those other regeneration sites which have already been evaluated in accordance with the sequential and exception tests at the application stage, development will be directed sequentially to those areas at least risk of flooding.*

3.20 *Proposals in areas at risk of flooding must be accompanied by a Flood Risk Assessment (in accordance with national policy and Environment Agency standing guidance as appropriate) and a Flood Risk Management Plan (if required) to demonstrate that they are adequately defended and safe over their lifetime. Planning permission will be refused for schemes which do not pass the sequential and exception tests.*

3.21 *The Council will prioritise the maintenance, improvement or replacement of flood defence infrastructure over other land uses where relevant. In addition to meeting their 20 own flood defence and management needs, the Council will expect new development to take advantage of opportunities to reduce the causes and impacts of flooding from all sources where it is technically and financially feasible.*

Water Quality

3.22 *As part of its approach to climate change and environmental improvement, the Council will have regard to the delivery of the Water Framework Directive and associated Thames River Basin Management Plan objectives to support water bodies being progressively improved to "good" status over the plan period.*

Sustainable Drainage and Surface Water Run-Off

3.23 *The Council will seek to minimise the impact of drainage from new development on waste water systems. In particular, the Council will:*

• Require that surface water run-off from all new development has, as a minimum, no greater adverse impact than the existing use; and

• Require the use of Sustainable Drainage Systems on all developments where technically and financially feasible.

Climate Change Allowances

3.24 The Planning Practice Guidance states that to allow for the predicted impacts of climate change on surface water runoff within the Medway Management Catchment, the following increases detailed in **Table 2-2** below to rainfall intensity should be allowed for. For development with a lifetime of between 2061 and 2100, the central allowances should be used.

Table 3-1: Medway Management Catchment peak rainfall allowances

London Management Catchment	Central Allowance	Upper End Allowance
3.3% annual exceedance rainfall event		
Total potential change 2050s	20%	35%
Total potential change 2070s	20%	35%
1% annual exceedance rainfall event		
Total potential change 2050s	20%	45%
Total potential change 2070s	20%	40%

3.25 Therefore, in line with guidance from the NPPG, an allowance of 45% for the effects of climate change for the 1% annual exceedance rainfall event would achieve the policy requirements in designing the drainage elements the proposed redevelopment.

4. Sources of Flooding

4.1. The NPPF requires flood risk from the following sources to be assessed, each of which are assessed separately below:

- Fluvial sources (river flooding);
- Tidal sources (flooding from the sea);
- Groundwater sources;
- Pluvial sources (flooding resulting from overland flows);
- Sewer Flooding;
- Artificial sources, canals, reservoirs etc.; and,
- It also requires the risk from increases in surface water discharge to be assessed (surface water management).

Fluvial - Flood Zone Designation

4.2. Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. The NPPF Planning Practice Guidance defines Flood Zones as follows:

- **Flood Zone 1: Low Probability**. Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
- **Flood Zone 2: Medium Probability**. Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map).
- **Flood Zone 3a: High Probability.** Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
- **Flood Zone 3b: The functional Floodplain**. This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:
    - land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or

- land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

4.3. According to the Environment Agency's Flood map for planning, as illustrated in **Figure 4-1** below, the site is entirely situated within Flood Zone 1 associated with a **low** probability of flooding.

