Figure 3.19: Ditch 2


Left: Ditch 2 within close proximity to Pond 3, with no water present. Right: Ditch 2 behind a hedgerow in the centre.

View west, with hedgerow with Ditch 2 behind on the right of the image.

Overland Flow and Ditch 3

3.6.16 Surface water ponding was observed in the southeast corner of Parcel 2 (Figure 3.20), which overflowed onto Holyhead Road (A464) as surface water flooding. To the south of the A464, this water was collecting in Ditch 3 and stagnating. There is an open manhole that is connected to Ditch 4 which collects water from the road.

Figure 3.20: Surface Water Ponding and Flooding and Ditch 3 (continues over page)


Left: View to the northwest of Surface Water Ponding in the southeast corner of the Site. The ponding is behind the hedgerow. Right: Surface Water Flooding onto the pavement of the A464.

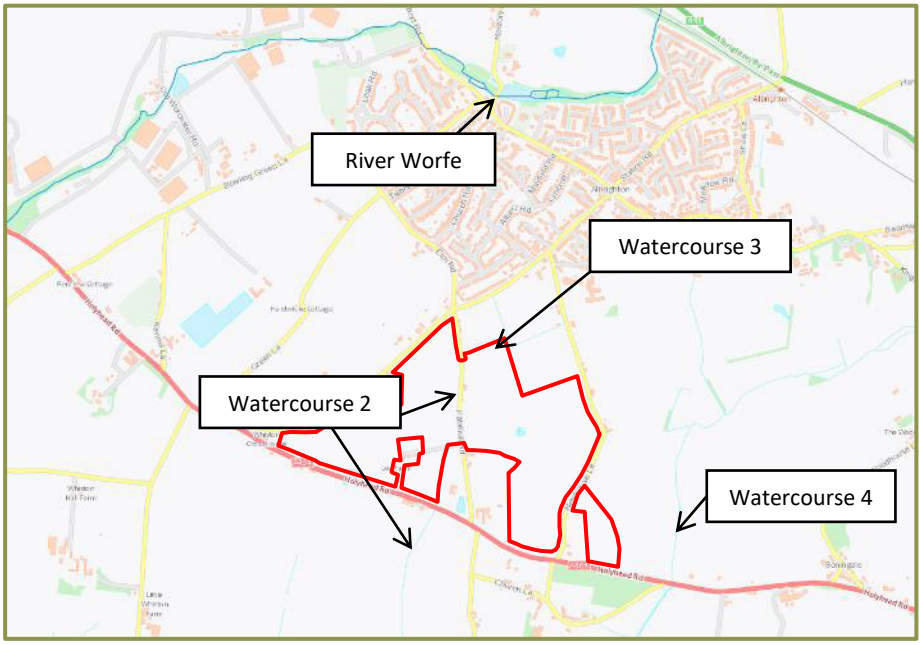
Left: Surface Water Flooding onto the pavement of the A464, and the A464 itself. Right: Open manhole that is connected to Ditch 3

Main River Map

3.6.17 The EA online main river map (Figure 3.21) identifies the River Worfe as a 'main river', which is a watercourse where flood risk work is carried out by the EA. This river is to the north of the site, beyond the village of Albrighton.

3.6.18 Watercourses 1-4 discussed are classified as 'ordinary watercourses', where flood risk work is carried out by the local drainage authority/riparian landowner.

Figure 3.21: Main River Map

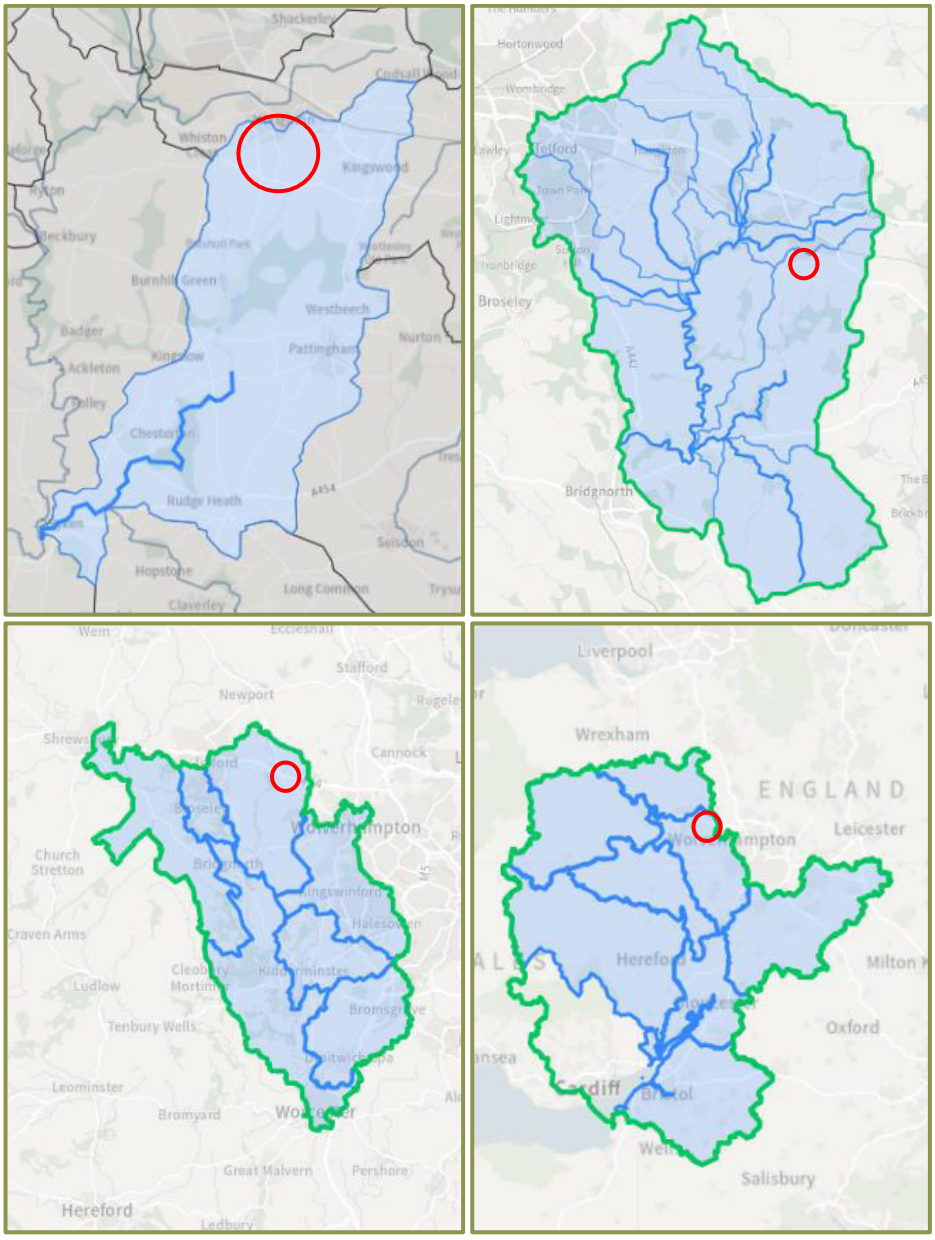


Contains Environment Agency information © Environment Agency and database right [2024].

EA Catchment Data Explorer Mapping

3.6.19 The Site resides within the Straford Brook – source to river Worfe Water Body Catchment (Figure 3.22), which is in the Worfe Operational Catchment, Severn Middle Worcestershire Management Catchment, and Severn River Basin District.

Figure 3.22: Catchment Data Explorer



Top Left: Straford Brook – source to river Worfe Water Body Catchment. Top Right: Worfe Operational Catchment. Bottom Left: Severn Middle Worcestershire Management Catchment. Bottom Right: Severn River River Basin District. Contains Environment Agency information © Environment Agency and database right [2024].

3.7 Sewerage Assets

Public Assets

3.7.1 Severn Trent Water asset plans (Appendix 3) show there is a Ø150mm combined gravity/lateral drain sewer flowing northeast beneath Cross Road to the north of the Site. There is also a manhole ('7400') in the centre of the Site.

3.8 Designated Sites

3.8.1 The online Defra Magic Map mapping shows there are no designated sites within the vicinity of the Site (Site of Special Scientific Interest [SSSI]).

4.0 Assessment of Flood Risk Sources

4.1 Potential Sources of Flooding

4.1.1 A summary of the potential sources of flooding and source is summarised in Table 4.1. Each source of flooding and level of risk is then assessed in further detail below.

