



Land at Shermanbury Road, Partridge Green

Flood Risk Assessment and Outline Drainage Strategy

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Approved By	Colin Crompton		

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EXECUTIVE SUMMARY

Scope and Background

This Flood Risk Assessment (FRA) and Outline Drainage Strategy has been undertaken by LKC to support an outline planning application for the development of up to 75 residential development on Land at Shermanbury Road, Partridge Green.

LKC has prepared this FRA in line with the NPPF and Technical Guidance where appropriate.

In considering the proposals the following key principles have therefore been applied:

- Identification of flood risks.
- Protection of users of the new development.
- No increased flood risk to third parties.

Flood Risk

The EA Flood Map for Planning indicates the site is located within Flood Zone 1. The site is also shown to have a predominantly very low chance of surface water flooding with the exception of limited areas of low chance surface water flooding in the southern area of the site and a linear extent of low to high chance surface water flooding along the eastern boundary of the site. The site is considered to be at an overall negligible to low risk of flooding from all sources and no specific flood risk mitigation is considered to be required. Notwithstanding, it is recommended that finished floor levels of proposed dwellings are raised a minimum of 150mm above surrounding ground levels.

Mitigation

It is proposed to discharge surface water runoff generated by the proposed development to existing QBAR runoff rates during all events up to and including the 1 in 100 year plus 45% climate change event. For the purposes of this assessment, the site has been separated into two catchment areas with attenuation provided within each catchment area. Surface water runoff is proposed to discharge into the watercourse adjacent to the southern boundary of the site at an overall discharge rate of 17.1l/s, subject to agreement with the LLFA. This report presents an Outline Surface Water Drainage Strategy which seeks to establish the principles of surface water management within the proposed development for the purposes of outline planning. Detailed surface water drainage design will be required at the Reserved Matters stage once the proposed site layout has been fixed.

The proposed development is estimated to generate approximately 3.47l/s of foul effluent. It is proposed to discharge foul effluent into the existing public foul sewer network beneath Shermanbury Road subject at manhole 5301 subject to agreement with SW. Based on existing topography and given the invert level of the receiving sewer, it is anticipated that a pumped foul connection is likely to be required.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ii
TABLE OF CONTENTS	iii
1. Introduction.....	4
1.1 Background	4
1.2 Site Details	4
2. Site Setting	5
2.1 Vulnerability	5
2.2 The Sequential and Exception Tests.....	5
2.3 Environmental Setting.....	6
2.4 Site Topography.....	7
3. Consultation	8
4. Assessment of Flood Risk	9
4.1 Sources of Flooding.....	9
4.2 Summary of Flood Risk	10
5. Mitigation Measures	11
5.1 Proposed Site Levels and Development Level	11
5.2 Safe Access and Egress.....	11
5.3 Floodplain Compensation	11
5.4 Flood Resistance and Resilience	11
5.5 Residual Risk	11
6. Surface Water Management.....	12
6.1 Overview	12
6.2 Sustainable Drainage Hierarchy	12
6.3 Proposed Development Areas	13
6.4 Discharge Rates	13
6.5 Surface Water Attenuation Requirements	13
6.6 Proposed Surface Water Drainage Strategy.....	14
6.7 SuDS Maintenance	14
6.8 SuDS for Pollution Mitigation	16
7. Foul Water Management.....	17
7.1 Proposed Foul Drainage	17
8. Conclusions	18

Figures

Figure 1 – Site Location and Boundary Plan

Figure 2 – Surface Water Flood Extents

Appendices

Appendix A – Proposed Framework Plan

Appendix B – Topographic Survey

Appendix C – LPA Consultation

Appendix D – Public Sewer Records

Appendix E – Catchment Areas

Appendix F – Greenfield Runoff Calculations

Appendix G – Q SE Calculations

Appendix H – Outline Drainage Strategy

Appendix I – Causeway Flow Calculations

Appendix J – References

1. Introduction

1.1 Background

LK Consult Ltd (LKC) were commissioned by Wain Estates (Land) Ltd to prepare a Flood Risk Assessment (FRA) and Drainage Strategy in relation to Land off Shermanbury Road, Partridge Green. The report was undertaken to support the outline planning application for residential development with associated access, infrastructure and landscaping.