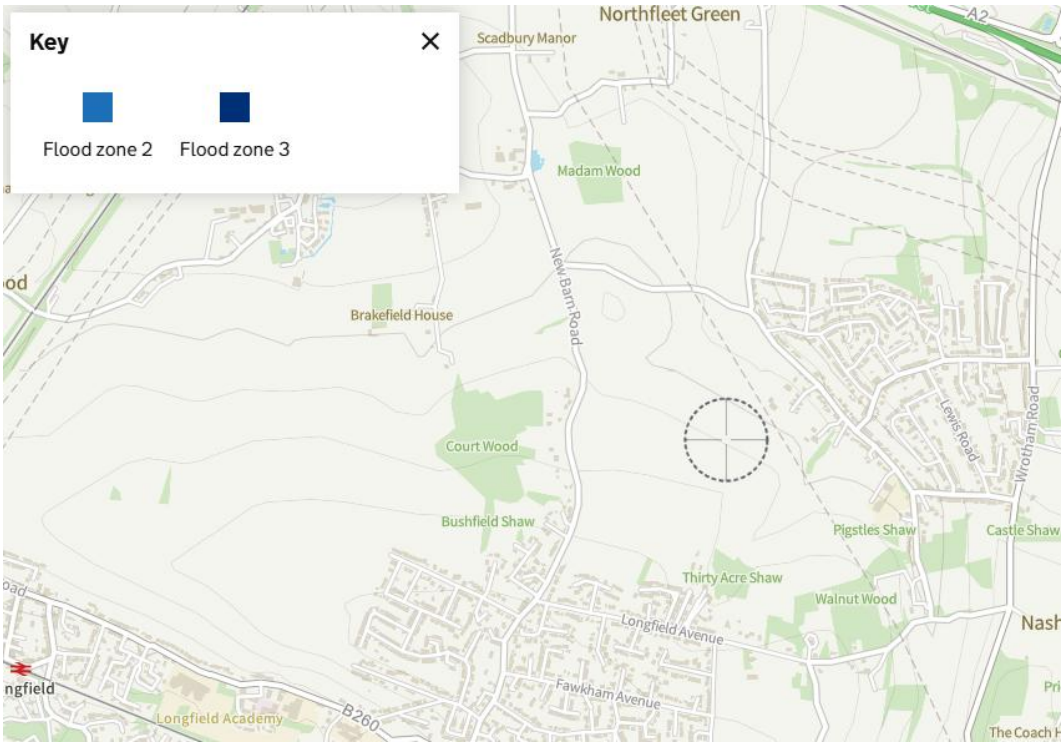


Figure 4-1: EA Flood Map for Planning

Pluvial Flood Risk

4.4. Referring to flood maps for planning, most of the site falls under the category, 'low risk'. There is a route through the centre of the site, following the base of the existing valley as per **Figure 4-2**

4.5. The extent of the built environment will be kept outside of this surface water flow path with only a road crossing proposed.

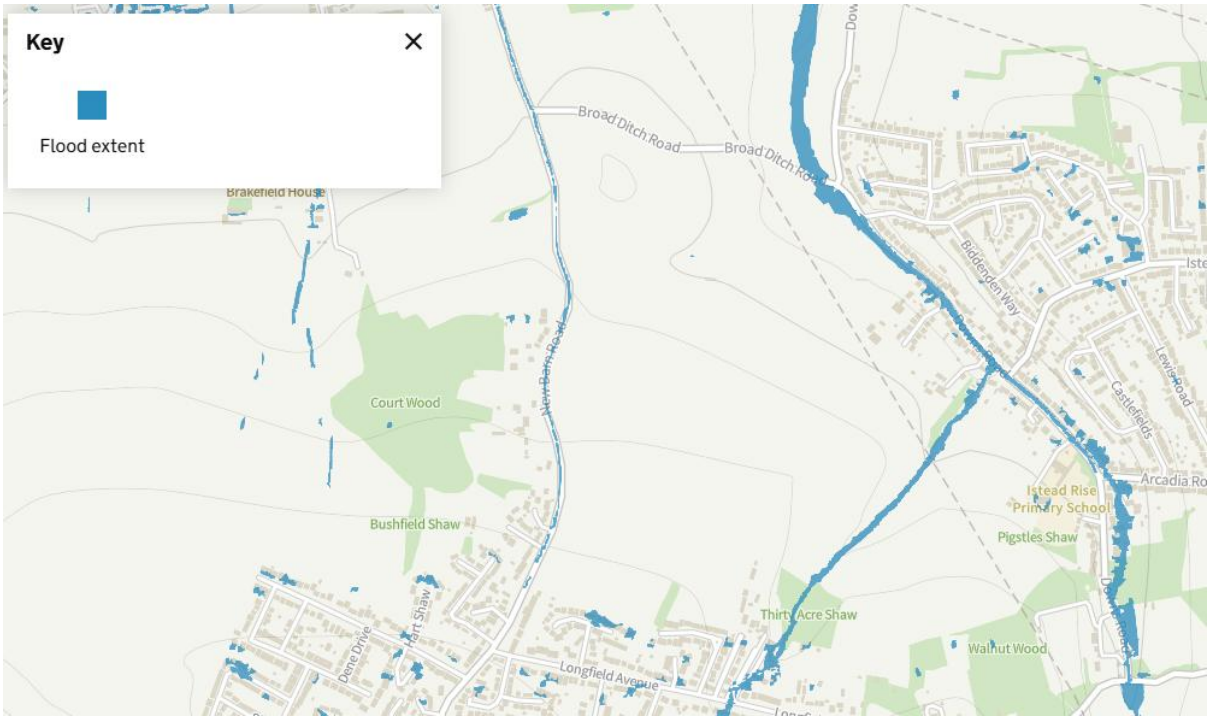


Figure 4-2: Surface Water Flow Map

4.6. The Kent County Council Flood Investigation Reporting under Section 19 of the Flood and Water Management Act, has no incidents identified in the vicinity of the development.

