Flood Risk Assessment

Peveril Homes
Hunts Lane, Desford

24/11/2025
Ref: PJS25-0092-DOC-0006-A

Document Issue Record

Document Number	
PJS Reference	PJS25-0092-DOC-0006-A

Status	Revision	Date of Issue	Author	Checked	Approved
Issue	-	20/11/2025	Noah George	Jacob Vernon	Nick Edwards
Revision	A	24/11/2025	Jacob Vernon	Nick Edwards	Nick Edwards

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Executive Summary

This Flood Risk Assessment (FRA) has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. It has been produced on behalf of Peveril Homes in respect of an outline application for the construction of up to 75 dwellings with associated landscaping, open space, drainage infrastructure and associated works (all matters reserved except access from Hunts Lane).

The topographical survey indicates that the site slopes consistently in a northernly direction from levels of around 132.90mAOD along the southern boundary to around 104.00mAOD in the northeast corner of the site.

An existing watercourse runs west-east parallel to the northern boundary and a public right of way routes across the northern portion of the site.

This report demonstrates that the proposed development is not at significant flood risk, and simple flood mitigation strategies are recommended to address any residual risk that may remain.

The site is shown to be in Flood Zone 1, land considered to have a very low probability of fluvial or tidal flooding.

Pluvial flooding is present along the northern boundary and is associated with the existing watercourse. Given the distance from the residential development, these extents pose little risk.

The proposed development is also located outside the area shown to be at risk of groundwater flooding.

There are no large water bodies within the vicinity of the site, as such there is no flood risk from this source.

Tidal and canal sources are not considered to pose a risk due to the distance and terrain between the site and tidal/canal waterbodies.

A surface water drainage strategy has been produced for the site. It is proposed that on-site attenuation is provided up to the 1 in 100 year plus climate change event via an attenuation basin, using sustainable drainage systems with a network of pipes and a conveyance swale to provide suitable flow transmittance.

In compliance with the requirements of National Planning Policy Framework, and subject to the mitigation measures proposed, the proposed development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area, and will in fact result in a betterment offsite, as a result of suitable management of surface water runoff discharging from the site.

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1. INTRODUCTION

1.1. Produced on behalf of Peveril Homes, this Flood Risk Assessment (FRA) supports an outline application for the construction of up to 75 dwellings with associated landscaping, open space, drainage infrastructure and associated works (all matters reserved except access from Hunts Lane). As such, the content and level of detail is subject to the nature of the proposals.

1.2. This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. Furthermore, local-level reports, plans and policies have been referenced where relevant in support of this FRA.

Table 1 – Site Summary

Site Name	Hunts Lane, Desford
Location	Hunts Lane (B582), Desford, LE9 9GS
NGR (approx.)	SK471037
Application Site Area (ha)	4.90
Development Type	Residential
Flood Zone Classification	Flood Zone 1
Lead Local Flood Authority	Leicestershire County Council
Local Planning Authority	Hinckley and Bosworth Borough Council
NPPF Vulnerability	More Vulnerable

Sources of Data

1.3. The Report is based on the following sources of information:

i. Illustrative Masterplan, 11/11/2025 Ref: n1426_005 Rev F
ii. Topographical Surveys by NJC Surveys, 22/05/2020 Ref: S2812/01 Rev A and 22/10/2025 Ref: S2812/02/03 Rev -
iii. Severn Trent Sewer Records 31/10/2025
iv. Severn Trent Water Developers Enquiry Response, 31/10/2025 Ref:1163130
v. Environment Agency Flood Map for Planning
vi. Hinckley and Bosworth Borough Council Level 1 and Level 2 SFRA
vii. Leicestershire County Council PFRA
viii. Leicestershire Local Flood Risk Management Strategy
ix. British Geological Survey
x. CIRIA 753 “The SuDS Manual”
xi. Leicestershire Local Plan

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Site Description and Existing Drainage

1.4. The existing site covers approximately 4.90ha and is located off Hunts Lane, Desford, with additional landowner-controlled land lying to the west (Figure 1).

1.5. To the north, the site is bound by an existing watercourse, beyond which lies agricultural land. To the east lies predominantly agricultural land, with some residential development fronting Newbold Road towards the south. South of the site lies the intersection of Hunts Lane to the west and Newbold Road to the east, beyond which lies existing residential development. To the southwest lies Desford Cemetery fronting Hunts Lane, and agricultural land, within the ownership of landowner of the site, lies to the west.

Figure 1 – Site location. Red line depicts application site. Blue line depicts landowner-controlled land.

1.6. A topographical survey has been produced for the site (Appendix 1), an extract of which is shown in Figure 2.

1.7. The topographical survey indicates that the site slopes consistently in a northernly direction from levels of around 132.90mAOD along the southern boundary to around 104.00mAOD in the northeast corner of the site.

1.8. Furthermore, the topography of the northern half of the site is shown to fall more rapidly than the south with an average gradient of 1 in 10 compared to 1 in 30 in the south.

Figure 2 – Existing topography with approximate direction of fall

1.9. The site is entirely greenfield and agricultural in use.

1.10. An existing ordinary watercourse, which lies under the management of the LLFA, runs west-east parallel to the northern boundary. This watercourse has an associated standoff of 10m from the top of bank.

1.11. The topography of the site suggests that overland flows from the site discharge to this watercourse.

1.12. An existing public right of way routes across the northern portion of the site for approximately 180m.

Proposed Development

1.13. The applicant is applying for outline application for the construction of up to 75 dwellings with associated landscaping, open space, drainage infrastructure and associated works (all matters reserved except access from Hunts Lane).

1.14. An Illustrative Masterplan for the development is included in Appendix 2.

2. POLICY FRAMEWORK

National Planning Policy Framework

2.1. The National Planning Policy Framework (NPPF) sets out the Government's national policies on different flood risk related aspects of land use in England.

2.2. The Planning and Flood Risk section of the NPPF addresses how development should be located in areas at little or no risk of flooding, taking into account all sources of flood risk and the current and future impacts of climate change.

2.3. This is to be achieved through the application of the Sequential Test, used to avoid flood risk to people and property by steering new development to lower risk areas. Where it is not possible to locate development in lower risk areas, then the Exception Test is applied. The need for the Exception Test depends on the potential vulnerability of the development, as per the Flood Risk Vulnerability Classification set out in Annex 3 of the NPPF.

Planning Policy Guidance

2.4. The Planning Practice Guidance (PPG), used to support the NPPF, is also available online and sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible, and highlights the importance of preventing an increase in flood risk to the wider catchment area.

2.5. The PPG states that areas at risk of flooding are those that are at risk from any source, now and in the future. These sources include: rivers and the sea, direct rainfall, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes, and other artificial sources. All of which are to be considered when assessing site specific flood risk.

2.6. To help assess flood risk, the PPG includes two tables that define, Flood Zones (Table 1) and Flood risk vulnerability and flood zone 'incompatibility' (Table 2), with Annex 3 of the NPPF providing details on the flood risk vulnerability classification for various types of infrastructure.

2.7. Furthermore, the PPG provides further details on the application of the Sequential and Exception Test, with the process summarised in Diagram 2 and 3.

2.8. This Flood Risk Assessment is written in accordance with the NPPF and PPG and as such, will assess all sources of potential flood risk and where necessary apply the Sequential and Exception Test.

Flood Map for Planning

2.9. In accordance with Table 1 of the PPG, the Flood Map for Planning produced by the Environment Agency identifies various Flood Zones with particular reference to planning and development.

2.10. Flood Zone 1 (Low Probability) is defined as land having less than a 1 in 1000 annual probability of river or sea flooding (<0.1%).

2.11. Flood Zone 2 (Medium Probability) is defined as land having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%); or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%).

2.12. Flood Zone 3a (High Probability) is defined as land having a 1 in 100 or greater annual probability of river flooding (>1%); or land having a 1 in 200 or greater annual probability of flooding from the sea (>0.5%). This is represented by "Flood Zone 3" on the Flood Map for Planning.

2.13. Flood Zone 3b (The Functional Floodplain) is defined as land where water has to flow or be stored in times of flood. This is not identified or separately distinguished from Zone 3a on the Flood Map for Planning.

The Design Flood

2.14. The PPG identifies that new developments should be designed to provide adequate flood risk management, mitigation, and resilience against the 'design flood' for their lifetime.

2.15. This is a flood event of a given annual flood probability, which is generally taken as:

- Fluvial (river) flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year)
- Tidal flooding with a 0.5% annual probability (1 in 200 chance each year)
- Surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year)

Strategic Flood Risk Assessment

2.16. A Strategic Flood Risk Assessment (SFRA) is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future.

2.17. A Level 1 and Level 2 SFRA were produced for the Hinckley and Bosworth Borough Council in 2025 and 2020 respectively. Relevant information from this SFRA has been referenced within this FRA.

Preliminary Flood Risk Assessment

2.18. A Preliminary Flood Risk Assessment (PFRA) is an assessment of floods that have taken place in the past and floods that could take place in the future. It generally considers flooding from surface water runoff, groundwater and ordinary watercourses, and is prepared by the Lead Local Flood Authorities.

2.19. The Leicestershire County Council PFRA (2011) provides a high-level overview of flood risk from a variety of sources throughout Leicestershire County Council including the area of Hinkley and Bosworth District.

Local Flood Risk Management Strategy

2.20. A Local Flood Risk Management Strategy (LFRMS) is prepared by a Lead Local Flood Authority to help understand and manage flood risk at a local level. The LFRMS aims to ensure that the knowledge of local flood risk issues is communicated effectively so that they can be better managed. The LFRMS also aims to promote sustainable development and environmental protection.

2.21. The Local Flood Risk Management Strategy for Leicestershire (2024) sets out the roles and responsibilities for various organisations, agencies, authorities and individuals across Leicestershire and the Hinkley and Bosworth district.

CIRIA C753 – The SuDS Manual

2.22. The Ciria SuDS Manual provides guidance on the implementation of Sustainable Drainage Systems in the UK. It details their appropriate application, design specifications and various benefits including water quality control.

2.23. The Ciria SuDS Manual has been used to inform the proposed drainage strategy for the development with particular reference to water treatment.

3. POTENTIAL SOURCES OF FLOOD RISK TO THE EXISTING SITE

3.1. Flooding can occur from a variety and combination of sources, which may be natural or artificial. Table 2 provides a summary of the potential sources of flood risk to the site in its current condition, and the potential impacts of the development on the wider catchment prior to mitigation. These are discussed in greater detail in the forthcoming section.

3.2. The mitigation measures proposed to address any flood risk issues, and ensure the development is appropriate for its location, are discussed within Section 5.0.