The report will address the vulnerability to flooding from all possible sources and will also consider the impact of the development on surface water runoff accounting for climate change and the potential to increase flood risk elsewhere. The Outline Drainage Strategy in Section 6 will provide an overview of the SuDS techniques which could be considered on the site. The issues of actual flood risk are discussed in Section 4.

Government policy with respect to development in flood risk areas is contained within the Ministry of Housing Communities and Local Government National Planning Policy Frameworkⁱ (NPPF) and accompanying Planning Practice Guidanceⁱⁱ (PPG). The guidance on Climate Change allowances issued by the Environment Agency (EA) has also been considered.

LKC has prepared this FRA in line with the NPPF and the PPG where appropriate. The level of detail entered into any flood risk assessment is dependent upon the scale and potential impact of the proposed development, and the vulnerability classification of the proposed land-use.

1.2 Site Details

A summary of the general site details is presented in Table 1-1. Figure 1 indicates the site location and boundary.

Location	Shermanbury Road, Partridge Green, Horsham, Centred at approximate NGR: 519837, 119677
Area	5.73ha
Current Site Use	<u>Site</u> The site is formed by a predominantly greenfield parcel of land comprising several grassed fields in the southern area of the site with an area of vegetation/scrub in the north. An existing dwelling and agricultural buildings are located in the south. Access to the site is provided from the south via Shermanbury Road. <u>Surrounding Area/ Boundary Treatment</u> The site is located within a predominantly rural setting to the northeast of the urban extent of Partridge Green. The land use surrounding the site is described below: • The site is bound to the north by areas of vegetation/woodland with agricultural land beyond. An existing dwelling off Greentree Lane (Keepers Mead) is located adjacent to the northeastern corner of the site; • The site is immediately bound to the south by Shermanbury Road, beyond which lies agricultural land. An existing residential dwelling (Camomile Cottage) is located immediately southeast of the site; • The site is bound to the east by Greentree Lane beyond which lies agricultural land; • The site is bound to the west by an area of greenfield land that is subject to outline planning permission for the construction of 120 dwellings (Horsham District Council planning ref. DC/24/0428).
Proposed Development	The proposed development comprises the construction of up to 75 residential dwellings with associated access, parking, infrastructure and landscaping. The northern area of the site will be retained as existing for BNG purposes. Access to the site will continue to be provided via Shermanbury Road to the south. The existing dwelling in the southwestern area of the site will be retained. The proposed framework plan is included as Appendix A.

Table 1-1: Summary of site details.

2. Site Setting

2.1 Vulnerability

As an initial phase in identifying whether a site is potentially at risk of flooding, LKC has consulted the Environment Agency (EA) Flood Map for Planning. This mapping is based on a combination of local flood model outputs, recorded flood outlines and national flood model information to identify areas that are at risk of fluvial and/or tidal flooding for strategic planning purposes.

The Flood Zones divide the floodplain into three categories of flood risk, and do not take flood defences into account. The PPG (Table 1: Flood Zones, Paragraph 78) defines the Flood Zones as:

- Flood Zone 1 – Very Low Risk, with annual probability of flooding from rivers and the sea of less than 0.1% (1 in 1000);
- Flood Zone 2 – Low Risk, with annual probability of flooding of 0.1 to 1.0% from rivers and 0.1 to 0.5% from the sea;
- Flood Zone 3 – Medium to High risk of flooding with an annual probability of flooding of 1.0% or greater from rivers, and 0.5% or greater from the sea.

The EA Flood Map for Planning indicates the site is wholly located within Flood Zone 1 during the present day and future climate change scenarios.

In addition to the above, LKC has undertaken a review of the EA Risk of Flooding from Surface Water dataset. This dataset provides an overview of where surface water flooding may occur and is derived from national scale modelling using local topography, rainfall patterns and historical data. The mapping categorises the ‘chance’ of surface water flooding as per the below:

- High – more than a 3.3% chance of a flood each year;
- Medium – between 1% and 3.3% chance of a flood each year;
- Low – between 0.1% and 1% chance of a flood each year;
- Very Low – Less than 0.1% chance of a flood each year.