Groundwater Flood Risk

4.7. No groundwater strikes have occurred during infiltration testing on site and there is no information regarding groundwater depths contained within the SFRA, however; the 2 closest groundwater monitoring stations to the west and east indicate groundwater to be between 20-30mbGL.

4.8. Therefore, it is considered that the risk to development is low, however consideration of groundwater will need to be given during construction.

Sewer Flood Risk

4.9. There are no sewers upstream of the proposed development and therefore the risk of Flood Risk from Sewers is **Very Low**.

Flood Risk from Artificial Sources

4.10. The EA flood maps for reservoirs shows that the site is not at risk from reservoirs Therefore the risk of flooding from reservoirs is assessed to be **Very Low**.

5. Surface & Foul Water Drainage Strategy

5.1. DEFRA's Non-statutory technical guidance for Sustainable Drainage Systems and CIRIA Guidance C753 "The SuDS Manual" have been used to determine the appropriate SuDS Strategy, which considers the spatial and environmental constraints of the Site.

5.2. In accordance with the NPPF, an allowance of 45% for the effects of climate change will achieve the policy requirements for the proposed development.

Proposed Sustainable Drainage Systems (SuDS)

5.3. With regards to Sustainable Drainage, surface water runoff should be disposed of according to the following hierarchy:

- Store rainwater for later use;
- Use infiltration techniques, such as porous surfaces in non-clay areas;
- Attenuate rainwater in ponds or open water features for gradual release;
- Attenuate rainwater by storing in tanks or sealed water features for gradual release;
- Discharge rainwater direct to a watercourse;
- Discharge rainwater to a surface water sewer/drain; and
- Discharge rainwater to the combined sewer.

5.4. Whilst stormwater reuse could be applied to the site in the form of water butts or greywater harvesting, there is no guarantee regarding the amount of available storage at the time of a storm and therefore has not been put forward as a drainage solution for the scheme.

5.5. As discussed in **Section 2**, BGS data indicates that the Site is underlain by bedrock geology of Lewes Nodular Chalk Formation. Superficial geology is recorded as Alluvium comprised of clay, silt, sand and peat.

5.6. DEFRA's 'Magic Maps' indicates the Site is located within Source Protection Zone 2 (Outer Protection zone).

5.7. Geotechnical investigations undertaken onsite have produced 'Soakaway Test MPT105' and 'Soakaway Test MPT104' (shown in **Appendix F**) at rates 7.67×10^{-5} and 5.70×10^{-5} (respectively) and both at depths of 2.7m. These rates and depths have both been considered suitable enough to allow for infiltration features at the outfalls of the surface water drainage networks across the site.

5.8. The constraints and opportunities for the use of SuDS techniques are appraised using the Management Train approach outlined in CIRIA C753 'The SuDS Manual' in **Table 5-1** below.

Table 5-1: SuDS Opportunities & Constraints

Type:	**Infiltration Devices** (Source Control)
Constraints:	Site within Source Protection Zone.
Opportunities:	Good soakaway infiltration tests allow for infiltration features at outfalls of site below superficial deposits of clay etc.
Type:	**Permeable Paving** (Source Control)
Constraints:	It is not possible to provide infiltrating permeable paving due to Site characteristics (impermeable superficial deposits).
Opportunities:	None due to preference of infiltration based upon SuDS discharge hierarchy
Type:	**Rainwater Harvesting** (Source Control)
Constraints:	The benefits of rainwater harvesting on a specific design storm event cannot be quantified, due to the seasonal availability of storage within the structure.
Opportunities:	Water butts could be provided to individual properties
Type:	**Swales, etc.** (Permeable Conveyance)
Constraints:	In order to provide practicable attenuation benefits 1:3 side-slope swales tend to require a significant land requirement.
Opportunities:	None due to insufficient space and Southern Water not allowing any swales within 5 meters of the outer diameter of their sewer
Type:	**Tree Pits/Rain gardens**
Constraints:	Subject to Landscape Architect's design.
Opportunities:	Unlikely to be suitable in terms of adoption requirements on main roads. However opportunities exist within parking courtyards etc.
Type:	**Green Roofs**
Constraints:	Subject to Architect's design.
Opportunities:	None due to sloped roofs being proposed
Type:	**Attenuation Tanks**
Constraints:	Does not provide treatment to surface water.
Opportunities:	We propose to utilise other forms of SuDS treatment first and maximise their use, after which the remaining volume can be stored via attenuation tanks.