Table 2 – Summary of flood risk from potential flood sources

Flood Source	**Potential Risk**				**Description**
	High	Medium	Low	None	
Fluvial			X		The site is located entirely within Flood Zone 1 and not in close proximity to any main rivers, as such the fluvial flood risk to the site is low.
Tidal/Coastal				X	The site is located far from any coastline or tidally influenced bodies of water.
Canals				X	There are no canals within the vicinity of the site.
Groundwater			X		The sites gradient, level relative to the nearest watercourse, and identification of having a low susceptibility to groundwater flooding indicates that this poses only a low risk to the site.
Reservoirs and Waterbodies			X		There are no large waterbodies or reservoirs withing the vicinity of the site, as such the flood risk from this source is low.
Pluvial Runoff			X		Surface water flooding is present along the northern boundary far from the residential development, as such the pluvial flood risk to the site is considered to be low.
Sewers			X		The existing within the site are not known to have experienced flooding historically, and any new sewers to be installed are to be appropriately modelled and approved.
Effect of Development on Catchment	Impedance of Flows				The development does not appear to impede on existing pluvial or fluvial flow routes.
	Development Drainage				The development will introduce a greater impermeable area than is currently present on site. A SuDS drainage strategy has been developed to mitigate this and adopts greenfield runoff rates.

Fluvial Flood Risk

3.3. Flooding from watercourses occurs when flows exceed the capacity of the channel, or where a restrictive structure is encountered, which leads to water overtopping the banks into the floodplain. This process can be exacerbated when debris is mobilised by high flows and accumulates at structures.

3.4. The study site is shown to be located entirely within Flood Zone 1 (Figure 3).

Figure 3 – Extent of Fluvial Flooding

Main Rivers

3.5. The nearest main river is the Rothley Brook located approximately 800m northeast of the site at its closest point.

3.6. The brook is also situated approximately 20m below the site. This, and the significant distance from the site results in negligible flood risk.

Minor Watercourses

3.7. An existing watercourse runs parallel with the northern boundary in a westerly direction. The ultimate outfall of this watercourse is the Rothley Brook to the northeast of the site.

3.8. There are no other small watercourses within the vicinity of the site.

3.9. Since the existing watercourse is situated a significant distance from the residential development, this source poses a low risk to the development.

Tidal Flood Risk

3.10. Due to the inland nature of the site, it is not considered to be tidally affected and therefore there is no tidal flood risk to the site.

Flood Risk from Canals

3.11. Generally, there are no direct flood risks associated with canals as they are a regulated waterbody and any instance of flooding would be considered to be a rare occurrence.

3.12. There are no canals within the vicinity of the site. There is therefore no risk to the site from canal flooding.

Groundwater Flood Risk

3.13. Groundwater flooding occurs when the water table rises above ground elevations. It is most likely to happen in low lying areas underlain by permeable geology.

3.14. BGS online mapping (Figure 4) identifies a variety of geological conditions on site. The bedrock geology for the site is predominantly comprised of “Edwalton Member – Mudstone”, with interspersed areas of “Edwalton Member – Siltstone, dolomitic”. Along the northern boundary, and consequently the existing watercourse, the bedrock geology is comprised of “Cotgrave Sandstone Member - Sandstone” with “Gunthorpe Member – Mudstone”.

3.15. Two superficial geologies are recorded on the site. In the south there is a small portion of “Glaciofluvial Deposits, Mid Pleistocene - Sand and gravel”, and in the north there lies a isolated area of “Alluvium - Clay, silt, sand and gravel” along the line of the existing watercourse. No superficial geology is presented for the majority of the central regions of the site.

3.16. The small area of sands and gravels in the south has the potential to have higher infiltration rates and consequently have a higher propensity for groundwater flooding. However, given the topographical conditions that rapidly fall in a northerly direction, any accumulation in groundwater would likely migrate south towards the existing watercourse.

Glaciofluvial Deposits, Mid Pleistocene - Sand and gravel. Sedimentary superficial deposit formed between 860 and 116 thousand years ago during the Quaternary period.

Alluvium - Clay, silt, sand and gravel. Sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period.

Edwalton Member - Siltstone, dolomitic. Sedimentary bedrock formed between 237 and 228.4 million years ago during the Triassic period.

Cotgrave Sandstone Member - Sandstone. Sedimentary bedrock formed between 237 and 228.4 million years ago during the Triassic period.

Gunthorpe Member - Mudstone. Sedimentary bedrock formed between 247.1 and 237 million years ago during the Triassic period.

Edwalton Member - Mudstone. Sedimentary bedrock formed between 237 and 228.4 million years ago during the Triassic period.

Figure 4 – BGS Geological Mapping

3.17. Additionally, the PFRA outlines for the study area of Leicestershire, that only one historical record of groundwater flooding has been identified, which was in Melton, Mowbray – a substantial distance from the application site. No other historic instances of Groundwater Flooding have been identified in the Leicestershire area.

3.18. Furthermore, the PFRA provides mapping (Figure 5) indicating the susceptibility to groundwater flooding. The location of the site is shown to be in an area of less than 25%, indicating a low risk.

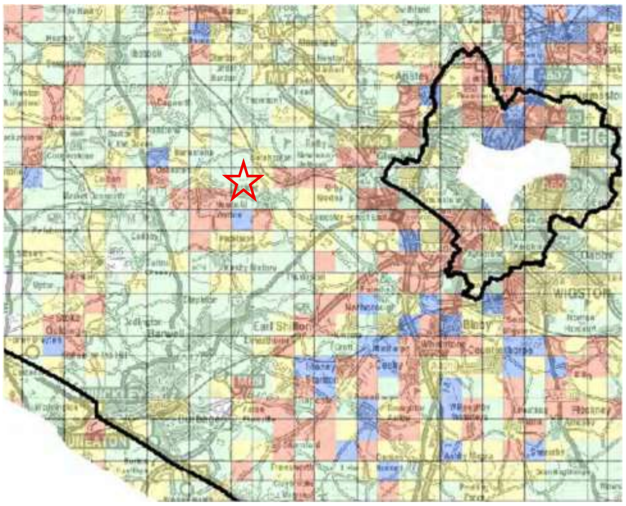

Figure 5 – Extract from PFRA susceptibility to groundwater flooding mapping

3.19. Onsite testing would be required to identify local groundwater conditions over an appropriate time period. It is likely that this will be conducted as part of detailed ground investigations on the site allowing for the identification of any groundwater flood risk or infiltration capacity that is not identified by this report.

Flood Risk from Reservoirs & Large Waterbodies

3.20. Flooding can occur from large waterbodies or reservoirs if they are impounded above the surrounding ground levels or are used to retain water in times of flood. Although unlikely, reservoirs and large waterbodies could overtop or breach leading to rapid inundation of the downstream floodplain.

3.21. There are no reservoirs or large waterbodies within the vicinity of the site. Therefore, there is no flood risk from this source.

Small Waterbodies

3.22. There are no small waterbodies located within the vicinity of the site.

3.23. Small waterbodies are therefore not considered to pose a risk of flooding to the site.

Pluvial Flood Risk

3.24. Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

3.25. The flood risk/categorisation associated with a given event differs slightly for surface water flooding. The EA surface water flood data defines the risk as follows:

3.26. Low Risk is defined as the extent of flooding to occur during an event having between a 1 in 100 (1%) and 1 in 1000 (0.1%) annual probability

3.27. Medium Risk is defined as the extent of flooding to occur during an event between a 1 in 30 (3.33%) and a 1 in 100 (1%) annual probability

3.28. High Risk is defined as the extent of flooding to occur during an event with a 1 in 30 (3.33%) or greater annual probability.

3.29. Environment Agency mapping (Figure 6) identifies only three areas of surface water flooding on the site.

3.30. There are two small extents present along the southern and eastern boundaries. These extents are a result of localised low points and the accumulation of overland flows that develop under existing site conditions. In the post development scenario, these pluvial flood extents will have significantly reduced extents on account of the onsite attenuation.

3.31. The third area of surface water flooding lies along the existing watercourse parallel with the northern boundary. Given the topography of the site and surrounding area, it is evident that overland flows accumulate at this watercourse and are then conveyed west to the Rothley Brook.

3.32. The residential development lies to the south of the site at a much higher elevation than the existing watercourse and its associated flood extents.

3.33. Overall, flooding form pluvial sources is therefore considered to pose a low risk to the site. Mitigation measures for any remaining residual risk are presented in Section 5.

(a)

(b)

(c)

Figure 6 – Surface water flood extents for the 1 in 30 (a), 100 (b) and 1000 (c) year event

Flood Risk from Sewers

3.34. Sewer flooding can occur when the capacity of the infrastructure is exceeded by excessive flows, or as a result of a reduction in capacity due to collapse or blockage, or if the downstream system becomes surcharged. This can lead to the sewers flooding onto the surrounding ground via manholes and gullies, which can generate overland flows.

3.35. The Level 1 SFRA highlights 12 incidents of sewer flooding within the same postcode area as the site including Desford.

3.36. Severn Trent Water sewer records (Appendix 3) show existing foul sewers to the south of the site within Newbold Road.

3.37. There is a slight rise in levels going into the site from Newbold Road. Therefore, in the unlikely event that the existing sewers were to exceed capacity, any flood flows would be directed away from the site and be channelled by the existing road network along the southern boundary.

3.38. Additional sewers, which are currently within the adoption process, are present to the south of the site. These sewers will have been constructed to adoptable standards and will therefore have sufficient capacity for the residential development they are serving. Furthermore, they route south towards Lockeymead Drive away from the development.

3.39. Therefore, the risk posed to the site from sewer flooding is considered to be low.

Effect of Development on Wider Catchment

Impedance of Flood Flows

3.40. The development does not appear to have an impedance on existing pluvial or fluvial flow routes.

Development Drainage

3.41. As a greenfield site, the proposed development will introduce impermeable areas including roads and buildings. These impermeable areas have the potential to increase surface water runoff rates.

3.42. The implementation of a sustainable drainage strategy utilising SuDS will restrict any offsite increase in surface water runoff, and provide sufficient attenuation onsite to accommodate the consequent accumulation of surface water.

4. SEQUENTIAL AND EXCEPTION TEST

4.1. In accordance with the NPPF it is a requirement to locate new development in areas at the lowest risk of flooding. This is achieved through the application of the Sequential Test and where necessary, the Exception Test.

4.2. The planning guidance states that *"the approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding,* ***so far as possible****, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding."*

Sequential Test

4.3. The sequential test is used to avoid flood risk to people and property by steering new development to areas at little or no risk of flooding. This is to be based on current and future medium and high risk flood areas considering all sources of flooding.

4.4. The site is located entirely within Flood Zone 1 and, with a limited extent of surface water flooding along the northern boundary far from the proposed residential development.