A review of the EA Risk of Surface Water Flooding map indicates the site has a predominantly very low chance of surface water flooding. Isolated areas of low chance surface water flooding are shown to occur in the southwestern area of the site. In addition, a linear area of low to high chance surface water flooding is shown to occur adjacent to the eastern boundary. This area of surface water flooding appears to correlate with Greentree Lane immediately east of the site.

The proposed development is for a residential end use, which is classified within the ‘More Vulnerable’ category within Annex 3 of the NPPF.

2.2 The Sequential and Exception Tests

The Sequential Test aims to steer new development to areas at the lowest risk of flooding from all sources, taking into account the impacts of climate change. The NPPF identifies that the Sequential Test should be applied to ‘Major’ and ‘Non Major’ development proposes in areas at risk of flooding with paragraphs 175, 176 and 189 setting out exemptions from the Test.

Paragraph 175 of the NPPF states that the Sequential Test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be located in an area that would be at risk of flooding from any source; both now and in the future.

Paragraph 27 of the updated Flood Risk and Coastal Change Planning Practice Guidance (published on 17th September 2025) states “in applying Paragraph 175 a proportionate approach should be taken.

Where a site specific flood risk assessment demonstrates clearly that the proposed layout, design and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the Sequential Test need not be applied”.

This FRA demonstrates that the site is at a negligible to low risk of flooding from all sources therefore application of the Sequential Test is not considered to be required.

Table 2 of the PPG identifies that More Vulnerable development is acceptable within Flood Zone 1 without the requirement to apply the Exception Test.

2.3 Environmental Setting

LKC has undertaken a review of public domain information including British Geological Survey (BGS) data, Environment Agency data, historical mapping and aerial photography to provide a summary of the environmental setting of the site. This is summarised in Table 2-1 below.

Summary of the Environmental Setting			
Geology	Superficial		BGS mapping (1:50,000 scale) indicates there are no recorded superficial deposits.
	Bedrock		BGS mapping indicates the site is underlain by bedrock deposits from the Weald Clay Formation which is described as comprising mudstone.
	BGS Boreholes		A review of BGS borehole records indicate there are no borehole records within or in the immediate vicinity of the site. The nearest borehole (BGS ref. TQ22SW1/B) is located approximately 875m northeast of the site. Whilst this borehole is located a significant distance from the site, it is located within the same published geology and indicates that the underlying strata comprises several layers of clay, interspersed with sporadic layers of peat and stone, to depths of approximately 75m. No groundwater appears to have been encountered during excavation.
	Defra Soilscape Mapping		A review of the Soilscape website indicates the site is underlain by soil type 18 which is described as “ <i>slowly permeable seasonally wet slightly acid but base rich loamy and clayey soils</i> ”.
Hydrogeology	Aquifer Designation	Superficial	N/A.
		Bedrock	Unproductive Strata.
	Source Protection Zone (SPZ)		Site not within an SPZ.
Hydrology	All adjacent and internal surface water		A review of the Topographic Survey of the site (described further in Section 2.4 below) indicates an existing ditch flowing in an easterly direction across the southern area of the site. This section of ditch appears to drain a ditch crossing the adjacent land to the west of the site. A review of the outline planning application (ref. DC/24/0428) indicates that the ditch within the adjacent site is dry with no evidence of any incoming or outgoing connectivity. In addition to the above, a short section of ditch is shown along the western boundary of the site. This ditch is shown to flow in a southerly direction before joining the ditch crossing the southern area of the site. A further section of ditch is shown to be located adjacent to the southern area of the site, adjacent to Shermanbury

Summary of the Environmental Setting		
		Road. This ditch is shown to flow in a westerly direction before discharging into a 300mm diameter pipe which drains into a pond located to the northeast of the King George's Field Recreation Ground. It is understood that this pond subsequently outfalls to a watercourse within the agricultural land to the south of Shermanbury Road. This watercourse is shown to flow in a southerly direction before discharging into the River Adur approximately 1.5km south of the site. The bed level of the ditch adjacent to the south of site is recorded as 10.446m AOD and is circa 1m deep.