Table 4.1: Potential Risk Posed by Flooding Sources

Flooding Source	Potential Flood Risk at Application Site (Yes/No)	Potential Source	Data Sources
Fluvial	Yes	Watercourse 1 and 2, Ditches 1-4	EA consultation response/data (Appendix 5) and EA Flood Zone mapping (Drawing 0003).
Tidal	No	None identified	EA consultation response/data (Appendix 5) and EA Flood Zone mapping (Drawing 0003).
Groundwater	Yes	Secondary B Aquifer (Designation) and Secondary (undifferentiated) Aquifer (Superficial)	Geosmart Groundwater (Drawing 0004), BGS Borehole Records (Appendix 6), and Soakaway Test Results/Groundwater borehole monitoring (Appendix 7).
Surface Water	Yes	Poor permeability and Site topography	EA Complex Surface Water Flood Mapping (Drawings 0006.1 to 0006.2).
Sewers and Mains	No	Public/private sewers	Severn Trent Water asset plans (Appendix 3), and topographic survey (Appendix 2).
Infrastructure Failure	Yes	Pond failure	OS mapping (Drawings 0001 to 0002) and EA online mapping: Long Term Flood Risk Assessment for Locations in England.

4.2 Fluvial Flooding

EA Flood Zone Mapping

4.2.1 The EA Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, since these can be breached, overtopped and may not be in existence for the lifetime of a development.

4.2.2 The EA Flood Zone mapping (Drawing 0003) shows the Site is in Flood Zone 1, which is land outside the 1 in 1000-year 0.1% Annual Exceedance Probability [AEP]) extent of fluvial (river) flooding, at 'low' risk.

SFRA Mapping

4.2.3 The Shropshire Level 1 SFRA mapping was reviewed, and the following was identified:

- The SFRA mapping shows there is a main river to the north of the Site to the north of the town of Albrighton and shows there is a detailed river network flowing through the centre of the Site.

- There are small sections of riparian woodland along the northern boundary, in the centre, and in the southern extent of the Site. Most of the Site is an area of catchment woodland – where only the southeastern extent and a band of land in the western extent is not covered. The Site does not have a floodplain woodland or floodplain reconnection, and there are areas throughout the Site with attenuation of 3.3% AEP and attenuation of 1% AEP.
- There are multiple areas of surface water flooding in the 3.3%, 1% and 0.1% AEP where surface water flooding mapped is similar to that of Drawings 0006.1 to 0006.4.
- Most of the Site is in an area susceptible to groundwater flooding with 25% to <50% of the Site at risk. There is an area where in southeastern corner of the Site that extends into a mapped square where 50% to <75% of land is at risk of flooding.

EA Correspondence

4.2.4 Correspondence with the EA (Appendix 5) confirms that the Flood Map for Planning shows the Site is not at risk of fluvial flooding but is at risk from surface water flooding.

4.2.5 Correspondence also confirms no records of historic flooding events on the Site from fluvial, surface water, groundwater, sewers or infrastructure failure.

Flood Defences

4.2.6 The EA Reduction in Risk of Flooding from Rivers and Sea online mapping shows the Site does not benefit from flood defences.

Flood Risk Summary

4.2.7 The risk of fluvial flooding is assessed as negligible. There is however a residual risk of fluvial flooding from Watercourses 1, 2 and 3 and Ditches 1-3.

4.2.8 Measures against residual fluvial flooding are discussed in Section 5.

4.3 Tidal Flooding

EA Flood Zone Mapping

4.3.1 OS mapping (Drawings 00001 to 002) shows the Site is not located close to tidally affected flooding sources.

EA Flood Zone Mapping

4.3.2 The EA Flood Zone mapping (Drawing 0003) shows the Site is in Flood Zone 1, which is land outside the 1 in 1000-year 0.1% Annual Exceedance Probability [AEP]) extent of tidal (sea) flooding, at 'low' risk.

Flood Risk Summary

4.3.3 The risk of tidal flooding is assessed as negligible.

4.4 Groundwater Flooding

Introduction

4.4.1 Groundwater flooding occurs when subsurface water emerges either at surface or in made ground or in subsurface structures such as basements and services ducts. It occurs as diffuse

seepage, emergence from new point source springs or an increase in flow from existing springs. It results from aquifer recharge from infiltrating rainfall, from sinking streams entering aquifers from adjacent non-aquifers, or from high river levels or tides driving water through near surface deposits. It tends to occur with a delay following rainfall and can last for several weeks or months. Groundwater flooding or shallow water tables also prevent or reduce infiltration and so can worsen surface water flooding.

Flood History

4.4.2 Consultation with the LLFA reported no historical groundwater flooding incidents within the Site boundary.

Geosmart Groundwater Flood Risk Map

4.4.3 The Geosmart 1 in 100-year groundwater flood risk map (Drawing 0004) shows the Site is at negligible risk of groundwater flooding and falls within Risk Class 4 (Table 4.2).

4.4.4 The risk of groundwater flooding is likely to be associated with the Sandstone bedrock. Though, a layer of mudstone is likely preventing deep upwellings of groundwater in the sandstone. Instead, saturation excess of overlying soils is perched on the mudstone unit increasing the likely incidence of shallow groundwater.

4.4.5 Mapped classes combine understanding of likelihood, model and data uncertainty, and possible severity. Likelihood is ranked according to whether we expect groundwater flooding at a site due to extreme elevated groundwater levels with an annual probability of occurrence greater than 1%, considering model and data uncertainty. Severity relates to expectations of the amount of property damage or other harm that groundwater flooding at that location might cause (Table 4.2).

Table 4.2: Groundwater Flood Risk Classification (continues over page)

Risk Class	Probability of Groundwater Flooding	Effect
4: Negligible	Annual probability less than 1%.	Negligible unless unusually sensitive use.
3: Low	Annual probability greater than 1%.	Remote possibility of damage to property or harm to sensitive receptors Flooding likely to be limited to seepages and waterlogged ground, damage to basements and subsurface infrastructure, and should pose no significant risk to life. Surface water flooding may be worsened.
2: Moderate	Annual probability greater than 1%.	Significant possibility of damage to property or harm to other sensitive receptors at or near this location. flooding is likely to be in the form of shallow pools or streams. Surface water flooding and failure of drainage systems may be worsened when groundwater levels are high.
1: High	Annual probability greater than 1%.	Groundwater flooding will occur which could lead to damage to property or harm to other sensitive receptors at or near this location. Flooding may

Risk Class	Probability of Groundwater Flooding	Effect
		result in damage to property, road, or rail closures and, in exceptional cases, may pose a risk to life. Surface water flooding and failure of drainage systems may be worsened when groundwater levels are high.

Borehole Records and Soakaway Testing Results

4.4.1 BGS online borehole mapping recorded groundwater ingress at a depth of 48m bgl in the superficial deposits.

4.4.2 Soakaway testing did not encounter groundwater ingress at depths up to 2m bgl.

4.4.3 Borehole groundwater monitoring recorded groundwater between 0.66mbgl to 1.35mbgl in October 2024.

4.4.4 The groundwater monitoring has thus far shown evidence of shallow groundwater beneath the Site. This is likely the result of perched surface water saturation in the overlying sandy soils above the mudstone layer at ~2mbgl. With adequate measures, this will not present a risk to the proposed development.

4.4.5 This information should satisfy comments raised by the LLFA (Appendix 4 – point 2) in relation to groundwater flood risk.

Flood Risk Summary

4.4.6 The risk of groundwater flooding is assessed as negligible.

4.5 Surface Water Flooding

Introduction

4.5.1 Surface water flooding occurs following rainfall on ground where infiltration rates are less than the rainfall precipitation rate. This can occur when either:

- Soils or ground materials are naturally of low permeability or have been compacted (infiltration excess runoff).
- Soils or ground materials are saturated from previous rainfall either directly or from upslope (saturation excess runoff and return flow) or from high groundwater levels.

Flood History

4.5.2 Consultation with the LLFA reported no historical surface water flooding incidents within the Site boundary.

EA Complex Surface Water Flood Mapping

4.5.3 The EA Complex Surface Water Flood Mapping (Drawings 0006.1 to 0006.4) shows multiple areas of the Site are located inside the mapped extent of surface water flooding. There are significant flow pathways and areas of ponding throughout the Site.

4.5.4 In the northeastern extent of the Site there is a large area of ponding associated with the 1 in 30-year, 100-year and 1000-year events. Flood depths are up to 0.90m during the extreme 1 in 1000-year event, with velocity up to 1.00m/s, and flood hazard at 'Low Hazard' (0.50-0.75)

to 'Significant Hazard' (1.25-2.00). In the eastern extent of the Site there is another large area of ponding associated with the 1 in 30-year, 100-year and 1000-year events. Flood depths are up to up to 0.30m during the extreme 1 in 1000-year event, with velocity at 0.50m/s and occasionally 1.00m/s, and flood hazard at 'Low Hazard' (0.50-0.75) to 'Significant Hazard' (1.25-2.00). Throughout the Site there are numerous small areas of ponding that are associated with ponds within the Site. There are flood depths of >1.20m during the extreme 1 in 1000-year event, with velocity up to 1.00m/s and flood hazard at 'Low Hazard' (0.50-0.75) to 'Significant Hazard' (1.25-2.00).