4.5. The development will therefore be suitably located and considered to be in accordance with the NPPF. As such, the Sequential Test is passed, and no further action is required.

Exception Test

4.6. The Exception Test poses additional conditions on new developments, and may be required where it is not possible to locate new development in lower risk areas.

4.7. The need for the Exception Test depends on what Flood Zone the site is situated in and the potential vulnerability of the development and therefore, the criteria applied solely relates to information produced by the EA/SFRA for flooding from rivers and seas.

4.8. The proposed development is located entirely within Flood Zone 1 and is identified as 'More Vulnerable' under the Flood Risk Vulnerability Classification set out in Annex 3 of the NPPF.

4.9. Table 2: Flood risk vulnerability and flood zone 'incompatibility' provided within the PPG, and reproduced in Table 3 below, confirms that the Exception Test is not required based on the above grounds.

Table 3 – Flood risk vulnerability and flood zone 'incompatibility'. See the Planning Practice Guidance for further details.

Flood Zones	**Flood Risk Vulnerability Classification** - Exception Test is not required X Development should not be permitted				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	-	-	-	-	-
Zone 2	-	Exception Test required	-	-	-
Zone 3a †	Exception Test required †	X	Exception Test required	-	-
Zone 3b *	Exception Test required *	X	X	X	- *

5. FLOOD RISK MITIGATION

5.1. Section 3.0 has identified the sources of flooding which pose a potential risk to the site and the proposed development, with Section 4.0 applying the Sequential Test and Exception Test where necessary. This section of the FRA sets out the mitigation measures to be incorporated within the proposed development to address and reduce the risk of flooding to within acceptable levels.

Finished Levels

5.2. Finished floor levels of dwellings should be set at 150mm above surrounding ground levels to deter any overland flow from entering dwellings.

5.3. Ground levels should be profiled to encourage pluvial runoff and overland flows away from the built development and towards the nearest drainage point/feature. This should provide sufficient mitigation to address any residual groundwater risks.

Safe Access and Egress

5.4. Proposed access and egress routes pass entirely through areas within Flood Zone 1 and are at low risk of flooding, therefore no mitigation is required.

5.5. No additional mitigation is therefore required.

Sources of Flooding from offsite

5.6. There are no sources of flooding from offsite therefore, no additional mitigation is required.

Surface Water Drainage

5.7. Mitigation against the increase in onsite surface water accumulation as a result of an increased impermeable area, is proposed through the implementation of a surface water drainage network incorporating SuDS.

5.8. The proposed SuDS will operate as attenuation features and be strategically located to facilitate conveyance, minimise land raising and provide suitable routes to outfall surface water.

5.9. Details of the proposed sustainable drainage strategy are provided in Section 6.0.

6. SUSTAINABLE DRAINAGE STRATEGY

Drainage Hierarchy

6.1. The Planning Policy Guidance and the National standards for SuDS identify that surface water runoff from a development should be disposed of as high up the following hierarchy as reasonably practicable:

- collected for none-potable use
- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer, highway drain, or another drainage system;
- to a combined sewer.

6.2. The aim of this is approach is to manage surface water runoff close to where it falls and mimic natural drainage as closely as possible.

6.3. In the absence of a detailed layout proposals for the collection of potable water cannot be stipulated, however such systems could be incorporated as a detailed layout is developed.

6.4. BGS online mapping identifies a small portion of the southern region of the site to consist of a superficial geology that could have the potential to facilitate infiltration. However, infiltration testing has not been completed at the site, and given that the majority of the site has geological conditions unsuitable for infiltration, it is deemed at this stage that infiltration will not be a viable means of surface water discharge.

6.5. Should infiltration testing be completed at the site at a later stage, and sufficiently high infiltration rates above the minimum rate specified by CIRIA are obtained, then infiltration as a means of surface water discharge could be considered.

6.6. The next most desirable means of surface water discharge is to a watercourse.

6.7. The site falls consistently in a northerly direction towards an existing watercourse along the northern boundary.

6.8. Therefore, in accordance with the existing conditions on site and the drainage hierarchy, surface water from the proposed development will discharge to the existing watercourse along the northern boundary.

Peak Flow Control

6.9. In order to comply with the National Standards for Sustainable Drainage Systems, runoff from greenfield developments should not exceed the equivalent greenfield runoff rates or 3l/s/ha. The site is classed entirely as greenfield.

6.10. The Wallingford FEH Statistical method was used to calculate the Greenfield runoff rate for the site. The discharge rate from the development has been calculated based on the total development area of the site, which accounts for the development parcels (1.76ha), road infrastructure (0.51ha) and the proposed SuDS (0.4ha), equating to a total area of 2.67ha. The discharge rate from the site is therefore 14.8l/s (Appendix 4).

Attenuation Storage

6.11. As the development proposes restricting the runoff rate, it is necessary to provide sufficient attenuation storage to accommodate the excess volume safely within the site.

6.12. To facilitate a gravity fed drainage system, the surface water storage should be positioned such that it can receive runoff from the development and discharge from the site via gravity without the need for surface water pumping facilities.

6.13. It is proposed that an attenuation basin is strategically located at low point in the northeast corner of the site, in an area of public open space, as depicted on the Preliminary Drainage Strategy (Appendix 5).

6.14. In the absence of a detailed layout, the catchment area discharging to the attenuation basin has been calculated based on the Illustrative Masterplan (Appendix 2), by assuming:

- 100% impermeability for the proposed road network,
- 100% impermeability for the proposed attenuation features,
- 65% impermeability of the development parcels, with an additional 10% applied to account for urban creep.

6.15. The attenuation basin has been sized using Source Control Microdrainage Calculations as provided in Appendix 6.

6.16. The results demonstrate that the total attenuation volume of 1,950m^3, provided within the attenuation pond has sufficient capacity to cater for all storm events up to and including the 1 in 100 year plus 40% Climate Change event.

Long Term Storage Requirements

6.17. The Non-Statutory Technical Standards for Sustainable Drainage Systems S4-S67 states that where reasonably practical the runoff volume from a development for the 1 in 100- year 6 hour rainfall event should not exceed the runoff volume prior to development or redevelopment. Additionally, if practicable on previously developed sites, the runoff volume should not exceed the equivalent greenfield runoff volume.

6.18. Where it is not reasonably practicable to constrain the volume of runoff from a development at or below the existing volume, then the runoff must be discharged in a manner that does not adversely affect flood risk, i.e.:

i. The additional runoff volume resulting from the development (the 'long term storage volume') should be discharged separately from the site at a rate of 2l/s/ha or less. Or,
ii. All the runoff volume from the development should be discharged at a rate equivalent to the mean annual flow rate (QBAR) rate under greenfield conditions or less. Or,
iii. All runoff volume from the development should be discharged at a rate of 2l/s/ha or less.

6.19. The development complies with the volume control criterion as the proposed discharge rate is less than the greenfield flow rate (QBAR), therefore, provision for long term storage is not required.

Sustainable Drainage Systems

6.20. CIRIA C753 provides extensive guidance on the use of appropriate sustainable drainage techniques. This document has been utilised in considering surface water drainage design in conjunction with applying the hierarchical approach.

6.21. The following SuDS features have been utilised within the strategy or are recommended for further consideration at detailed design.

i. Detention Basins
ii. Silt traps
iii. Sump outfall units/gullies
iv. Vortex flow control
v. Swales

6.22. The use of trapped gullies and catchpit manholes is recommended, providing additional treatment within potential pollutant areas such as access roads and turning heads.

6.23. Attenuation basins are to be incorporated to attenuate surface water runoff. Attenuation basins provide a treatment stage, providing an increase in water quality. The proposed basins are to be dry, without permanent water, and to be planted with appropriate species.

6.24. Swales are shallow, flat bottomed, vegetated open channels designed to convey, treat and often attenuate surface water runoff. It is proposed that a swale is to convey surface water from the onsite network to the attenuation pond, providing an additional point of surface water treatment.

6.25. Open SUDs features have followed the standing advice and have maximum side slopes of 1:3 and a 300mm freeboard.

Water Treatment

6.26. To ensure the preservation of water quality on site, the treatment potential of the proposed SuDS features has been assessed using the Index Approach detailed in CIRIA 753.

6.27. This assigns a pollution index value to potential pollution sources, and a mitigation index to any SuDS devices. These indices are then compared via the following equation replicated from CIRIA 753.

Where the mitigation index of an individual component is insufficient, two components (or more) in series will be required, where:

Total SuDS mitigation index = mitigation index $_1$ + 0.5 (mitigation index $_2$)

Where:

mitigation index $_n$ = mitigation index for component n

A factor of 0.5 is used to account for the reduced performance of secondary or tertiary components associated with already reduced inflow concentrations

6.28. The indices utilised are selected based on Table 26.2 and Table 26.4 of CIRIA 753.

6.29. This assessment and the results are identified in Table 4 below:

Table 4 – Pollution and mitigation indices for the proposed development

	Total Suspended Solids	Metals	Hydrocarbons
Pollution Index (Residential Roofs)	0.2	0.2	0.05
Pollution Index (Driveways, Residential Roads)	0.5	0.4	0.4
Worst-case Pollution Index	**0.5**	**0.4**	**0.4**
Mitigation Index (Swale)	0.5	0.6	0.6
Mitigation Index (Detention Basin)	0.5	0.5	0.6
Total SuDS Mitigation Index	0.75	0.85	0.9
Water Treatment Satisfied?	✓	✓	✓

Maintenance

6.30. Requirements for ongoing maintenance of the drainage network should form part of the Operation and Maintenance manual for the site and should be undertaken by the site management. Any specialist or proprietary products that are specified at detailed design would have a manufacturer specific maintenance regime which should be included within the document.

6.31. It is envisaged that the Operation and Maintenance manual will be developed at the detailed design stage, but some examples are included below. This is to be developed in accordance with the Operation and Maintenance requirements as set out within Tables 22.1 and 17.1 shown in Figure 7 and 8:

i. All drainage features should be located in open areas which are readily accessible.
ii. Gullies should be inspected and de-silted at least once a year, where necessary.
iii. Pipes, manholes and silt traps should be inspected and de-silted at least once a year, where necessary.
iv. The surface water attenuation areas should be seeded with a wildflower grass seed mix that can tolerate wet ground conditions.
v. Regular inspections of the attenuation basin should be undertaken to remove litter/debris, invasive/colonising vegetation and silt build up as necessary. Inlet and outlet structures to be regularly inspected, with remedial work as required to maintain water flows and prevent silt/vegetation build up.
vi. Vegetation/grass with the attenuation basin should be maintained appropriately to allow establishment and promote habitat formation, without impeding the operation of the inlet and outlet structure.
vii. Any vortex controls, such as Hydro-brakes, should be inspected every 6 months, litter/debris and silt build up should be removed as necessary.
viii. Permanent signage should be provided in multi-function open space that may infrequently flood during extreme events. Signage should be informative and clear and will be considered in more detail at detailed design stage.
ix. A 3m wide maintenance margin alongside the existing watercourses to be retained to ensure ongoing maintenance can be undertaken with adequate working space.