Table 2-1: Summary of the Environmental Setting.

2.4 Site Topography

A Topographic Survey of the site was undertaken by JLP Surveying in October 2025 (dwg ref, S25-0985). The Topographic Survey (included as Appendix B) identifies the following site levels:

- The highest point of the site is recorded as approximately 22.5m AOD in the northern area. Site levels to the south of this point are shown to slope to a level of approximately 11.5m AOD along the southern boundary of the site;
- Ground levels in the northernmost area of the site are shown to slope from 22.5m AOD to a level of approximately 19m AOD located along the northern boundary;
- Ground levels along Shermanbury Road are shown to range between 11.226m AOD adjacent to the southeastern corner of the site and 10.793m AOD adjacent to the southwestern corner. Levels along Shermanbury Road are shown to be lower than the southern area of the site.

3. Consultation

Information from all relevant consultees is summarised in Table 3-1 below.

Source	Details	
Environment Agency (EA); Flood Map for Planning; RoFSW dataset, public data service	Flood Zone 1: Very Low risk, with annual probability of flooding from rivers and the sea of less than 0.1% (1 in 1000).	
	Records of Flooding	A review of EA historic flood records indicates the site has not been impacted by any historic, recorded flood event.
	Records of Flood Warning Service	The site is not located within a Flood Warning or Flood Alert area.
	Surface Water Flooding	A review of the EA Risk of Surface Water Flooding map indicates the site has a predominantly very low chance of surface water flooding. Isolated areas of low chance surface water flooding are shown to occur in the southwestern area of the site. In addition, a linear area of low to high chance surface water flooding is shown to occur adjacent to the eastern boundary. This area of surface water flooding appears to correlate with Greentree Lane immediately east of the site.
	Flooding from reservoirs	A review of the EA Long Term Reservoir Flood Map indicates the site is located within an area that will not be impacted by flooding in the event of reservoir failure.
Horsham District Council (LPA)	LPA	Consultation undertaken with the LPA (included as Appendix C) has identified: - The LPA have no records of historic flooding within the site; and - There are no records on any restrictions to discharge to ordinary watercourses within the site area.
Southern Water (SW)	Sewer Records	Consultation has been undertaken with SW to obtain public sewer records. Asset plans provided by SW (included as Appendix D) indicate there are no public sewers within or in the immediate vicinity of the site. The nearest public sewer is a 150mm diameter foul sewer located beneath Shermanbury Road approximately 200m southwest of the site. The sewer originates at manhole 5301 which has a cover level of 11.53m AOD and an invert level of 9.52m AOD.
	Likely conditions for connecting into their sewerage system	Consultation has been undertaken with SW in the form of a Pre-development enquiry to confirm the capacity of the public sewer network to receive foul flows from the proposed development. A response is yet to be received.
Strategic Flood Risk Assessment (SFRA)	SFRA ⁱⁱⁱ	A review of the Horsham District Council 2010 SFRA indicates the following: - There were less than 10 recorded incidents of surface water flooding within Partridge Green at the time of writing. No site specific information is provided; - Flooding along the River Adur within the vicinity of Partridge Green occurred in 1911 due to heavy rainfall. Based on the distance and level differential between the site and the River Adur it is anticipated that the site was not impacted by flooding during this event; - There were no records of groundwater flooding within the SFRA study area at the time of writing.

Table 3-1: Summary consultee information.

4. Assessment of Flood Risk

4.1 Sources of Flooding

The risk of flooding from the following flood sources has been considered:

Fluvial and Tidal Flooding

The EA Flood Map for Planning indicates the site is located within Flood Zone 1, which corresponds to a less than 0.1% annual probability flooding of flooding, during both the present day and future climate change scenarios. The overall risk of fluvial is considered to be low.

The site is located inland at a minimum elevation of approximately 11.5m AOD. The overall risk of tidal flooding is therefore considered to be negligible.