4.5.5 Within the centre of the Site, there is a large surface water flow pathway flowing from north to south resulting in further ponding in the south of the Site. This is associated with the 1 in 30-year, 100-year and 1000-year events. Flood depths in the north are up 0.15m whereas depths in the south are up to 0.90m during the extreme 1 in 1000-year event. The velocity in the north is up to 1.00m/s, and in the south is up to 0.5m/s and occasionally 1.00m/s. Therefore, the flood hazard for the north is at 'Low Hazard' (0.50-0.75) and for the south is 'Low Hazard' (0.50-0.75) to 'Significant Hazard' (1.25–2.00). In the western extent of the Site there is a smaller surface water flow pathway flowing from north to south associated with the 1 in 30-year, 100-year and 1000-year events. Flood depths in the north are up to 0.15m whereas depths in the south are up to 0.30 during the extreme 1 in 1000-year event. The velocity is up to 1.00 m/s, with the flood hazard at 'Low Hazard' (0.50-0.75) to 'Moderate Hazard' (0.75-1.25).

4.5.6 Surface water ponding is generated by the Site topography when the underlying soils become saturated. Surface water flooding will be the dominant source of flooding in this area of the Site.

Direct Rainfall Modelling

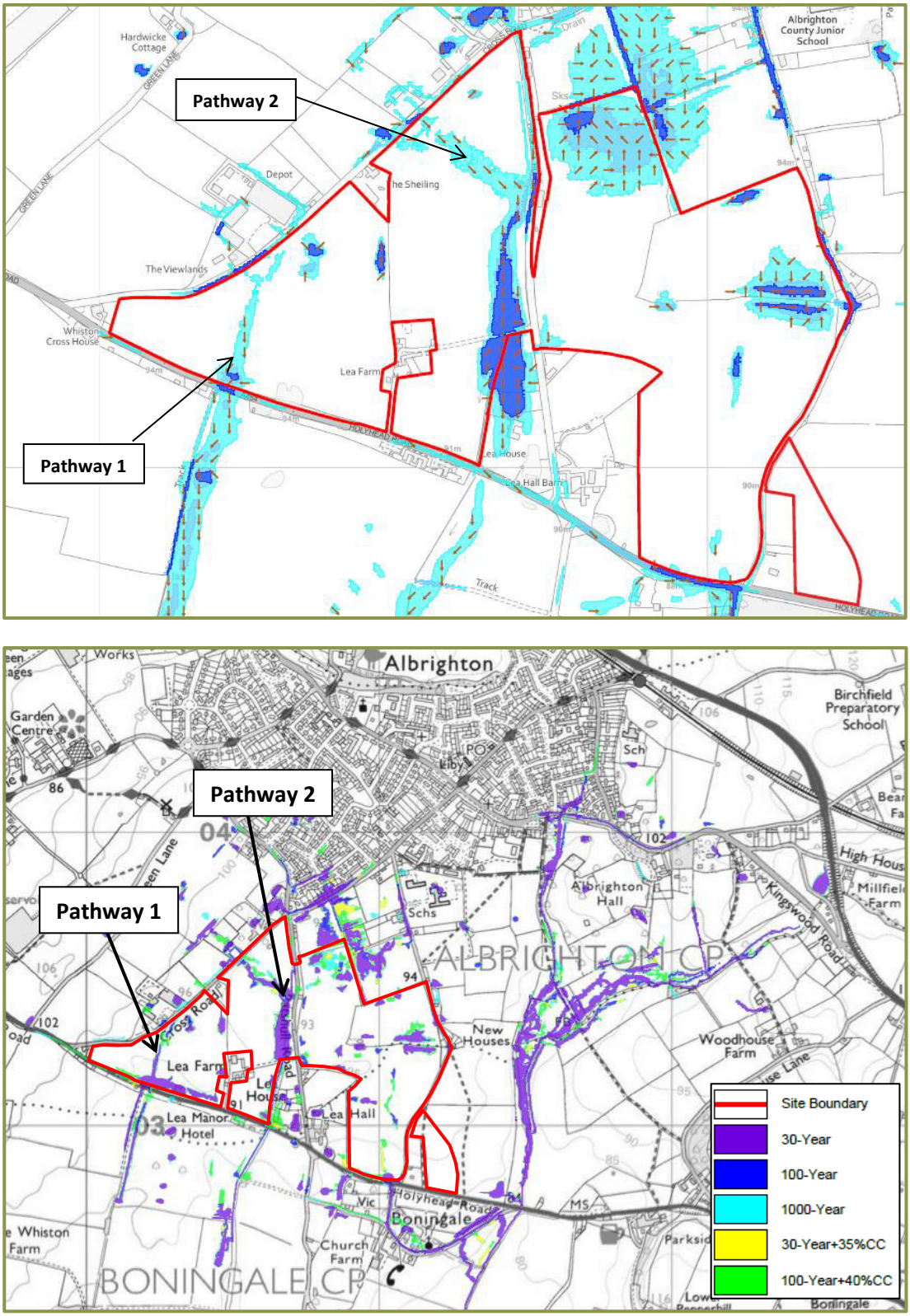
4.5.7 Due to the EA surface water flood risk mapping assessment of the Site showing the presence of flow pathways entering the site from external land, it was prudent to undertake a direct rainfall modelling assessment, firstly to confirm this baseline risk, and provide the opportunity to propose control measures for such flooding to manage the risk. Furthermore, the LLFA raised comments in a letter regarding the application (Appendix 4 – point 2) calling for 'detailed catchment analysis to demonstrate a full understanding of these flood risks'.

4.5.8 The modelling exercise is an opportunity to ensure the most accurate topographic information (sourced from the survey as evidenced in Appendix 2) is used when assessing the surface water risk at the Site. It also provides greater accuracy in the modelled rainfall event for the specific area of the Site and greater granular detail on the incidence of ponding/flow pathways.

4.5.9 The direct rainfall modelling exercise is detailed in Enzygo report SHF.710.011.HY.R.002.A which is submitted separately to this FRA. Below is the summary of that assessment including figures showing the output of the works demonstrating that the proposed control measures are suitable for the development. The modelling was undertaken according to industry accepted standards for such work. This section only seeks to summarise the results of the work. The modelling report as cited above should be read in conjunction with this report.

4.5.10 Figure 4.1 below demonstrates the baseline assessed by Enzygo vs the EA mapped risk. It broadly confirms the flood outlines (in particular in relation to size and location of flow pathways affecting the Site).

Figure 4.1: Direct rainfall model baseline assessment

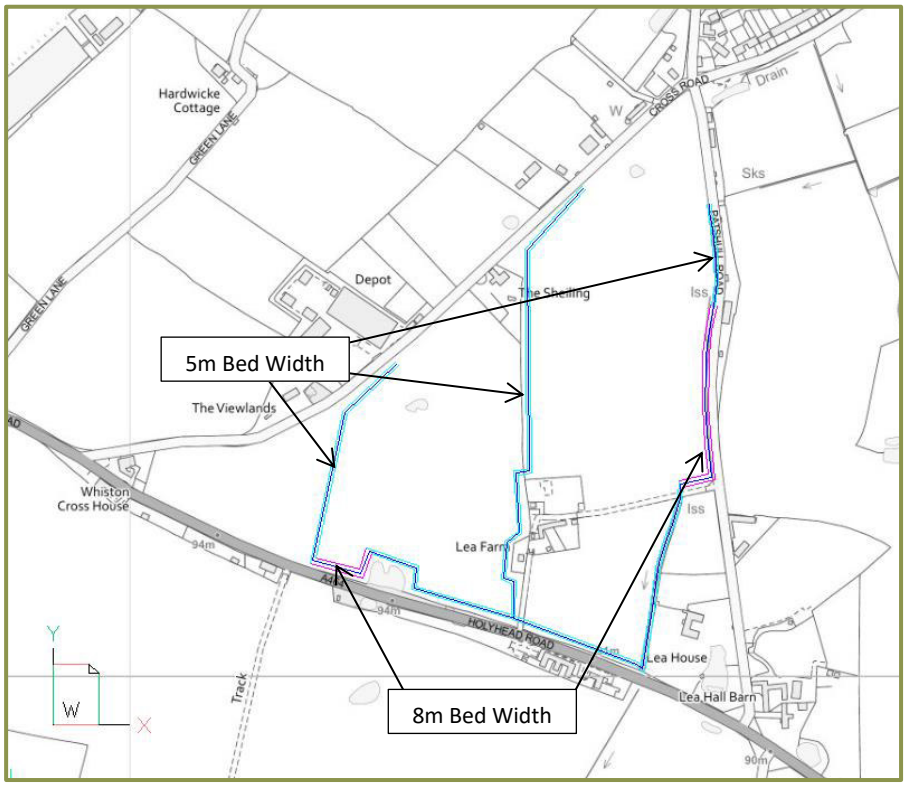


Note – Top figure is EA mapped surface water risk. Bottom figure is Enzygo direct rainfall model baseline output