TABLE 22.1 Operation and maintenance requirements for detention basins		
Maintenance schedule	**Required action**	**Typical frequency**
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

Figure 7 – Extract from CIRIA C753 detailing the maintenance requirements for a detention basin

TABLE 17.1 Operation and maintenance requirements for swales

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

Figure 8 – Extract from CIRIA C753 detailing the maintenance requirements for a swale

Foul Drainage

6.32. Foul drainage from the development will discharge to the 225mm STW foul sewer located within Newbold Road via a new manhole connection as per the developer enquiry response included in Appendix 7.

6.33. Due to the site topography, which falls in a northerly direction, a pumping station will be required to pump flows from plots located in the northern half of the site.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1. Produced on behalf of Peverill Homes, this FRA supports an outline application for the construction of up to 75 dwellings with associated landscaping, open space, drainage infrastructure and associated works (all matters reserved except access from Hunts Lane). As such, the content and level of detail is subject to the nature of the proposals.

7.2. This FRA has been prepared in accordance with the requirements set out in the NPPF and the associated Planning Practice Guidance, with the support of local-level reports, plans and policies.

7.3. This report demonstrates that the proposed development is not at significant flood risk, and simple mitigation measures are recommended to address any residual risk. The identified risks and mitigation measures are summarised in table 5.

Table 5 – Summary of Flood Risk Assessment

Flood Source	Risk and Proposed Mitigation Measures
Pluvial runoff, Sewers and Groundwater	Risk from most sources is considered to be low. To mitigate any residual risk houses are to be set 150mm above surrounding ground levels to deter overland flows. Surrounding ground levels are to be profiled to encourage overland flows away from the built development and towards the nearest drainage point.
Impact of the Development	The impermeable area of the site will be increased. This will be mitigated by a SuDS network comprised of: a control chamber reducing flow into the existing watercourse to greenfield rates; sufficient storage for a 1:100 year plus climate change event provided by a detention basin; and a proposed swale.
This summary is to be read in conjunction with the full report. It reflects an assessment of the site conducted by PJS Consulting Engineers based on the information received by PJS at the time of production.	

7.4. In compliance with the requirements of National Planning Policy Framework, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area, and in fact result in a betterment downstream, as a result of suitable management of surface water runoff discharging from the site.

Appendix 1

Topographical Survey

Survey Notes

1: This Survey is related to Ordnance Survey Grid, OSGB36 (15).
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Please refer to the Survey Control Schedule for site control.

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9: Ordnance Survey background data shown provided by Peveril Homes.

Survey Key

Street Furniture Symbols & Abbreviations

AV — Air Valve
BB — Belisha Beacon
BH — Borehole
BL — Bollard
BS — Bus Stop
DR — Drain
EP — Electric Pole
EL — Eaves Level
ER — Earth Rod
FH — Fire Hydrant
FL — Flood Light
FFL — Floor Level
FS — Flag staff
GP — Gate Post
GU — Gully
GV — Gas Valve
IL — Invert Level
IC — Inspection Cover
KO — Kerb Outlet
LB — Litter Bin
LP — Lamp Post
MH — Square Manhole
MH — Circular Manhole
MH — Triangular Manhole
Mkr — Marker Post
MP — Mile Post
PB — Pillar Box
Pipe — Pipe
PM — Parking Meter
PO — Post
RE — Rodding Eye
RL — Ridge Level
RP — Reflector Post
RS — Road Sign
SNP — Name Plate
SI — Sign
Stay — Utility Stay
ST — Stop Tap
STN — Survey Control
SU — Stump
SV — Stop Valve
TC — Telecommunication
TCB — Tel. Control Box
TL — Traffic Light
T/P — Trial Pit
TP — Telegraph Pole
TS — Traffic Signal Cover
TV — Cable Television
WO — Wash Out
WM — Water Meter
WT — Water Tap
VP — Vent Pipe

Fence Types & Abbreviations

C/P — Chestnut Paling
C/B — Close Boarded
C/L — Chain Link
Con/P — Concrete Panel
C/I — Corrugated Iron
CBr — Crash Barrier
Elc — Electric
H/M — Hit and Miss
Hrd — Hoarding
Iwn — Interwoven
I/R — Iron Railings
O/L — Overlap
Pal — Palisade
P/K — Picket (Wooden)
B/W — Post & Barbed Wire
P/C — Post & Chain
P/R — Post & Rail
P/W — Post & Wire
P/M — Post & Wire Mesh
T/R — Trip Rail

Feature Lines

Hedge
P/W Fence
Gate
Stile
Foliage/Tree Canopy
Dk Dropped Kerb Line
Kerb Line
Verge/Edge of Track or change of surface
Unkerbed Channel Line
Footpath
Wall Wall
R/Wall Retaining Wall
FW SW Sewer Lines
Overhead Electric Line
Overhead Telecom Line
60.35 Ground Level
Individual Tree
Individual Bush
Building Structure
Watercourse / Embankment etc

SURVEY CONTROL

STN	EASTINGS	NORTHINGS	LEVEL
NJC2	447271.628	303487.302	132.291
NJC2A	447318.059	303510.365	130.974
NJC2B	447252.661	303469.112	132.883
NJC3	447206.961	303463.660	132.876
NJC4	447099.308	303517.087	132.524
NJC4A	447012.697	303529.486	131.209
BW1	447240.081	303447.435	133.165
TB1A	447256.960	303482.510	132.671

SHEET LAYOUT

S2812/02
S2812/03
S2812/01

REV	DATE	DESCRIPTION	BY	APP.
A	22/10/2025	SURVEY EXTENDED	IG	NJC

NJC SURVEYS LIMITED
Topographical Surveys • Measured Building Surveys
Site Engineering • Ground Modelling • Utility Surveys
Monitoring Surveys • Laser Scanning • Volumetric Calculations
The Old Police Station, South Street
Ashby de la Zouch, Leicestershire, LE65 1BQ
01530 414251 • office@njcsurveys.co.uk • www.njcsurveys.co.uk

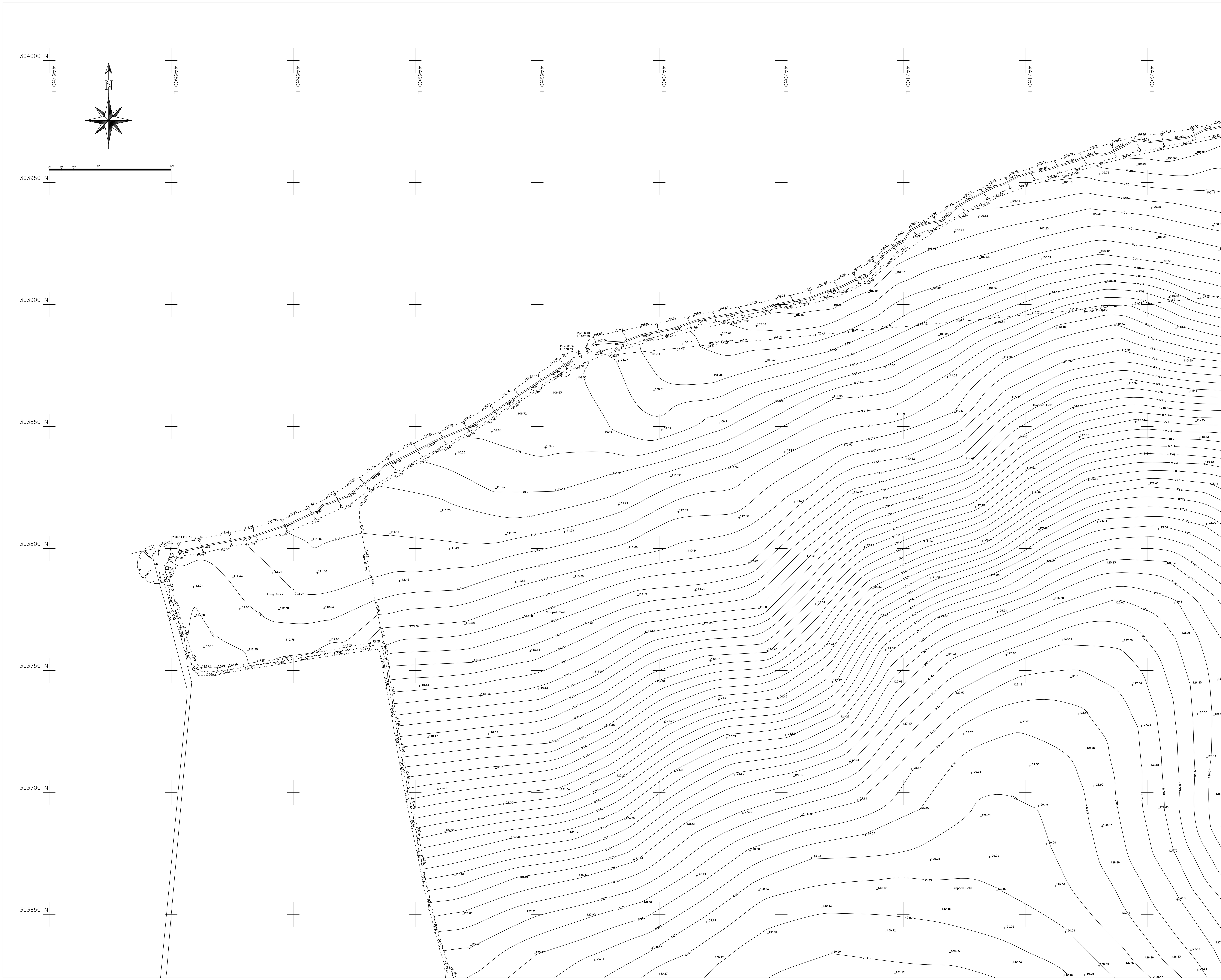
Client
Peveril Homes
homes to build a life in

Project Title
Land off Hunts Lane, Desford

Drawing Title
Topographical Survey

Drawn	Checked	Authorised
RB/LD	SH	NJC
Date	**Scale**	**Sheet size**
22/05/2020	1/500	A0

Drg. No. S2812/01
Revision A



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R/Wall Retaining Wall
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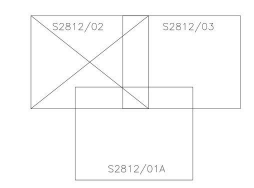

REV	DATE	DESCRIPTION	BY	APP.