5.9. After consideration of the CIRIA C753 SuDS Management Train approach, the most viable SuDS options for the Site is a solution combining infiltration basins and a small area of infiltration crates. This will ensure that significant biodiversity, amenity and surface water treatment is provided, whilst also keeping high up the SuDS discharge hierarchy. Refer to Drawings **2500920-ACE-XX-XX-DR-C-0601 & 0602 Proposed Drainage Layouts** in **Appendix C** for the proposed surface water drainage strategy.

Proposed Development

5.10. Two independent infiltration basins and one small infiltration crate block have been implemented across the site's outfalls to deal with rainfall up to and including the 1 in 100 yr storm event + 45% climate change. This has been modelling in FLOW which shows no flooding and enough freeboard within the basins. Please see the drainage strategy and FLOW results within **Appendix C**.

Surface Water Quality

5.11. The recommended stage of treatment in terms of water quality would be provided through the infiltration basins for the vast majority of the site, excluding residential roofs (who's indices are very low). Only 12 of the154 dwellings do not drain to the basins and instead drain to geocellular crates. In line with the SuDS Manual C753, Tables 26.2 and 26.3, the pollution hazard and mitigation indices associated with sites with heavy pollution are mitigated by the provision of SuDS features, as shown in **tables 5.2, 5.3 and 5.4** below.

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, home zones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 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, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

Table 5.2: Pollution hazard indices for different land use classifications

Table 5.3: Indicative SuDS mitigation indices for discharges to surface waters
(bold text is applicable to this development).

	Mitigation indices		
Type of SuDS component	**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
Bio retention 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.		

Table 5.4: SuDS mitigation indices provided

For surface water discharge from Residential Parking Areas and Low Traffic Roads <300 traffic movements/day			
	Required mitigation indices		
Source	**TSS**	**Metals**	**Hydrocarbons**
Low	**0.5**	**0.4**	**0.4**
Type of SuDS component provided			
Detention basin	0.5	0.5	0.6
Total	**0.5**	**0.5**	**0.6**
Check	**+0.0**	**+0.1**	**+0.2**

5.12. For the units entering the soakaway crates, due to the steep gradients on site, we propose the implementation of a Turtle Enviro Stormshark SSK1000M unit for pollution mitigation. In accordance with Stormshark Certification this unit will provide indices of 0.5 for TSS, 0.4 for Metals and 0.45 for Hydrocarbons making this a suitable alternative.

Urban Creep and Long Term Storage

5.13. Urban creep has been added at 10% to each dwelling that is not a flat.

5.14. The proposals will increase the amount of permeable area compared to the existing scenario, therefore surface water runoff volumes from the site will decrease, therefore long term storage is not required to be provided.

Exceedance Flows

5.15. In times of heavy or extreme storm events the capacity of sewers and other drainage systems can become exceeded. This will occur when the rate of surface water runoff exceeds the inlet capacity of the drainage system, when the receiving water or piped system becomes overloaded, blocked or when the outfall becomes restricted due to flood levels in the receiving outfall.

5.16. We have not been commissioned to provide a full set of proposed levels for the site, however it is likely that overland exceedance flows from the site will fall generally from Southwest to Northeast, away from the proposed buildings, which will be set 150mm above the surrounding land, into the existing valley in the middle of the site. An exceedance flow routing plan is provided in **Appendix E**.

Future Maintenance

5.17. A management company will be appointed, on behalf of the building owners, to maintain communal areas, landscaping, and shared SuDS throughout the development.

5.18. All maintenance will be in accordance with the best practices and the CIRIA Manual C753. Please refer to **Appendix D** for an overview of the maintenance tasks required.