4.5.11 The model was then run for a 'proposed scenario', which included the following known and proposed features to control the extreme (1 in 1000-year) rainfall event:

- Insertion of an existing highway ditch along Patshull Road as identified in the site walkover, detailed in Section 3 of this report (Watercourse 1). The existing ditch has a raised embankment on the verge of the highway which prevents highway exceedance from entering the ditch. This ditch has been represented in the model to allow this water into the ditch. It also has a southerly connection inserted to represent flows crossing the A464 Holyhead Road to the south. The EA mapping does not account for such culverted connections.
- Insertion of a culvert connection for Watercourse 3, to represent culvert flows routing west to Patshull Road and flowing south in piped flow (assumed 600mm based on onsite measurements of the entry) beneath Patshull Road and assuming its connection to the wider watercourse network south of A464 Holyhead Road. The EA mapping does not account for such culverted connections.
- Insertion of a culvert connection for Watercourse 2 (assumed size of 300mm diameter) as it crosses south under the A464 Holyhead Road. The EA mapping does not account for such culverted connections. The proposed improvements will include the addition of a 0.50m (width) x 1.00m (height) rectangular culvert to ensure maintenance of invert levels and cover levels of the highway while doubling flow capacity.
- Limited land raising (land reinforcement) as outlined in the indicative drainage drawing SHF.710.011-ENZ-XX-DR-D-0001, which is required to aid pathway water in reaching existing/new ditches proposed.
- New interception ditches in Parcel 1 to capture Pathways 1 and 2 and convey these flows, in-channel, south through the Site to the Watercourse 2 (Figure 4.2).

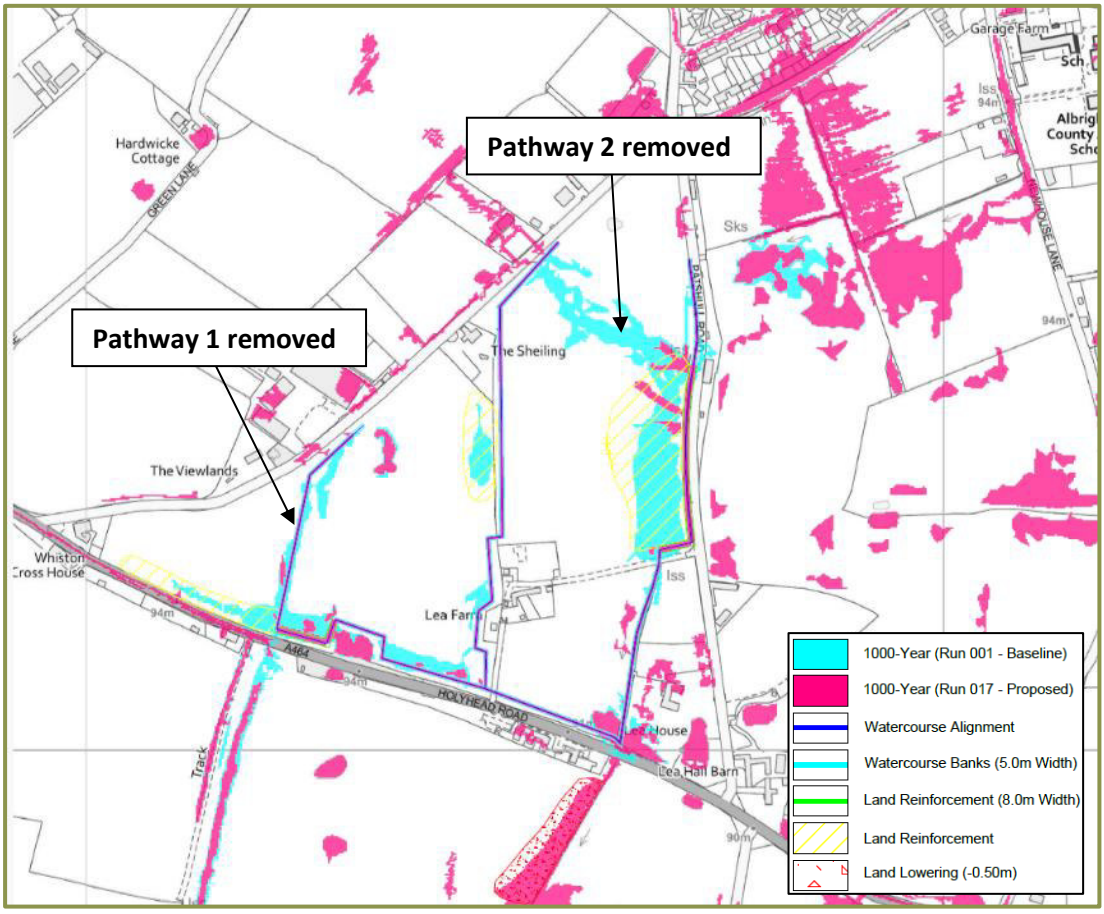
Figure 4.2: Interception Ditches Proposed in Parcel 1 to control Pathways 1 and 2



4.5.12 The model results with the above listed control measures considered, results in the control of the flow pathways (Pathways 1 and 2) as shown in Figure 4.3 below. Mapped flooded areas

as depicted in the EA risk mapping for the pathways are removed and redirected to protect proposed development. The control measures allow development in areas which would otherwise be unavailable if they were instead avoided. These control measures, are in some respects maintenance of the existing ditch network, as oppose to new measures.

Figure 4.3: Modelled Baseline Surface Water Flooding vs Modelled Surface Water Flooding with the Addition of Control Measures (Proposed)



4.5.13 With the implementation of the control measures, which are in essence maintenance to the existing network as opposed to new control measures, flow pathways are controlled and flooding issues experienced on Patshull Road are vastly improved with the removal of Pathways 1 and 2. All that remains in the surface water flood mapping are areas of surface water ponding, which are created by rainfall directly on the site, as opposed to water flowing into the Site.

4.5.14 The mapped surface water ponding can be easily controlled therefore by implementation of a robust drainage strategy, as described in Section 6 of this report and represented in Drawing SHF.710.011-ENZ-XX-DR-D-0001. Both the outline drainage strategy and the proposed control measures for flow pathways as discussed in this report have influenced the final indicative layout for the scheme.

Flood Risk Summary

4.5.15 The risk of surface water flooding is assessed as low to high risk where there is surface water ponding and overland flow pathways.

4.5.16 Measures controlling surface water flooding are evidenced and summarised in Section 5.

4.6 Sewer Flooding

Introduction

4.6.1 Sewer flooding occurs when urban drainage networks become overwhelmed after heavy or prolonged rainfall due to restrictions or blockage in the sewer network or if the volume of water draining into the system exceeds the sewer design capacity.

4.6.2 New adoptable sewers are built to have a minimum design standard up to and including the 1 in 30-year rainfall event. Older sewers were not designed to any standard. Modern sewer systems will only surcharge during rainstorm events with a return period greater than 1 in 30-years (e.g. 1 in 100-years).

Asset Plans

4.6.3 Severn Trent Water asset plans (Appendix 3) show there is a Ø150mm combined gravity/lateral drain sewer flowing northeast beneath Cross Road to the north of the Site. There is also a manhole ('7400') in the centre of the Site. Any surcharged flows would be shallow (<150mm) and would shed overland, following the localised topography (Drawing 0007).

Flood Risk Summary

4.6.4 The risk of flooding from sewers is assessed as negligible.

4.7 Flooding from Infrastructure Failure

Reservoir Failure

4.7.1 The EA online flood mapping shows the Site is outside the extent of flooding sourced from reservoirs. The risk of flooding from reservoirs is assessed as negligible.

4.7.2 Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, the EA ensure that reservoirs are inspected regularly, and essential safety work is carried out.

Flood Risk Summary

4.7.3 The risk of flooding from reservoir failure is assessed as negligible.

Pond

4.7.4 Multiple ponds have been identified: Pond 1, Pond 2, Pond 3, and Pond 4. All are small and sunken.

Flood Risk Summary

4.7.5 The risk of flooding from pond failure is assessed as negligible, and low where the ponds are located.

Highway Drainage

4.7.6 During the walkover in October 2024, multiple gullies were observed along Holyhead Road (A464). The flow pathways within the east of the Site likely flow into these gullies. Flows from these drains would shed away from the Site to the south.