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Site Engineering • Ground Modelling • Utility Surveys
Monitoring Surveys • Laser Scanning • Volumetric Calculations

The Old Police Station, South Street
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01530 414251 • office@njcsurveys.co.uk • www.njcsurveys.co.uk

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homes to build a life in

Project Title
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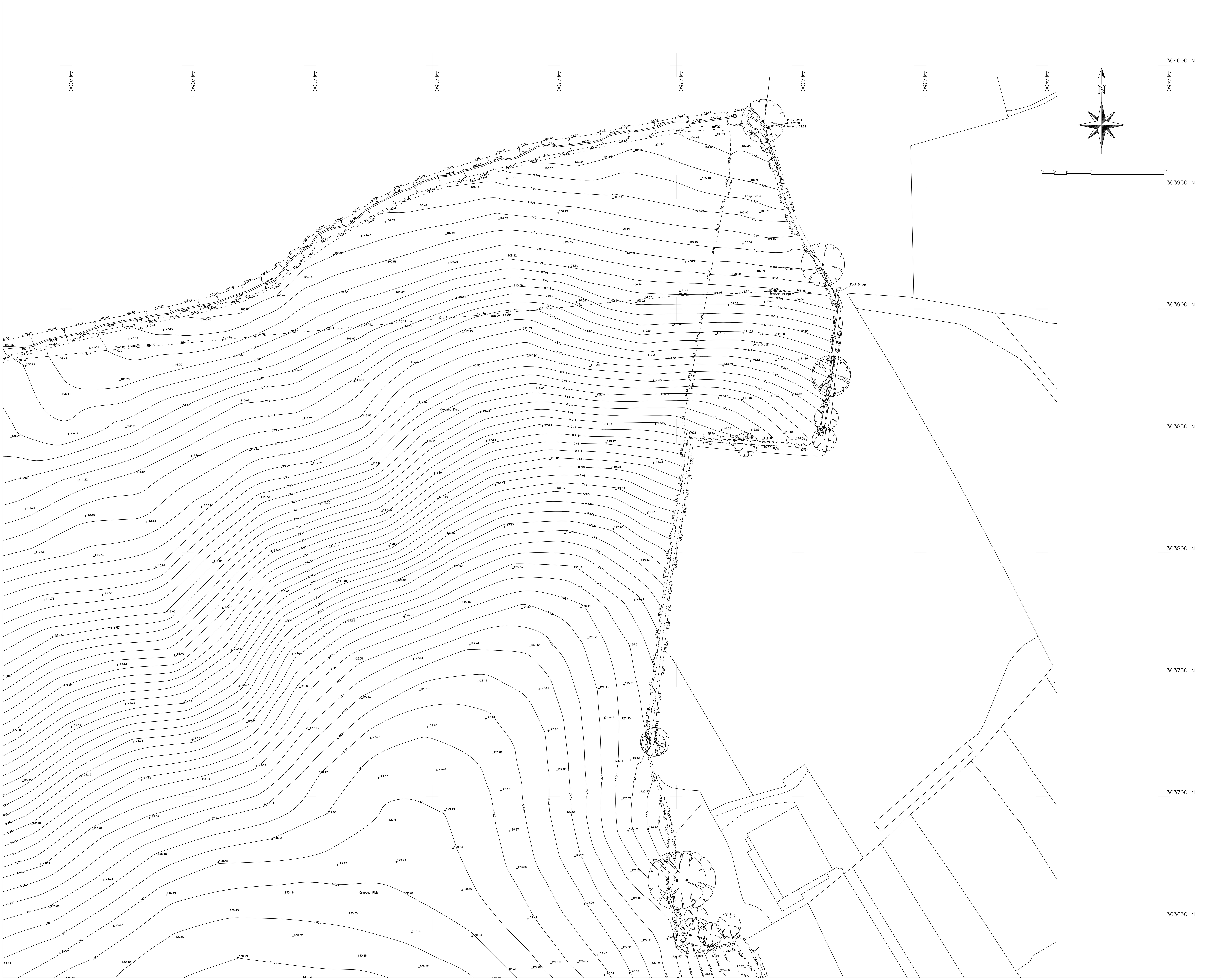
Drawing Title
Topographical Survey

Drawn	Checked	Authorised
IG	SH	NJC
Date	**Scale**	**Sheet size**
22/10/2025	1/500	A0

Drg. No. S2812/02

Revision -



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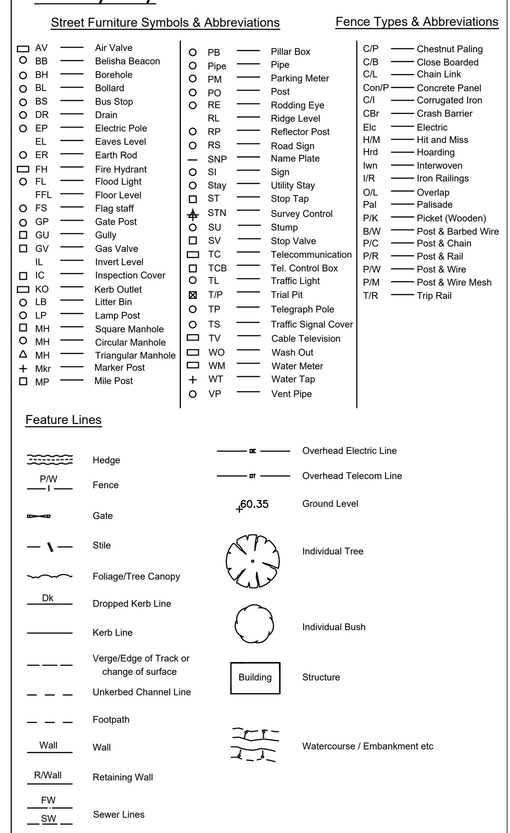
Survey Key



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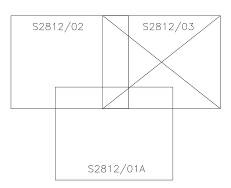

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Peveril Homes
homes to build a life in

Project Title

Land off
Hunts Lane,
Desford

Drawing Title

Topographical
Survey

Drawn	Checked	Authorised
IG	SH	NJC
Date 22/10/2025	**Scale** 1/500	**Sheet size** A0
Drg. No. S2812/03		**Revision** -

Appendix 2

Illustrative Masterplan

Key

- Application site boundary
- Other land in control of applicant
- Existing (retained) trees & hedgerow
- Indicative proposed planting
- Open space
- Indicative surface water attenuation basin
- Existing Public Right of Way
- Proposed pedestrian/cycle link
- Proposed vehicular access
- Potential for children's play (LAP)
- Visual links
- Indicative extent of residential area

0 10 50 m

Peveril Homes
homes to build a life in

nineteen47
CHARTERED TOWN PLANNERS & URBAN DESIGNERS

Project		
Hunts Lane, Desford		
Drawing Title		
Illustrative Masterplan		
Project Code	Drawing Nr	Rev
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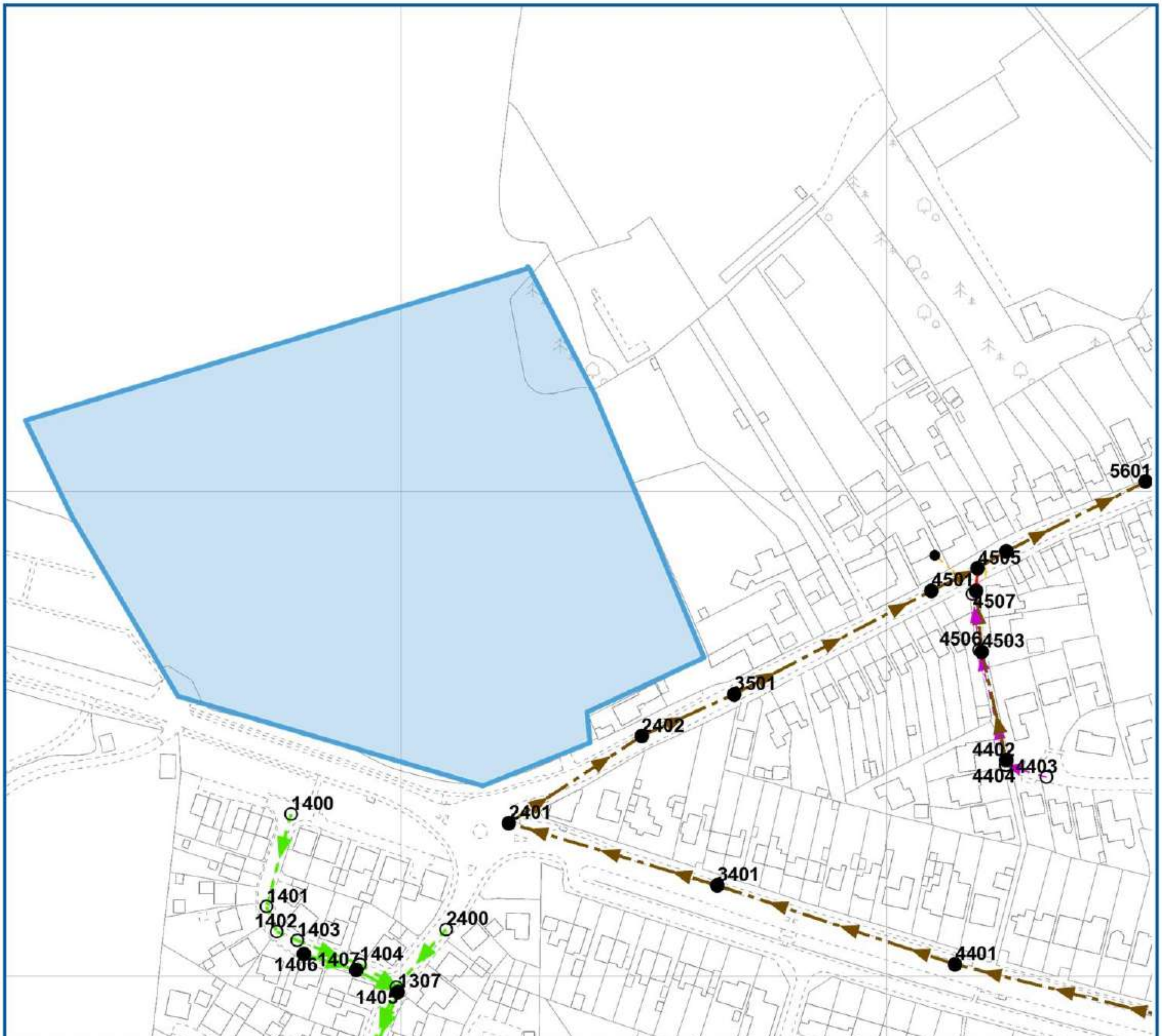
Date	Drawing Scale	
13.11.2025	1:1,250 @ A3	