Proposed Foul Water Drainage Strategy

5.19. The proposed development will comprise of 154 residential units. The northern half of the site is proposed to discharge into a new manhole to be constructed between Southern Water's existing manholes 2801 and 3701 as shown in **Appendix B**.

The southern half of the site contains an existing foul sewer, this will need to be diverted within the parcel as shown and will take the additional flows from the units on this half of the site.

5.20. The proposed rate of discharge and connection location are subject to approval by the Lead Local Flood Authority and Southern Water.

6. Summary & Conclusions

6.1. Ardent Consulting Engineers has been commissioned by Esquire Homes to prepare a Flood Risk Assessment and Drainage Strategy for a proposed residential development at Rose Farm, Istead Rise.

6.2. This Flood Risk Assessment considers the current policy relating to flood risk, including the National Planning Policy Framework and local policy.

6.3. The site is entirely within Flood Zone 1 associated with a **low** probability of flooding.

6.4. Referring to flood maps for planning, most of the site falls under the category, 'low risk'. There is an overland flow route through the centre of the site, following the base of the existing valley, however all buildings shall be kept away from this flood route.

6.5. DEFRA's 'Magic Maps' indicates the Site is located within Source Protection Zones 1, 2 and 3. Geotechnical investigations undertaken onsite have indicated that infiltration should be viable.

6.6. The local foul drainage network is provided by Southern Water. The proposed foul water drainage strategy will connect into this network.

6.7. The Surface water drainage strategy discharges all surface water across the site via infiltration (via two infiltration basins and one geocellular crate block) up to and including the 1 in 100 yr + 45% CC storm event.

6.8. The two infiltration basins will ensure that significant biodiversity, amenity and surface water treatment is provided.

6.9. Storm events in excess of the 1 in 100-year event would be managed on-site through overland flow routing away from buildings and access point, subject to a site levels assessment.

6.10. In conclusion, this document demonstrates that the proposals are consistent with the aims of the NPPF, the Planning Practice Guidance to the NPPF and local planning guidance. The Site will not be at significant risk of flooding or increase the flood risk potential to others.

Appendix A - Proposed Development Layout

Esquire Developments

N

NOTES:

Do Not Scale.

Report all discrepancies, errors and omissions.

Verify all dimensions on site before commencing any work on site or preparing shop drawings.

All materials, components and workmanship are to comply with the relevant British Standards, Codes of Practice, and appropriate manufacturers recommendations that from time to time shall apply.

For all specialist work, see relevant drawings.

Rev	Date	Description

Proposed Residential Development, Istead Rise

0 25 50 75 100m

Scale 1:1250

Project Title

Proposed Residential Development
Istead Rise

Drawing Description

Site Location Plan

Scale	Drawn by
1:1250@A1	JS
Date	Checked by
August 25	TWM

CLAGUE ARCHITECTS

62 Burgate, Canterbury
Kent CT1 2BH 01227 762060

1 Kinsbourne Court, Luton Road,
Harpenden, Hertfordshire Al5 3BL 01582 765102

8, Disney Street
London SE1 1JF 0203 597 6112

CANTERBURY LONDON HARPENDEN

Drawing Number: 22628B / 01

Revision

Esquire Developments

NOTES:

Do Not Scale.

Report all discrepancies, errors and omissions.

Verify all dimensions on site before commencing any work on site or preparing shop drawings.

All materials, components and workmanship are to comply with the relevant British Standards, Codes of Practice, and appropriate manufacturers recommendations that from time to time shall apply.

For all specialist work, see relevant drawings.