Flood Risk Summary

4.7.7 The risk of flooding from highway drains is assessed as negligible.

5.0 Planning and Flood Risk

5.1 Introduction

5.1.1 The main steps to be followed in addressing flood risk are set out below:

5.2 Assess

5.2.1 As per Paragraph: 003 Reference ID: 7-003-20220825 (Revision date: 25 08 2022) of NPPG ID7, we have prepared a site-specific FRA to assess flood risk from all sources to the Development. A summary is included below:

- The risk of fluvial flooding is assessed as negligible. There is however a residual risk of fluvial flooding from Watercourse 1 and Watercourse 2 and Ditches 1-4.
- The risk of surface water flooding is assessed as negligible for some of the Site, with multiple areas of low to high risk where there is surface water ponding and overland flow pathways.
- Flood risk from all other sources is assessed as negligible.

5.3 Decision Making Process

5.3.1 As per Paragraph: 004 Reference ID: 7-004-20220825 (Revision date: 25 08 2022) of NPPG ID7, where an assessment shows that flood risk is a consideration for a plan or development proposal, the process is set out below:

Avoid

5.3.2 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.

5.3.3 As per the National flood risk standing advice for local planning authorities (‘*When development is exempt from the sequential test’*)[29],

“A development is exempt from the sequential test if it is a:

- *Householder development like residential extensions, conservatories or loft conversions*
- *Small non-domestic extensions with a footprint of less than 250 square metres*
- *Change of use (except changes of use to a caravan, camping or chalet site, or to a mobile home or park home site)*

A development is also exempt from the sequential test if it is a development on a site allocated in the development plan through the sequential test and:

- *The proposal is consistent with site’s allocated use*

[29] https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities#:~:text=A%20development%20is%20exempt%20from,extensions%2C%20conservatories%20or%20loft%20conversions

- *There have been no significant changes to the known level of flood risk to the site, now or in the future, which would have affected the outcome of the test*

You may not need a sequential test if development can be laid out so that only elements such as public open space, biodiversity and amenity areas are located in areas at risk of any source of current or future flooding.*"*

5.3.4 Subject to the below avoidance measures, the Sequential Test is not required:

- Sequentially develop the Site, limiting the built development outside the mapped extent of surface water flooding associated with overland flow pathways (see control measures which have rerouted surface water within the Site).
- Set the surface water outfall from the proposed development at an appropriate height (i.e. +300mm) above the bed level of the receiving ditch/watercourse.
- Limit the number of highway crossings along the route of existing/proposed ditches. Culvert crossings would need to be sized to convey the 1 in 100-year plus climate change event, with a freeboard allowance. Vertical avoidance of flooding will then be achieved by any proposed carriageway crossings.
- No below ground development (i.e. basements) should be proposed for buildings onsite to avoid shallow perched groundwater.

5.3.5 Further to the above, the following measures are recommended in line with statutory requirements / following best practice:

- Provide a 5m easement free from development along either side of the onsite/bounding ditches and watercourses. This easement would provide access for inspection and maintenance purposes, including vehicle access.
- Provide a development free easement around the onsite ponds.

Control

5.3.6 We recommend the following control measures to manage the risk of flooding to and from the development:

- Adoption of a surface water management strategy (see Section 6) to deal with modelled surface water ponding and reduce saturation of shallow geology which currently results in perched groundwater at depths of <2mbgl.
- Implementation of proposed interception ditches designed to capture surface water flow pathways entering the western Site parcel (Parcel 1) from the northern and western boundaries and route the 1 in 1000-year flows in-channel to Watercourse 2.
- Upgrade the culvert connection for Watercourse 2 to allow better conveyance of water across the A464 Holyhead Road.
- Limited land raising (land reinforcement) in areas of Parcel 1 to ensure flow pathway water stays in new cut interception ditches.
- Undertake maintenance activities to keep the ditches/culverts clear from debris and overgrown vegetation to maintain the conveyance of the channels.

Mitigate

5.3.7 Based on the above avoidance measures, no mitigation measures are proposed.

Manage Residual Risk

5.3.8 The below measures are recommended to manage the identified residual flood risk:

- Set finished floor levels a minimum of +150mm above external levels.

5.4 Summary

5.4.1 Table 5.1 summarises the risk of flooding, both without and with recommended measures.

Table 5.1: Risk of Flooding and Recommended Measures

Source of Flooding	Risk of Flooding	Risk Without Measures	Recommended Measures	Risk to Development with Measures
Fluvial – Watercourses 1 -2, Ditches 1-4.	Negligible for most of the Site with residual risk from Watercourse 1, Watercourse 2 and Ditches 1-4	Negligible for most of the Site with residual risk from Watercourse 1-2 and Ditches 1-4.	Avoid	Negligible
Tidal	Negligible	Negligible	N/A	Negligible
Groundwater - Secondary B Aquifer (Bedrock) and Secondary (undifferentiated) Aquifer (Superficial)	Negligible	Negligible	N/A	Negligible
Surface Water - Poor permeability and Site topography	Negligible for most of the Site but Low to high where there is surface water ponding and overland flow pathways.	Negligible for most of the Site but Low to high where there is surface water ponding and overland flow pathways.	Control	Negligible
Sewers and Mains – None identified	Negligible for most of the Site but Low for flow pathways associated with surcharged/overland flows.	Negligible for most of the Site but Low for flow pathways associated with surcharged/overland flows.	Avoid	Negligible
Infrastructure Failure – Pond Failure	Negligible for most of the Site and low where the ponds are located	Negligible for most of the Site and low where the ponds are located	Avoid	Negligible

Key: Green - Negligible, Yellow - Low, Orange - Medium and Red - High; based on risk with without/with recommended measures from each flooding source.

5.5 Flood Guidance and Sequential Test

5.5.1 The proposal is for a residential development. The PPG ID: 7 (not included in this report) classifies the proposed use as 'more vulnerable'.

5.5.2 The EA Flood Zones and acceptable development types are listed in Table 5.2. All development types (including residential uses) are acceptable in Flood Zone 1 (low risk). Subject to the

above measures, the Sequential Test does not apply, and the Exception Test would not be required as indicated in Table 5.3.

Table 5.2: EA Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land use
Zone 1	Low	Less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).	All development types generally acceptable.
Zone 2	Medium	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%) in any year.	Most development type are generally acceptable.
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.	Some development types not acceptable.
Zone 3b	'Functional Floodplain'	Land where water must flow or be stored in times of flood. SFRAs should identify this zone (land which would flood with an annual probability of 1 in 30 (3.33%) or greater in any year or is designed to flood in an extreme (0.1% flood, or at another probability to be agreed between the LPA and the EA, including water conveyance routes).	Some development types not acceptable.

Note: The Flood Zones are the current best information on the extent of the extreme flood from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. The identified risk of fluvial flooding is highlighted green.

Table 5.3: Vulnerability and Flood Zone 'Compatibility' as Identified in Table 2 of PPG ID: 7

Flood Risk Vulnerability classification (see Table 1 of PPG ID: 7)	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	Yes	Yes	Yes	Yes	Yes
Zone 2	Yes	Yes	Exception test required	Yes	Yes
Zone 3a	Exception test required	Yes	No	Exception test required	Yes
Zone 3b 'Functional Floodplain'	Exception test required	Yes	No	No	No

Key: Yes: Development is appropriate, No: Development should not be permitted. The identified risk of fluvial flooding is highlighted green.

6.0 Surface Water Drainage

6.1 Introduction

6.1.1 Consideration of flood issues is not confined to the floodplain. This is recognised in the NPPF and associated guidance where all proposed development of 1ha or more in Flood Zone 1 and so outside the floodplain nevertheless requires an FRA. The alteration of natural surface water flow patterns through development can lead to problems elsewhere in a catchment, particularly flooding downstream, and the replacement of permeable vegetated areas by low-permeability roofs, roads and other paved surfaces will increase the speed, volume, and peak flow of surface water runoff. So, the NPPF and associated guidance require an FRA for all proposed development of 1ha or more outside the floodplain in Flood Zone 1.

6.1.2 A surface water management strategy for the development is proposed to manage and reduce the flood risk posed by surface water runoff from the Site. The developer will be required to ensure that any scheme for surface water management should build in enough capacity for the entire Site.

6.1.3 The surface water drainage arrangements for any development Site should be such that the volume and peak flow rates of surface water leaving a developed Site are no greater than the rates prior to the proposed development unless specific off-Site arrangements are made and result in the same net effect.