Appendix 3

Severn Trent Water

Sewer Records



LEGEND

Operational Site

Waste Water Pump
- Transferred Asset
- S24
- S104
- S102
- Null Private
- Null
- None
- Highway Drain
- Adopted Sewer

Storage
- Disposal Site
- Off-Line Waste Water Storage
- On-Line Waste Water Storage
- Wet Well

Waste Water Process Structure
- Sewage Treatment Point
- Sewage Treatment Structure
- Sludge Treatment Point
- Sludge Treatment Structure

Manhole
- Foul Bifurcation Manhole
- Combined Bifurcation Manhole
- Surface Water Bifurcation Manhole
- Dual Manhole
- Foul Single Manhole
- Combined Single Manhole
- Surface Water Single Manhole
- Twin Manhole
- Foul Adopted Manhole
- Combined Adopted Manhole
- Surface Adopted Manhole
- Transferred Manhole
- Unsurveyed Manhole

Gravity Sewer Pipe
- Foul Gravity Sewer
- Combined Gravity Sewer
- Surface Water Gravity Sewer
- S104 Surface Water Gravity Sewer
- S104 Combined Gravity Sewer
- S104 Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Surface Water Unsurveyed Pipe
- Combined Unsurveyed Pipe
- Foul Unsurveyed Pipe
- Transferred Surface Water Sewer
- Transferred Combined Sewer
- Transferred Foul Sewer
- Disposal Pipe
- Overflow Pipe
- Culverted Water Course
- Waste Internal Site Pipe
- Sewer Service Connection
- Gravity Sewer Others

Pressure Sewer Pipe
- Surface Water Pressure Sewer
- Combined Pressure Sewer
- Foul Pressure Sewer
- S104 Surface Water Pressure Sewer
- S104 Combined Pressure Sewer
- S104 Foul Pressure Sewer
- Private Surface Water Pressure Sewer
- Private Combined Pressure Sewer
- Private Foul Pressure Sewer
- Surface Water Vacuum Sewer
- Foul Vacuum Sewer
- Combined Vacuum Sewer
- S104 Surface Water Vacuum Sewer
- S104 Combined Vacuum Sewer
- S104 Foul Vacuum Sewer
- Private Surface Water Vacuum Sewer
- Private Combined Vacuum Sewer
- Private Foul Vacuum Sewer
- Surface Water Siphon
- Combined Siphon
- Foul Siphon
- Private Surface Water Siphon
- Private Combined Siphon
- Private Foul Siphon
- S104 Surface Water Siphon
- S104 Combined Siphon
- S104 Foul Siphon
- Surface Water Unsurveyed Pipe
- Combined Unsurveyed Pipe
- Foul Unsurveyed Pipe
- Disposal Pipe

Service Pipe
- Surface Water Lateral Drain
- Combined Lateral Drain
- Foul Lateral Drain
- S104 Surface Water Lateral Drain
- S104 Combined Lateral Drain
- S104 Foul Lateral Drain
- Private Surface Water Lateral Drain
- Private Combined Lateral Drain
- Private Foul Lateral Drain
- Transferred Surface Water Lateral Drain
- Transferred Combined Lateral Drain
- Transferred Foul Lateral Drain

Pressure Sewer Annotation

Gravity Sewer Annotation

Service Sewer Annotation

Ancillary
- Balancing Lagoon
- Grease Trap
- Interceptor
- Screen

Chamber
- Flushing Chamber
- Soakaway
- Overflow

Fitting
- Blind Shaft
- Facility Connector
- Head Node
- Lamphole
- Sewerage Air Valve
- Sewerage Chemical Injection Point
- Sewerage Hatch Box
- Sewerage Pressure Washout
- Vent Column
- Waste Water Outfall

Control Valve
- Hydrobrake
- Penstock
- Sewerage Isolation Valve
- Sewerage Non Return Valve

Manhole Annotation

Print200mLine

Severn Trent Water Limited

SEVERN TRENT

Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0345 601 6616

SEWER RECORD

O/S Map Scale: 1:2,500

This map is centred upon:

Date of Issue: 31-10-25

X: 447273.22 **Y:** 303587.05

Disclaimer Statement:

1 Do not scale off this Map.

2 This plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of SEVERN TRENT WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems.

3 On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, Transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012. Private pumping stations, which form part of these sewers or lateral drains, will transfer to ownership of Severn Trent Water on or before 1 October 2016. Severn Trent Water does not possess complete records of these assets. These assets may not be displayed on the map.

5 Ordnance Survey licence number: **AC0000808122**

6 Document users other than SEVERN TRENT WATER business users are advised that this document is provided for reference purpose only and is subject to copyright, therefore, no further copies should be made from it.

Sewer Node Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK47031200	132.58	130.094	130.2	S	U	C	450	<UNK>	-264.849	31/12/1899 00:00:00
SK47031200	132.58	130.094	<UNK>	S	U	C	375	<UNK>	<UNK>	31/12/1899 00:00:00
SK47031207	132.637	129.538	129.263	F	U	C	100	<UNK>	64.549	31/12/1899 00:00:00
SK47032301	132.49	131.41	130.38	S	VC	C	150	<UNK>	73.8	31/12/1899 00:00:00
SK47031301	132.608	130.661	130.585	S	U	C	375	<UNK>	143.803	31/12/1899 00:00:00
SK47034404	132.625	<UNK>	<UNK>	S	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK47034502	130.74	127.91	127.49	F	VC	C	<UNK>	<UNK>	152.26	31/12/1899 00:00:00
SK47032402	131.7599	128.78	128.54	F	VC	C	<UNK>	<UNK>	171.79	31/12/1899 00:00:00
SK47034402	132.6199	131.25	130.39	F	VC	C	150	<UNK>	52.47	31/12/1899 00:00:00
SK47032302	132.6	131.22	129.2	F	VC	C	150	<UNK>	63.38	31/12/1899 00:00:00
SK47032306	132.907	130.106	129.919	F	U	C	150	<UNK>	147.85	31/12/1899 00:00:00
SK47034301	131.85	130.88	130.62	S	VC	C	150	<UNK>	254.96	31/12/1899 00:00:00
SK47033501	129.87	128.49	128.04	F	VC	C	<UNK>	<UNK>	203.8	31/12/1899 00:00:00
SK47032305	132.822	130.766	130.668	S	U	C	300	<UNK>	169.184	31/12/1899 00:00:00
SK47033301	132.47	131.55	131.43	S	VC	C	150	<UNK>	242.67	31/12/1899 00:00:00
SK47033303	132.0599	131.23	130.93	S	VC	C	150	<UNK>	166.07	31/12/1899 00:00:00
SK47031405	132.978	130.907	130.711	S	U	C	375	<UNK>	149.403	31/12/1899 00:00:00
SK47031304	132.116	130.3	130.271	S	U	C	450	<UNK>	398.897	31/12/1899 00:00:00
SK47032205	132.405	129.531	129.477	F	U	C	150	<UNK>	139.481	31/12/1899 00:00:00
SK47031402	132.559	131.244	131.178	S	U	C	300	<UNK>	177.121	31/12/1899 00:00:00
SK47033302	132.27	131.41	131.26	S	VC	C	150	<UNK>	337.33	31/12/1899 00:00:00
SK47031302	132.506	130.585	130.402	S	U	C	375	<UNK>	160.164	31/12/1899 00:00:00
SK47031203	132.545	130.158	130.094	S	U	C	450	<UNK>	256.203	31/12/1899 00:00:00
SK47031400	133.036	131.607	131.392	S	U	C	225	<UNK>	165.94	31/12/1899 00:00:00
SK47032200	132.575	130.668	130.585	S	U	C	300	<UNK>	239.096	31/12/1899 00:00:00
SK47032308	132.816	129.771	129.531	F	U	C	150	<UNK>	151.933	31/12/1899 00:00:00
SK47031407	132.777	130.715	130.6	F	U	C	150	<UNK>	160.148	31/12/1899 00:00:00
SK47031401	132.687	131.317	131.244	S	U	C	300	<UNK>	170.178	31/12/1899 00:00:00
SK47032300	132.87	131.15	130.97	S	U	C	225	<UNK>	166.689	31/12/1899 00:00:00
SK47035303	132.9649	<UNK>	<UNK>	S	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK47031300	132.672	130.711	130.661	S	U	C	375	<UNK>	149.74	31/12/1899 00:00:00
SK47034503	132.21	130.38	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK47031309	132.638	130.343	130.106	F	U	C	150	<UNK>	158.886	31/12/1899 00:00:00
SK47031404	132.788	131.039	130.982	S	U	C	300	<UNK>	253.632	31/12/1899 00:00:00
SK47035302	132.985	130.945	130.7	C	VC	C	150	<UNK>	35.84	31/12/1899 00:00:00
SK47034401	132.7799	130.22	129.69	F	VC	C	225	<UNK>	195.11	31/12/1899 00:00:00
SK47031201	132.619	130.296	130.23	S	U	C	450	<UNK>	265.939	31/12/1899 00:00:00
SK47032304	132.942	130.97	130.841	S	U	C	225	<UNK>	167.411	31/12/1899 00:00:00
SK47034507	130.8999	<UNK>	128.18	S	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK47032206	132.394	129.477	129.213	F	U	C	150	<UNK>	160.208	31/12/1899 00:00:00
SK47032203	132.367	130.396	130.296	S	U	C	450	<UNK>	406.53	31/12/1899 00:00:00