Rev	Date	Description

Project Title

Proposed Residential Development
Istead Rise

Drawing Description

Proposed Site Plan

Scale	Drawn by
1:1000@A1	JS
Date	Checked by
December 24	TWM

CLAGUE ARCHITECTS

62 Burgate, Canterbury
Kent CT1 2BH 01227 762060

1 Kinsbourne Court, Luton Road,
Harpenden, Hertfordshire Al5 3BL 01582 765102

8, Disney Street
London SE1 1JF 0203 597 6112

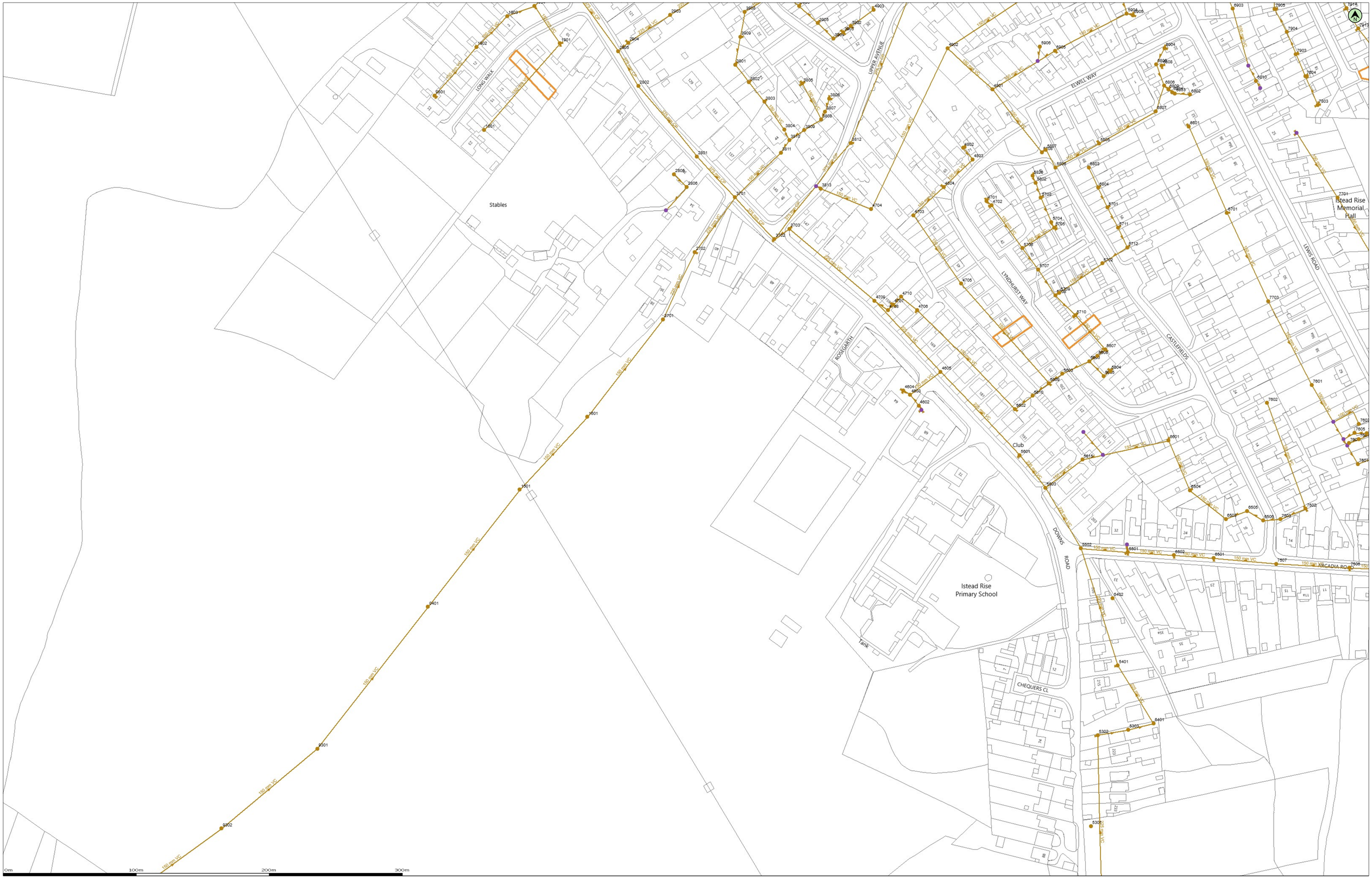
CANTERBURY LONDON HARPENDEN

Drawing Number 22628B / 10

Revision

Proposed Residential Development, Istead Rise

Appendix B - Southern Water Asset Mapping

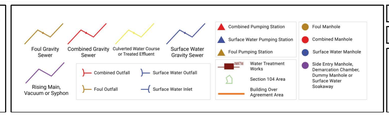


(c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122 | Date: 13/02/25 | Scale: 1:1250 | Map Centre: 563266,169616 | Data updated: 21/01/25 | Our Ref: 1688641 - 3 | Wastewater Plan A1 Powered by digdat

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 2025 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.



trevor.baker@t-d-s.com

Rose Farm

WATER for LIFE from Southern Water

Appendix C - Surface Water Drainage Strategy & FLOW calculations