Surface Water (Pluvial Flooding)

According to the EA's RoFSW dataset (Figure 2), the site has a predominantly very low chance of surface water flooding. Isolated areas of low chance surface water flooding are shown to occur in the southwestern area of the site. In addition, a linear area of low to high chance surface water flooding is shown to occur adjacent to the eastern boundary. This area of surface water flooding appears to correlate with Greentree Lane immediately east of the site.

A review of corresponding depth mapping indicate surface water flooding

The Horsham District Council 2010 SFRA indicates there were 10 recorded incidents of surface water flooding at the time of publication, however, no site specific information is provided.

Based on the above, the overall risk of surface water flooding is considered to be low.

Surface Water Overland Flow

A review of the EA RoFSW dataset indicates there are no overland flow paths within the site boundary. A linear flow path is shown to occur along the eastern boundary of the site; however, this appear to correlate to Greentree Lane to the east of the site. Based on a review of site levels, it is anticipated that the overall risk of surface water overland flow is considered to be low.

Groundwater Flooding

According to BGS geological mapping, the site is underlain by bedrock deposits from the Weald Clay Formation which is described as comprising mudstone. The nearest BGS borehole record (located approximately 875m northeast of the site and thus not fully representative of ground conditions beneath the site) indicates layers of clay interspersed with sporadic layers of peat and clay to depths of approximately 75m. The presence of impermeable strata is likely to preclude the migration of groundwater to the surface.

A review of the Horsham District Council 2010 SFRA indicates that no groundwater flooding had been recorded within the SFRA study area at the time of publication.

Based on the above, the overall risk of groundwater flooding is considered to be low.

Sewer Flooding

SW public sewer records (included as Appendix D) indicate there are no public sewers within or in the immediate vicinity of the site. The nearest public sewer is a 150mm foul sewer located beneath Shermanbury Road approximately 200m southwest of the site.

Based on the above, the overall risk of sewer flooding is considered to be low.

Flooding from Artificial Sources

According to the EA Long Term Reservoir Flood mapping, the site will remain free from flooding in the event of reservoir failure.

There are no canals or other artificial waterbodies within the vicinity of the site.

Based on the above, the overall risk of flooding from artificial sources is considered to be negligible.

4.2 Summary of Flood Risk

Summary of Flood Risk

Source of Flooding	Risk Assessment Level
Fluvial	Low
Tidal	Negligible
Pluvial (Rainfall)	Low
Surface Water Overland Flow	Low
Groundwater	Low
Sewers	Low
Artificial Sources	Negligible

Table 4-1: Summary of Existing Risk Level.

5. Mitigation Measures

5.1 Proposed Site Levels and Development Level

The site is considered to be at a negligible to low risk of flooding from all sources; therefore, no site specific flood risk mitigation is considered to be required. Notwithstanding, it is recommended that finished floor levels of proposed dwellings are raised a minimum of 150mm above external ground levels.

5.2 Safe Access and Egress

Access and egress to the site will be provided to the south via Shermanbury Road which is shown to be located within Flood Zone 1 and at a generally very low to low chance of surface water flooding. An area of high chance surface water flooding is shown to occur within proximity of the junction between Shermanbury Road and Partridge Green Road approximately 300m southeast of the site. This area of surface water flooding appears to correlate to an existing watercourse that is culverted beneath the road. In the event of surface water flooding at this location, access and egress to the east of the site may be temporarily impeded.

5.3 Floodplain Compensation

The site is located within Flood Zone 1 during both the present day and future climate change scenarios and as such there will no displacement of flood water or any alteration to flood flow routes.

5.4 Flood Resistance and Resilience

The development proposed may be subject to flooding at more extreme events than those considered. However, the risk appears to be sufficiently low that flood resilience measures need not be included into ground floor construction to aid recovery after any event. If utilised, typical measures would include solid floors, use of suitable materials and services fed from upper floors with outlets at high level. The need can be discussed and agreed with building control officers during detailed design.