Sewer Node Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK47032400	133.221	131.238	131.057	S	U	C	225	<UNK>	168.63	31/12/1899 00:00:00
SK47031305	132.059	130.271	130.158	S	U	C	450	<UNK>	397.044	31/12/1899 00:00:00
SK47031308	132.721	130.432	130.343	F	U	C	150	<UNK>	149.326	31/12/1899 00:00:00
SK47031406	132.519	130.88	130.715	F	U	C	150	<UNK>	160.364	31/12/1899 00:00:00
SK47035201	132.1699	130.59	128.59	S	VC	C	225	<UNK>	33.1	31/12/1899 00:00:00
SK47031403	132.489	131.178	131.039	S	U	C	300	<UNK>	255.878	31/12/1899 00:00:00
SK47034504	130.6399	128.21	<UNK>	C	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK47034506	132.1699	<UNK>	<UNK>	S	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK47031202	132.621	130.23	130.158	S	U	C	450	<UNK>	355.222	31/12/1899 00:00:00
SK47034505	130.535	<UNK>	<UNK>	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK47032303	132.74	131.59	131.26	F	VC	C	150	<UNK>	91.73	31/12/1899 00:00:00
SK47031306	132.52	130.158	130.094	S	U	C	450	<UNK>	395.375	31/12/1899 00:00:00
SK47031206	132.597	129.213	129.022	F	U	C	150	<UNK>	150.267	31/12/1899 00:00:00
SK47032202	132.37	130.585	130.546	S	U	C	300	<UNK>	179.641	31/12/1899 00:00:00
SK47034403	132.6499	<UNK>	<UNK>	S	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK47035601	129.9	127.49	127.26	F	VC	C	<UNK>	<UNK>	220.17	31/12/1899 00:00:00
SK47031307	132.976	130.6	130.432	F	U	C	150	<UNK>	148.054	31/12/1899 00:00:00
SK47035301	132.8699	130.55	130.21	F	VC	C	225	<UNK>	272.5	31/12/1899 00:00:00
SK47034501	130.52	<UNK>	<UNK>	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK47033401	132.8899	129.66	129.17	F	VC	C	225	<UNK>	183.35	31/12/1899 00:00:00
SK47032401	132.8099	129.14	128.8	F	VC	C	225	<UNK>	193.32	31/12/1899 00:00:00
SK47032307	132.982	129.919	129.771	F	U	C	150	<UNK>	151.75	31/12/1899 00:00:00
SK47031303	132.216	130.327	130.3	S	U	C	450	<UNK>	410.407	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	03/09/2024 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	03/09/2024 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	03/09/2024 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	23/09/2021 00:00:00

Appendix 4

Greenfield Runoff Calculations

Greenfield runoff rate estimation tool

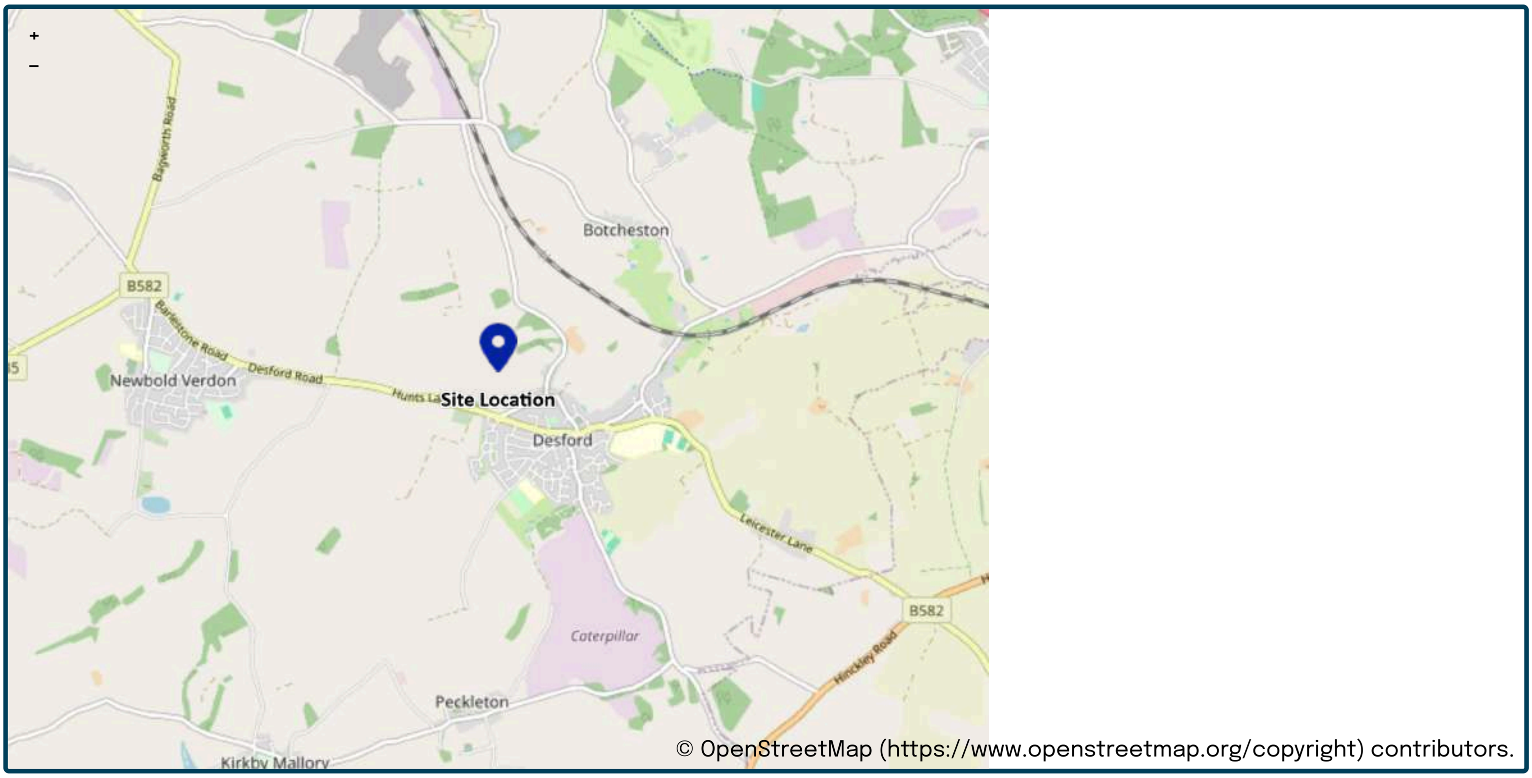
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	21/11/2025
Calculated by	
Reference	
Model version	2.2.2

Location

Site name	
Site location	



Site easting (British National Grid)	447231
Site northing (British National Grid)	303653

Site details

Total site area (ha)	2.67	ha

Greenfield runoff

Method

Method	FEH statistical (2025)

FEH statistical (2025)

	My value		Map value
SAAR9120 (mm)	740 mm		
BFIHOST19scaled	0.342		
QMed-QBar conversion	1.124		1.124
QMed (l/s)	13.1 l/s		
QBar (FEH statistical 2025) (l/s)	14.8 l/s		

Growth curve factors

	My value		Map value
Hydrological region	4		4
1 year growth factor	0.83		
2 year growth factor	0.89		
10 year growth factor	1.49		
30 year growth factor	2		
100 year growth factor	2.57		
200 year growth factor	3.04		

Results

Method	FEH statistical (2025)
Flow rate 1 year (l/s)	12.2 l/s
Flow rate 2 year (l/s)	13.1 l/s
Flow rate 10 years (l/s)	22.0 l/s
Flow rate 30 years (l/s)	29.5 l/s
Flow rate 100 years (l/s)	37.9 l/s
Flow rate 200 years (l/s)	44.9 l/s

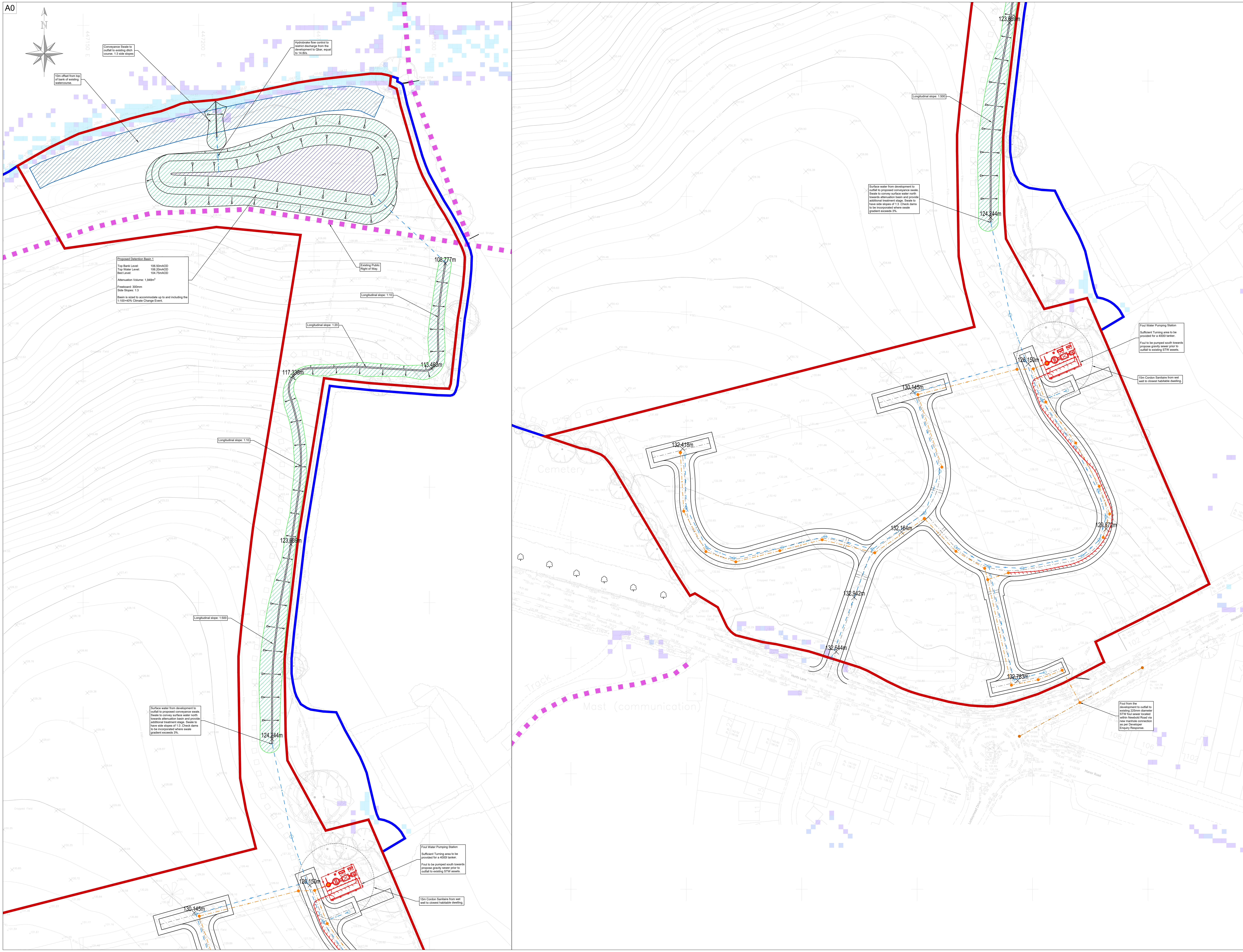
Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

Appendix 5

Preliminary Drainage Strategy

A0



General Notes

1. Do not scale this drawing. If in doubt, ask.
2. This drawing is to be read in conjunction with all other relevant Engineers, Architects and specialist design drawings and details.
3. All dimensions are in metres unless noted otherwise. All levels are in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the Engineer immediately.