6.1.4 An assessment of the surface water runoff rates was undertaken to determine the surface water options and attenuation requirements for the Site.

6.1.5 The land use is comprised of multiple agricultural (arable) fields, with Patshull Road orientated north to south splitting the Site in half (Figures 3.1 and 3.2).

6.1.6 The Site is underlain by low permeable (clayey) soils and bedrock. Drainage is predominantly via overland flow, following the topography of the Site (falling southeast from 95m AOD) to the topographic low point (83m AOD), with a small amount of infiltration to bedrock, and throughflow to watercourse.

6.2 Developable and Impermeable Areas

6.2.1 An allowance of 55% impermeable area (inclusive of 10% for urban creep) was applied to the 21.2ha developable area. The existing and proposed impermeable areas are summarised in Table 6.1.

6.2.2 The proposed development will increase the impermeable surfaces and so increase the amount of runoff.

Table 6.1: Impermeable Area

Area	Existing Buildings and Hardstanding	Proposed Buildings and Hardstanding	Difference
Area (ha)	0.0	21.2	+100
Percentage of Total Site Area (%)	0.0	45	+45

6.3 Greenfield Runoff Rates

6.3.1 An assessment of greenfield runoff rates was undertaken to determine the attenuation requirements for the proposed development.

6.3.2 The runoff rates were calculated using the HRWallingford UKSuDS online tool, with FEH method inputs (descriptors obtained from the FEH webservice[30]). This is a recommended methodology for Sites up to 50ha in area and the approach is in line with the current 'industry best practice' guidelines as outlined in the Interim Code of Practice for SuDS[31], and EA Report SC030219 - Rainfall runoff management for developments.

6.3.3 The following parameters were used in the runoff calculations:

- Developable Area: 21.2ha
- Average Annual Rainfall (SAAR): 683mm/year
- Region No.: 4
- BFIHOST19: 0.495

6.3.4 BFIHOST was updated to BFIHOST19 (November 2019) since a number of issues were identified with BFIHOST, which including a tendency to underestimate BFI in clay-dominated catchments.

6.3.5 BFIHOST19 is the baseflow index developed using the Hydrology of Soil Types (HOST) classification and is the baseflow proportion of the flow on average. It is estimated based on the daily mean flow data. Baseflow comprises water entering the watercourse through shallow subsurface flow and groundwater flow (mechanisms other than direct surface runoff); hence permeable soils and geology tend to yield a higher baseflow.

6.3.6 The Soilscapes online soils map viewer and Geology of Britain online map viewer identified the following, which were confirmed by soakaway testing trial pit logs and borehole logs (Appendix 7):

- Soils: Saturated sandy, silty gravelly soils
- Superficial Deposits: clayey Diamicton
- Bedrock: Mudstone atop Sandstone

6.3.7 BFIHOST19 value assigned by the FEH webservice is considered to replicate on-site conditions.

6.3.8 Table 6.2 shows the calculated greenfield runoff rates for the drainage sub-catchments forming the Site. Runoff calculations are included in Appendix 8.

[30] Centre for Ecology and Hydrology, Flood Estimation Handbook Web Service [https://fehweb.ceh.ac.uk/].
[31] Office of the Deputy Prime Minister, National SuDS Working Group (July 2004) Interim Code of Practice for Sustainable Drainage Systems [https://www.susdrain.org/files/resources/other-guidance/nswg_icop_for_suds_0704.pdf].

Table 6.2: Greenfield Runoff Rates

Annual Probability (Return Period, Years)	Greenfield Runoff (l/s) for each drainage catchment								
	A	B	C	D	E	F	G	H	I
QBAR	4.36	4.20	3.13	3.41	13.90	15.05	12.11	8.35	0.92
100% (1)	3.62	3.49	2.59	2.83	11.54	12.49	10.05	6.93	0.77
3.33% (30)	8.73	8.41	6.25	6.82	27.81	30.10	24.22	16.71	1.85
1% (100)	11.22	10.80	8.03	8.77	35.73	38.68	31.13	21.47	2.37
1% Plus Climate Change	15.71	15.12	11.24	12.28	50.02	54.15	43.58	30.06	3.32

Note: 40% climate change added. The 1 in 1-year, 30-year and 100-year annual probability events are of importance to the Water Companies and the EA when looking at sewage discharge and flood risk.

6.4 Surface Water Management Strategy

Hierarchy of Discharge

6.4.1 In accordance with requirement H3 of the Building Regulations 2010[32] rainwater runoff must discharge to one of the following, listed in order of priority:

1. ***An adequate soakaway or some other adequate infiltration system:*** The use of infiltration-based SuDS is not feasible due to low infiltration rates into the clayey soils and geology, as confirmed by testing (undertaken October 2024, Appendix 7.
2. ***A watercourse:*** There are several ditches and watercourses located within the planning redline and wider ownership that provide viable discharge locations for surface water.
3. ***A sewer:*** There are no public surface water sewers located within the immediate vicinity of the Site.

6.4.2 The potential route to discharge surface water from the proposed development will be by gravity outfall to watercourses 2, 3 and 4 within the planning redline and wider ownership, as depicted in the attached drainage strategy (Drawing SHF.710.011-ENZ-XX-DR-D-0001).

6.4.3 The suitability of gravity connections was assessed using the topographic survey in Appendix 2, and confirmation of watercourse depths from the walkover (in particular Watercourse 3 – described in Section 3) where information is lacking in the topographic survey. The school development area will likely require some minor land raising (in the order of 0.5m) to facilitate gravity drainage to Watercourse 3. Its not possible to provide further detail on this matter as the proposed layout lacks building details, due to the outline level of the planning application. This information should be considered to address point 1 of the LLFA comments in Appendix 4.

[32] Office of the Deputy Prime Minister, The Building Regulations 2010, amended 2021 [https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h]

6.5 Sustainable Drainage Options (SuDS)

Choice of SuDS Options

6.5.1 Sustainable water management measures should be used to control the surface water runoff from the proposed development Site, thereby managing the flood risk to the Site and surrounding areas from surface water runoff. These measures will also improve the quality of water discharged from the Site.

6.5.2 Current guidance promotes sustainable water management using SuDS. Options applicable to this Site are identified in Table 6.3.

Table 6.3: SuDS Options

Green roofs	Infiltration basins
Water butts	Detention basins
Lined Permeable paving	Oversized pipes
Rainwater harvesting	Brown roofs
Filter strips	Swales
Wetland Areas	Cellular Storage

Note: *SuDS appropriate to the development are highlighted green.*

6.5.3 A hierarchy of SuDS techniques is identified[33]:

1. **Prevention** - the use of good Site design and housekeeping measures on individual Sites to prevent runoff and pollution (e.g. minimise areas of hard standing).
2. **Source Control** - control of runoff at or very near its source (such as the use of rainwater harvesting).
3. **Site Control** - management of water from several sub-catchments (including routing water from roofs and car parks to one/several large soakaways for the whole Site).
4. **Regional Control** - management of runoff from several Sites, typically in a detention pond or wetland.

6.5.4 Using SuDS as opposed to conventional drainage systems provides several benefits by:

- Reducing peak flows to watercourses or sewers and potentially reducing the risk of flooding downstream.
- Reducing the volumes and frequency of water flowing directly to watercourses or sewers from developed Sites.
- Improving water quality over conventional surface water sewers by removing pollutants from diffuse pollutant sources.
- Reducing potable water demand through rainwater harvesting.
- Improving amenity through the provision of public open spaces and wildlife habitat.

[33] CIRIA (2004) Report C609, Sustainable Drainage Systems – Hydraulic, Structural and Water Quality advice.

- Replicating natural drainage patterns, including the recharge of groundwater so that base flows are maintained.

SuDS Maintenance

6.5.5 Detention basins and geocellular storage will form the main attenuation features within the development Site.

6.5.6 Maintenance of the SuDS features would be in line with the SuDS Manual (CIRIA C753, 2015), as detailed in Figures 6.1 and 6.2. It is standard for SuDS features within a new development to be maintained by a private maintenance company unless the council adopt it. If the maintenance company goes into administration, the Site will be contracted to a new maintenance company. Residents will pay a surcharge to the maintenance company and a number of them would be appointed to its board. This will ensure maintenance throughout the lifetime of the development.

6.5.7 Details of other SuDS features and maintenance would be considered further at detailed design when a detailed layout has been produced. The level of detailed provided within this FRA should be sufficient at outline stage to demonstrate that SuDS would be deliverable.

Figure 6.1: Detention Basin Operation and Maintenance Requirements (Table 22.1 of the SuDS Manual)

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 6.2: Geocellular Storage Tank Operation and Maintenance Requirements (Table 21.3 of the SuDS Manual)

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Drainage Design Summary

6.5.8 Surface water runoff would be directed to the drainage system through drainage gullies located around the perimeter of the buildings and through contouring of the hardstanding areas.