5.5 Residual Risk

It is impossible to completely guard against flooding since extreme events greater than the design standard event are always possible. However, it is likely that with the 1% annual probability flood event with allowance for climate change significantly below the lowest site levels, the relatively elevated position of the development will safeguard it from localised fluvial flooding during extreme rainfall events and fluvial flooding events outside the scope of this assessment. However, ground floor levels should be set above proposed external ground levels across the site and provide a nominal freeboard to allow overland flow under exceptional conditions. Overland flow routes should be considered in case of drainage failure and the extreme events.

6. Surface Water Management

6.1 Overview

The NPPF recognises that flood risk and other environmental damage can be managed by minimising changes in the volume and rate of surface run-off from development sites through the use of Sustainable Drainage Systems (SuDS), this being complementary to the control of development within the floodplain.

SuDS will not alleviate flooding in an area prone to flooding; however, properly designed SuDS have the potential to prevent the surface water runoff from new development worsening the flood risk. The effective disposal of surface water from any new development is a material planning consideration in determining if the proposals for the development and use of land are acceptable.

The accepted principles are that surface water arising from a developed area should, as far as practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.

The Planning Practice guidance identifies that surface water runoff should be disposed of in the following order of preference:

1. Into the ground (infiltration);
2. To a surface water body;
3. To a surface water sewer, highway drain, or another drainage system; or,
4. To a combined sewer

Suitability of different SuDS will be governed by prevailing site conditions, such as the type and scale of development, topography, ground conditions (soil permeability, ground stability, depth to water table), local hydrogeology and risk of groundwater contamination (presence of sensitive aquifers and source protection zones) etc.

In May 2022, the EA published updated climate change guidance for peak rainfall intensity. According to the EA peak rainfall map, the site is located within the Adur and Ouse Management Catchment in which residential development with a minimum design life of 100 years is required to consider a 45% climate change uplift during the 1 in 100 year event.

6.2 Sustainable Drainage Hierarchy

6.2.1 Infiltration

BGS mapping indicates the site is underlain by bedrock deposits from the Weald Clay Formation which is described as comprising mudstone. There are no superficial deposits recorded within the site. The nearest BGS borehole record (located approximately 875m northeast of the site and thus not fully representative of ground conditions beneath the site) indicates layers of clay interspersed with sporadic layers of peat and clay to depths of approximately 75m. Based on the nature of the published geology, the disposal of surface water runoff via infiltration is unlikely to be feasible.

6.2.2 Watercourses

The Topographic Survey of the site (included as Appendix B) indicate the presence of existing ditches across the southern area of the site and along the western boundary. These ditches will become redundant as part of the proposed development.

It is proposed to discharge surface water runoff to the existing ditch along the southern boundary of the site adjacent to Shermanbury Road, subject to agreement with the LLFA and appropriate Ordinary Watercourse consent.

6.2.3 Surface water sewer, highway drain, or another drainage system

Public sewer records provided by SW indicate there are no public surface water sewers within the vicinity of the site.

6.2.4 Combined sewers

Public sewer records provided by SW indicate there are no public combined sewers within the vicinity of the site.

6.3 Proposed Development Areas

For the purposes of this assessment and based on a review of site levels, the proposed development has been separated into two catchment areas, as shown in Appendix E. Table 6-1 below provides a summary of the catchment areas. Based on the residential nature of the application, a 10% allowance for urban creep has been considered within Catchment 1.

Catchment	Catchment Area (ha)	Total Developable Area (ha)	10% Urban Creep (ha)	Total Contributing Catchment Area (ha)
Catchment 1	1.90	1.20	0.12	1.32
Catchment 2	0.05	0.05	N/A	0.50

Table 6-1: Catchment summary

* Total hardstanding to be confirmed at the reserved matters stage based on fixed site layout at that stage.

6.4 Discharge Rates

The site currently comprises greenfield parcels of land therefore surface water runoff is required to be restricted to existing greenfield runoff rates. Existing greenfield runoff rates have been calculated based on the catchment areas using the FEH Statistical (2025) Method and FEH2022 rainfall data. A summary of existing greenfield runoff rates is provided in Table 6-2. Greenfield runoff rate calculations are included as Appendix F. Further consideration of greenfield runoff rates will be required at the Reserved Matters stage, taking into account the fixed site layout.