Key:

Application Boundary
Landowner controlled land
Development Parcels
Public Right of Way

Flood Zone and Watercourse Constraints

EA Surface Water 1in1000 year Flood Extent
EA Surface Water 1in100 year Flood Extent
EA Surface Water 1in30 year Flood Extent
Existing watercourse with associated standoff from top of bank

Proposed Drainage

Proposed S104 Surface Water Sewer
Proposed S104 Foul Sewer
Proposed foul water rising main
Proposed attenuation basin
Proposed pump station with 15m cordon sanitaire
Proposed conveyance swale

Rev	Date	Amendments	By	Chk
C				
B				
A				

PJS LAND DEVELOPMENT
Delivering Innovative Solutions

PJS Land Development Limited, Geneva II, Lakeview, Sherwood Business Park, Nottingham, NG15 0ED.
Registered number: 12578938 Tel: 0115 704 3969 Email: Enquiries@pjs-ce.co.uk

Client
PEVERIL
HOMES TO BUILD A LIFE IN

Project
Hunts Lane, Desford

Drawing Title
Preliminary Drainage Strategy

	Drawn	Checked	Status	Scale
Initial	CR	JV	Information	1:500
Date	20/11/25	20/11/25		

Project Number	Drawing Number	Revision
PJS25-0092	DR-0005	-

Appendix 6

Microdrainage Calculations

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	105.416	0.666	11.7	730.7	O K
30 min Summer	105.584	0.834	11.7	957.3	O K
60 min Summer	105.741	0.991	11.7	1186.1	O K
120 min Summer	105.912	1.162	11.7	1454.6	O K
180 min Summer	106.010	1.260	11.7	1615.5	O K
240 min Summer	106.072	1.322	11.7	1720.8	O K
360 min Summer	106.139	1.389	11.7	1838.1	O K
480 min Summer	106.167	1.417	11.7	1888.4	O K
600 min Summer	106.176	1.426	11.7	1904.7	O K
720 min Summer	106.174	1.424	11.7	1901.4	O K
960 min Summer	106.152	1.402	11.7	1860.9	O K
1440 min Summer	106.081	1.331	11.7	1736.3	O K
2160 min Summer	105.988	1.238	11.7	1579.4	O K
2880 min Summer	105.915	1.165	11.7	1459.3	O K
4320 min Summer	105.804	1.054	11.7	1282.4	O K
5760 min Summer	105.711	0.961	11.7	1142.1	O K
7200 min Summer	105.622	0.872	11.7	1012.2	O K
8640 min Summer	105.546	0.796	11.7	905.1	O K
10080 min Summer	105.485	0.735	11.7	822.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	136.958	0.0	707.0	19
30 min Summer	90.160	0.0	902.4	34
60 min Summer	56.359	0.0	1201.6	64
120 min Summer	35.168	0.0	1493.2	124
180 min Summer	26.469	0.0	1672.3	184
240 min Summer	21.482	0.0	1782.6	242
360 min Summer	15.777	0.0	1836.3	362
480 min Summer	12.535	0.0	1827.3	482
600 min Summer	10.431	0.0	1814.0	602
720 min Summer	8.949	0.0	1800.0	722
960 min Summer	6.990	0.0	1770.5	960
1440 min Summer	4.904	0.0	1706.7	1256
2160 min Summer	3.432	0.0	2656.0	1624
2880 min Summer	2.674	0.0	2755.0	2020
4320 min Summer	1.907	0.0	2917.5	2852
5760 min Summer	1.519	0.0	3146.4	3688
7200 min Summer	1.289	0.0	3338.1	4472
8640 min Summer	1.138	0.0	3533.6	5192
10080 min Summer	1.032	0.0	3732.6	5952

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m^3)	Status
15 min Winter	105.416	0.666	11.7	730.5	O K
30 min Winter	105.584	0.834	11.7	957.2	O K
60 min Winter	105.740	0.990	11.7	1185.9	O K
120 min Winter	105.913	1.163	11.7	1455.4	O K
180 min Winter	106.011	1.261	11.7	1617.2	O K
240 min Winter	106.073	1.323	11.7	1723.5	O K
360 min Winter	106.141	1.391	11.7	1842.4	O K
480 min Winter	106.171	1.421	11.7	1894.5	O K
600 min Winter	106.181	1.431	11.7	1913.0	O K
720 min Winter	106.180	1.430	11.7	1911.9	O K
960 min Winter	106.160	1.410	11.7	1876.2	O K
1440 min Winter	106.091	1.341	11.7	1753.8	O K
2160 min Winter	105.983	1.233	11.7	1570.9	O K
2880 min Winter	105.892	1.142	11.7	1421.7	O K
4320 min Winter	105.729	0.979	11.7	1168.5	O K
5760 min Winter	105.553	0.803	11.7	914.2	O K
7200 min Winter	105.411	0.661	11.7	724.3	O K
8640 min Winter	105.297	0.547	11.7	580.5	O K
10080 min Winter	105.206	0.456	11.7	471.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m^3)	Discharge Volume (m^3)	Time-Peak (mins)
15 min Winter	136.958	0.0	707.0	19
30 min Winter	90.160	0.0	902.4	33
60 min Winter	56.359	0.0	1201.7	64
120 min Winter	35.168	0.0	1493.2	122
180 min Winter	26.469	0.0	1672.3	180
240 min Winter	21.482	0.0	1782.3	240
360 min Winter	15.777	0.0	1834.6	356
480 min Winter	12.535	0.0	1824.8	474
600 min Winter	10.431	0.0	1810.8	590
720 min Winter	8.949	0.0	1796.3	702
960 min Winter	6.990	0.0	1766.6	926
1440 min Winter	4.904	0.0	1704.3	1354
2160 min Winter	3.432	0.0	2656.1	1684
2880 min Winter	2.674	0.0	2755.5	2136
4320 min Winter	1.907	0.0	2927.1	3068
5760 min Winter	1.519	0.0	3146.6	3864
7200 min Winter	1.289	0.0	3338.2	4608
8640 min Winter	1.138	0.0	3533.9	5280
10080 min Winter	1.032	0.0	3733.6	5960

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 447208 303604 SK 47208 03604
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 2.160

Time From:	(mins) To:	Area (ha)
0	4	2.160

Model Details

Storage is Online Cover Level (m) 106.500

Tank or Pond Structure

Invert Level (m) 104.750

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	897.8	0.500	1197.9	1.000	1513.4	1.500	1843.0
0.100	955.7	0.600	1259.9	1.100	1578.2	1.600	1910.6
0.200	1015.4	0.700	1322.4	1.200	1643.6	1.700	1978.8
0.300	1075.7	0.800	1385.5	1.300	1709.5	1.750	2013.1
0.400	1136.5	0.900	1449.2	1.400	1776.0		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0150-1170-1450-1170
Design Head (m)	1.450
Design Flow (l/s)	11.7
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	150
Invert Level (m)	104.750
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.450	11.7	Kick-Flo®	0.913	9.4
Flush-Flo™	0.424	11.7	Mean Flow over Head Range	-	10.2

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.4	1.200	10.7	3.000	16.5	7.000	24.8
0.200	10.7	1.400	11.5	3.500	17.8	7.500	25.6
0.300	11.4	1.600	12.2	4.000	18.9	8.000	26.4
0.400	11.7	1.800	13.0	4.500	20.0	8.500	27.2
0.500	11.6	2.000	13.6	5.000	21.1	9.000	28.0
0.600	11.5	2.200	14.2	5.500	22.1	9.500	28.7
0.800	10.6	2.400	14.8	6.000	23.0		
1.000	9.8	2.600	15.4	6.500	23.9		

Appendix 7

Severn Trent Water

Developer Enquiry

WONDERFUL ON TAP

Severn Trent Water Ltd
Oxley Moor Road
Wolverhampton
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Contact: Jasveer Bullock
Contact No: 07970198053

Your ref:
Reference: 1163130

Noah George
PJS Consulting Engineers
Geneva II, Lakeview
Sherwood Business Park
Nottingham
NG15 0ED

31st October 2025

Dear Noah

Proposed Development: Land at Hunts Lane, Desford, Leicester, LE9 9GS (X – 447095, Y – 303764)

I refer to your 'Development Enquiry Request' for the development of 100 new dwellings at the above named site. Please find enclosed the sewer records that are included in the fee together with the Supplementary Guidance Notes which refer to surface water disposal from development sites.

Public Sewers in Site – Required Protection

Due to a change in legislation on 1 October 2011, there may be former private sewers on the site which have transferred to the responsibility of Severn Trent Water Ltd, which are not shown on the statutory sewer records but are located within your client's land. These sewers would also have protective strips that we will not allow to be built over. If such sewers are identified to be present on the site, please contact us for further guidance.

Foul Water Drainage

I can confirm we would not have any objections to the anticipated additional foul flows of approximately 1.56 litres/second 2xDWF for a gravity connection to the receiving 225mm diameter public foul sewer to manhole 2401 or downstream of that, as this will not have an adverse impact on the network.

Therefore, a connection to the public sewer (direct or indirect) is acceptable subject to a formal Section 106 sewer connection approval (see later.)

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Surface Water Drainage

If following testing, it is demonstrated that soakaways would not be possible on the site; satisfactory evidence will need to be submitted from the SI consultant **(extract or a supplementary letter**).

If soakaways are not possible, there is watercourse/drain located to the north of the site you would need to investigate for the disposal of the surface water run-off, at a rate of 5 litres /second /hectare (greenfield rate). This would satisfy SGN1 (enclosed), in accordance with Leicestershire Council SUDS Policy as the Lead Local Flood Authority (LLFA) for the area and statutory consultee in the planning process. Please see the guidance notes attached for further information.

This is subject to flows being agreed with the LLFA.

Further to the above, there is a surface water sewer to the south of your site, which is currently undergoing the Section 104 process – Adoption of Sewers, these are shown in green on the plan. As these are private you would require permission from the owner of the surface water sewer to connect onto their network and that they have capacity for the surface water flows from your development.

New Connections

For any new connections (including the re-use of existing connections) to the public sewerage system, the developer will need to submit Section 106 application forms. Our New Connections department are responsible for handling all such enquiries and applications. To contact them for an application form and associated guidance notes please call 0800 7076600 or you can download them from our website www.stwater.co.uk.

Please quote ref: 1163130 in any future correspondence (including e-mails) with STW Limited. Please note that 'Development Enquiry' responses are only valid for 6 months from the date of this letter.

Yours sincerely,

J Bullock

Jasveer Bullock (Mrs)
Network Solutions - Developer Services