6.5.9 Landscaped areas should be incorporated into the layout where possible, and the associated gardens of each unit will allow a proportion of the rainfall to infiltrate into the soil substrate.

6.5.10 Surface water will be directed to an onsite detention basins and geocellular storage, positioned to achieve a gravity fed connections to the onsite ditches/watercourses.

6.5.11 An outline surface water drainage layout is in Drawing SHF.710.011-ENZ-XX-DR-D-0001.

Attenuation Requirements

6.5.12 Attenuation storage is required to reduce the post-application surface water runoff from the Site to calculated greenfield runoff rates, up to and including the 1 in 100-year (+40%CC) rainfall event, assuming no infiltration losses.

6.5.13 The following input parameters were assumed in the calculations:

- Impermeable Area: 21.2ha (45%);
- Cv (proportion of rainfall forming surface water runoff): 100% summer, 100% winter;
- Infiltration losses: 0.0m/hour;
- With outfall: QBAR (Table 6.2 for each drainage subcatchment rate).

6.5.14 Given the size of the Site, it has been split into natural drainage parcels. The attenuation detention/geocellular storage details are outlined in Table 6.4 below. In some instances, assigned storage serves more than one catchment.

Table 6.4: Attenuation Requirements and Discharge Rates

Catchment	Developable Area (ha)	Impermeable Area (ha)	Discharge Rate (l/s)	Attenuation Volume (m^3)
A	2.09	1.37	4.4	1,255
B	2.44	1.34	4.2	1,212
C	1.77	0.98	3.1	908
D	1.98	1.09	3.4	986
E	6.00	4.37	13.9	3,966
F	5.92	5.33	15.1	4,940
G	7.03	3.85	12.1	3,495
H	4.47	2.62	8.4	2,389
I	0.29	0.29	1.0	277

6.5.15 The calculated runoff rates and attenuation volumes will be reviewed at detailed design stage. Attenuation calculations are included in Appendix 8.

6.6 Exceedance Routes

6.6.1 The detention basins/geocellular storage will be designed with a capacity up to a 1 in 100-year (plus 40% climate change) event, with a +300mm freeboard allowance, based on the appropriate QBAR restricted discharge rate for its assigned drainage catchment. This provides a betterment (reduction) in runoff when compared to existing undeveloped conditions, where runoff is uncontrolled across all return periods.

6.6.2 A storm event in excess of this design standard would be extreme and would cause the detention basins/geocellular storage to overtop (with no sudden deluge) and would then shed overland following the topography towards ditches/watercourses already outlined in the catchment descriptions provided in Section 3 of this report (Drawing 007). Such flows would be shallow and can be managed as outlined in management of residual risks described in Section 5; i.e. finished floor levels of new dwellings will be set above external levels, which will manage the residual risk of overtopping.

7.0 Foul Drainage Strategy

7.1 Proposed Strategy

7.1.1 It is proposed that foul flow will discharge to the local public foul sewer network via gravity connection.

7.1.2 In accordance with the Design and Construction Guidance[34] document, peak foul water discharge from a residential development is 4,000 litres per property per day. Using this method, peak foul flows are estimated to be 37 l/s from the 800-unit residential development. The calculated foul flow rate will be reviewed at detailed design stage. Flows will need to be pumped as the asset lies upslope of the Site. There may be more than one connection point required due to the size of the development.

7.1.3 A foul capacity check would likely result in an assessment of no current capacity for the proposed flows from such a development. There is a Ø150mm public combined sewer under Cross Road to the north of the Site (Appendix 3) which is unlikely to be sufficiently large enough to accept the proposed development.

7.1.4 A submission for capacity information for the combined sewer network was undertaken by a previous consultant in March 2024 and a letter received (also included in Appendix 3). They estimated foul flows to be ~10 l/s for 600 homes, added the scheme to their 'modelling tracker'. They would need detailed design information surrounding a pumped network design, proposed flows, phasing, location of connections and planned occupation date. These details can only be confirmed following a detailed design exercise which is beyond the scope of assessment to support this outline application.

7.1.5 As part of the reserved matters submissions, discussions can be had with Severn Trent Water on the phasing of development to allow upgrades by Severn Trent Water to the local network and treatment system. Water companies have an obligation to provide foul drainage to allow development where there is shortfall in capacity to accept such development. This may be undertaken as part of a Section 104 agreement or a Section 98 requisition.

7.1.6 All foul sewerage should be designed in accordance with Building Regulations Part H35. In areas where sewers are to be adopted by Severn Trent Water, sewerage should be designed in accordance with Design and Construction Guidance document and supplemented with additional standards provided by Severn Trent Water. An application to enter into a Section 104 agreement for sewer adoption must be made in writing to Severn Trent Water prior to any works commencing on Site. A connection point should be agreed with them at this time too.

[34] Water UK (published October 2019 and update May 2021). Design and Construction Guidance for foul and surface water sewers offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the Code") [SSG-App-C-Des-Con-Guide.pdf (water.org.uk)]

[35] HM Government (published 2002 and updated October 2015) The Buildings Regulations 2010 - Drainage and Waste Disposal: Part H [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/442889/BR_PDF_AD_H_2015.pdf].

8.0 Summary and Conclusions

8.1 Introduction

8.1.1 A site-specific Flood Risk Assessment (FRA) has been undertaken for a proposed residential development, located on a 47ha Site on land off Patshull Road, Albrighton, Wolverhampton, WV7 3BH.

8.2 Flood Risk

8.2.1 The risk of flooding is assessed as follows:

- The risk of fluvial flooding is assessed as negligible. There is however a residual risk of fluvial flooding from Watercourses 1, 2 and 3 and Ditches 1-3.
- The risk of surface water flooding is assessed as negligible for some of the Site, with multiple areas of low to high risk where there is surface water ponding and overland flow pathways
- The risk from all other sources is assessed as negligible.

8.3 Measures

8.3.1 Flood risk from identified sources can be reduced to a negligible or low and acceptable level through the following approach:

8.3.2 Subject to the proposed avoidance and control measures, the Sequential Test should not be required:

- Provide a 5m easement free from development along either side of the onsite/bounding ditches and watercourses. This easement would provide access for inspection and maintenance purposes, including vehicle access.
- Provide a development free easement around the onsite ponds.
- Adoption of a surface water management strategy (see Section 6) to deal with modelled surface water ponding and reduce saturation of shallow geology which currently results in perched groundwater at depths of <2mbgl.
- Implementation of proposed interception ditches designed to capture surface water flow pathways entering the western Site parcel (Parcel 1) from the northern and western boundaries and route the 1 in 1000-year flows in-channel to Watercourse 2.
- Upgrade the culvert connection for Watercourse 2 to allow better conveyance of water across the A464 Holyhead Road.
- Limited land raising (land reinforcement) in areas of Parcel 1 to ensure flow pathway water stays in new cut interception ditches.
- Undertake maintenance activities to keep the ditches/culverts clear from debris and overgrown vegetation to maintain the conveyance of the channels.

8.3.3 Further to the above, the FRA has recommended further measures in line with statutory requirements / following best practice. The FRA has explored mitigation and management measures for residual risk.

8.4 Flood Guidance

8.4.1 The proposed residential use is classified as more vulnerable. More vulnerable uses are considered acceptable in terms of flood risk in Flood Zone 1 (low risk). There is however a risk of flooding from other sources. Subject to the implementation of the above measures, the Sequential Test does not apply, and the Exception Test would not be required.

8.5 Site Drainage

Surface Water

8.5.1 The proposed development will increase the area of impermeable surfaces and therefore increase the amount of runoff without appropriate management.

8.5.2 Surface water runoff from the Site will be restricted to QBAR which offers a betterment to existing conditions with uncontrolled runoff across all return periods with the inclusion of volume control.

8.5.3 Surface water runoff from the proposed development would be attenuated on-site up to and including the 1 in 100-year event, plus 40% climate change.

8.5.4 A SuDS drainage scheme is proposed to manage excess runoff from the development, comprising detention basins/cellular storage designed to maintain runoff at pre-development rates, with an outfall to watercourses onsite (Watercourses 2 and 3) or within wider ownership (Watercourse 4).