Catchment	Catchment Area (ha)	Existing Greenfield Runoff Rates (l/s)		
		QBAR	1 in 30	1 in 100
Catchment 1	1.90	16.7	38.3	53.1
Catchment 2	0.05	0.4	1.0	1.4

Table 6-2: Summary of existing greenfield runoff rates

6.5 Surface Water Attenuation Requirements

It is proposed to restrict surface water runoff generated within each catchment to the corresponding QBAR greenfield runoff rates during all events up to and including the 1 in 100 year plus 45% climate change scenario. For the purposes of this assessment and given the outline nature of the planning application, attenuation volumes have been estimated using the Quick Storage Estimate (QSE) within Causeway Flow drainage modelling software. A summary of the attenuation requirements within each catchment is provided in Table 6-3 below. QSE calculations are included as Appendix G.

Catchment	Proposed Discharge Rate (l/s)	Total Contributing Catchment (ha)	Attenuation Required based on QSE (m ³) *
Catchment 1	16.7	1.32	1,183
Catchment 2	0.4	0.05	50.5

Table 6-3: Summary of attenuation requirements

*Based on average attenuation volumes.

The attenuation volumes outlined Table 6-3 are indicative and should be confirmed at the Reserved Matters stage based on the fixed site layout.

6.6 Proposed Surface Water Drainage Strategy

This section provides a summary of the Outline Drainage Strategy presented in Appendix H. The Outline Surface Water Drainage Strategy seeks to establish the principles of surface water management within the proposed development for the purposes of outline planning. Detailed surface water drainage design will be required at the Reserved Matters Stage to confirm the proposed surface water drainage strategy based on the fixed site layout at that stage.

6.6.1 Catchment 1

It is proposed to restrict surface water runoff generated within Catchment 1 to the existing QBAR runoff rate of 17.8l/s during all events up to and including the 1 in 100 year plus 45% climate change event. In order to achieve this restriction, QSE calculations indicate that 1,151m³ of attenuation will be required. It is proposed to provide attenuation in the form of permeable paving in proposed car parking and shared driveway areas and an attenuation basin located in the southeastern corner of Catchment 1.

For the purposes of this assessment, the attenuation volumes provided by permeable paving have been estimated based on the indicative proving layout which is shown on the Outline Surface Water Drainage Strategy in order to quantify potential storage volumes. However, this does not represent a fixed site layout. The final storage volumes provided by permeable paving will be confirmed at the Reserved Matters stage and based on the fixed site layout available at that time.

Based on an area of approximately 3,880m² and an assumed sub-base depth of 0.45m with a 30% porosity, permeable paving has the potential to provide approximately 524m³ of storage.

The remaining balance of attenuation will be provided in the form of an attenuation basin measuring a total surface area of 734.5m². The basin will be 2.0m deep and will provide approximately 885m³ of attenuation.. Causeway Flow calculations are included as Appendix I.

Surface water runoff stored within the basin will discharge at a rate of 16.7l/s via a Hydrobrake or similar flow control device to the Catchment 2 attenuation basin.

6.6.2 Catchment 2

It is proposed to restrict surface water runoff generated within Catchment 2 to the existing QBAR runoff rate of 0.4l/s during all events up to and including the 1 in 100 year plus 45% climate change event. In order to achieve this restriction, QSE calculations indicate that 50.5m³ of attenuation for the Catchment 2 contributing area.

It is proposed to provide attenuation in the form of an attenuation basin located in the southeast area of Catchment 2. The basin will be 1.05m deep and will provide approximately 66.6m³ of attenuation. The basin has been sized to cater for the additional 16.7l/s inflow from Catchment 1. Causeway Flow calculations are included as Appendix I. For the purposes of this assessment, the proposed drainage network has been modelled as a simple network to simulate the interaction between the proposed basins taking account of the additional inflows from the access road. Further detailed network calculations including the upstream drainage network will be required at the Reserved Matters stage.