Foul Water

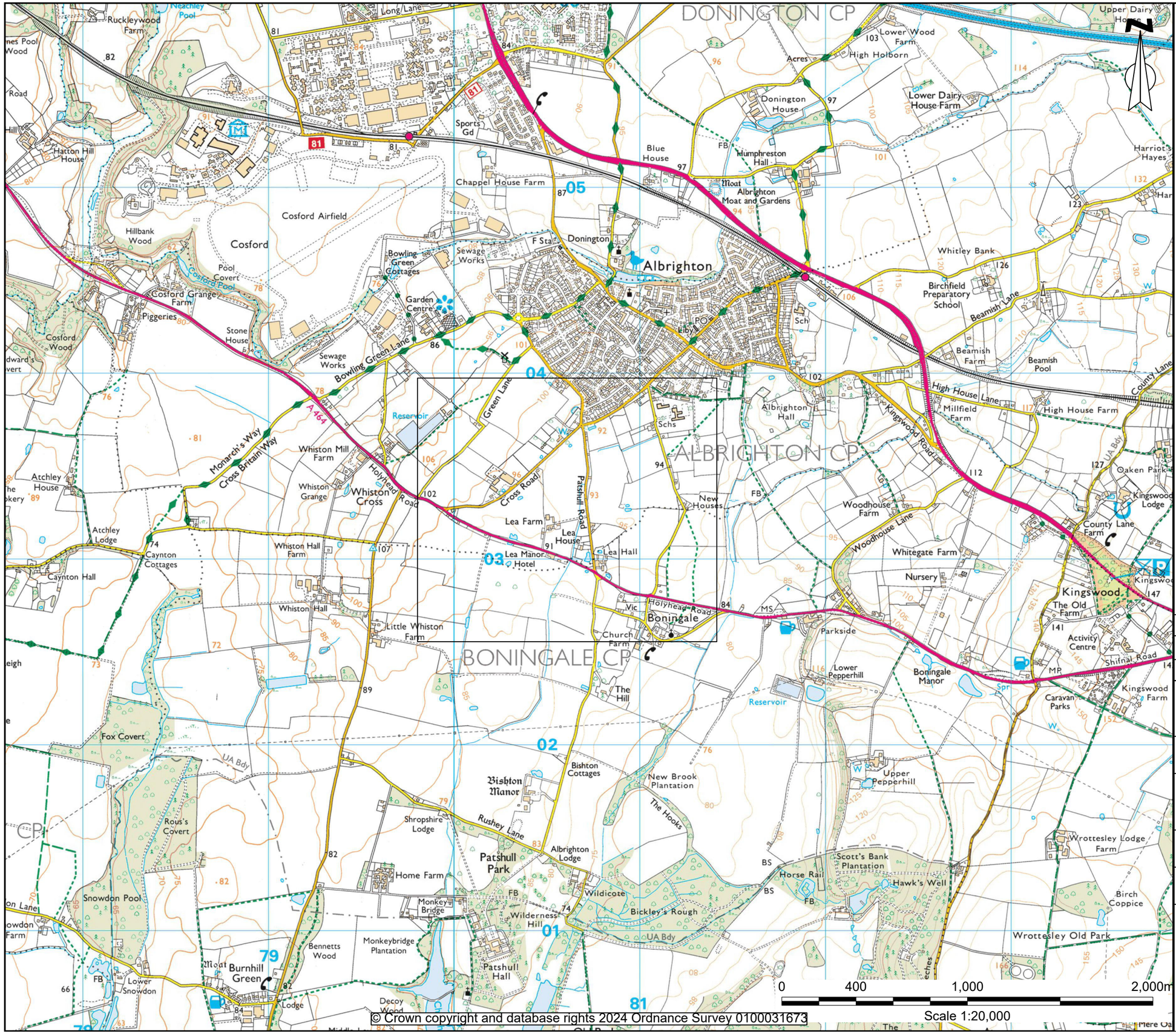
8.5.5 It is proposed that foul flows will discharge to the public foul network north of the Site via a pumping station and rising foul main. This connection will be subject to S104 agreement/S98 requisition accounting for proposed phasing of the development to align with likely upgrades required in the public sewer network to accept the post development flows. These issues can be resolved as part of reserved matters submissions.

8.6 Conclusion

8.6.1 This FRA demonstrates the proposed development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of national policy and guidance.

8.6.2 The development should therefore not be precluded on the grounds of flood risk, as well as surface water and foul drainage.

DRAWINGS



KEY:

Site Location

Rev	Date	Description			
P01	01.10.24	Issued for comment / approval	LW	CW	CW

Project
Albrighton South

Client
Boningale Homes Ltd

Drawing Title
Site Location Plan

Scale	Date	Status
1:20,000@A3	01.10.24	Preliminary

DWG No. SHF710011-ENZ-XX-XX-DR-Y-0001 **Revision** P01

Bristol 01454 269 237
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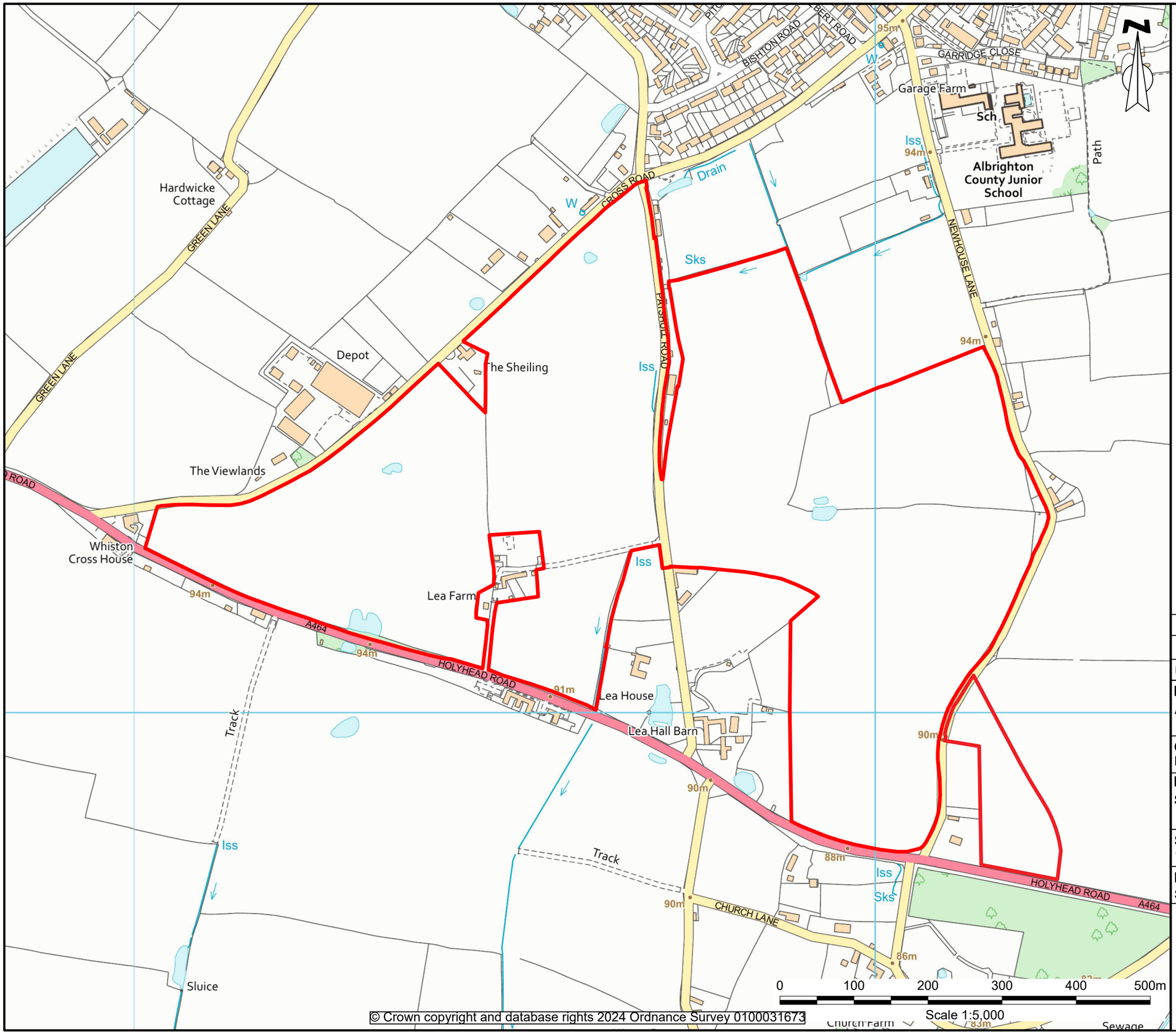

KEY:

- Site Boundary
- Surface Water Features

Rev	Date	Description	DRA	CHK	APP
P01	01.10.24	Issued for comment / approval	LW	CW	CW

Project
Albrighton South

Client
Boningale Homes Ltd

Drawing Title
Surface Water Features

Scale	Date	Status
1:5000@A3	01.10.24	Preliminary

DWG No. SHF710011-ENZ-XX-XX-DR-Y-0002 **Revision** P01

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