Surface water runoff stored within the basin will discharge at a combined discharge rate of 17.1l/s to the watercourse adjacent to the southern boundary of the site, subject to agreement with the LLFA and Ordinary Watercourse consent.

6.7 SuDS Maintenance

Maintenance of proposed SuDS features will be required to ensure these remain operational over the lifetime of the proposed development. An indicative maintenance plan for the proposed SuDS and associated features is provided in Tables 6-4 and 6-5 below. The SuDS maintenance and inspections

responsibility rests with the owners or could be arranged through appointment of a site management company.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweeping over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site specific observations of clogging or manufacturers recommendations.
Occasional Maintenance	Stabilise and mow contributing adjacent areas.	As required.
	Removal of weeds or management using appropriate treatment applied directly into the weeds by an applicator rather than spraying.	As required.
Remedial Actions	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required
	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.	As required
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required.
Monitoring	Initial inspection	Monthly for three months after installation.
	Inspect for evidence of poor operation and/or weed growth – If required, take remedial action.	Quarterly, 48 hr after large storms in first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually

Table 6-4 Permeable paving maintenance schedule

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris.	Monthly (or as required).
	Cut grass.	Monthly (during growing season).
	Inspect marginal and bankside vegetation and remove nuisance plants (for first three years).	Monthly (at start, then as required).
	Inspect inlets, outlets, banksides, structures, pipework, etc for evidence of blockage and/or physical damage.	Monthly.
	Inspect water body for signs of poor water quality.	Monthly (May – October).
	Inspect silt accumulation rates in any forebay and in the main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options.	Half yearly.
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include 25% max of pond surface).	Annually
	Tidy all dead growth (scrub clearance) before start of growing season.	Annually
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays.	Every 5 years or as required.

Maintenance Schedule	Required Action	Typical Frequency
Occasional Maintenance	Remove sediment from the main body of the pond when pool volume is reduced by 20%.	With effective pre-treatment, this will only be required every 25 – 50 years.
Remedial Actions	Repair erosion or other damage.	As required.
	Replant, where necessary.	As required.
	Aerate pond when signs of eutrophication are detected.	As required.
	Realign riprap or repair other damage.	As required.
	Repair / rehabilitate inlets, outlets and overflows.	As required.

Table 6-5: Attenuation basin maintenance schedule

6.8 SuDS for Pollution Mitigation

The proposals for the site have been assessed against the CIRIA SuDS Manual C753 to determine the requirements for the treatment of surface water prior to discharge to the receiving watercourse. The SuDS features incorporated within the site should be designed to provide a total pollution mitigation index that is equal to or greater than the pollution hazard index. Pollution hazard indices based on the nature of the proposed development are summarised in Table 6-6.

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons (HCs)
Residential Roofs	Very Low	0.2	0.2	0.05
Individual Driveways and Low Traffic Roads	Low	0.5	0.4	0.4

Table 6-6: Pollution hazard indices

An assessment of the pollution mitigation indices provided by proposed SuDS features has been undertaken in accordance with the Simple Index Approach. Pollution mitigation indices provided by proposed SuDS features are summarised in Table 6-7. It should be noted that the treatment indices provided by the attenuation pond have been reduced by a factor of 0.5 to account for reduced inflow concentrations associated with secondary SuDS components.

SuDS Component	Total Suspended Solids (TSS)	Metals	Hydrocarbons (HCs)
Permeable Paving	0.7	0.6	0.7
Attenuation Basin	0.35	0.35	0.25

Table 6-7: SuDS mitigation indices

Based on the above, proposed SuDS features are considered to provide sufficient treatment for surface water runoff generated by the proposed development. Further consideration of the treatment of surface water runoff will be required within the Reserved Matters drainage layout.

7. Foul Water Management

7.1 Proposed Foul Drainage

The proposed development comprises the construction of up to 75 residential dwellings. Sewerage Sector guidance Appendix C 'Design and Construction Guidance' indicates peak foul flow rates can be estimated based on an assumed 4,000 litres per dwelling per day.

Based on the above, the foul flow rate generated by the proposed development has been estimated as approximately 3.47l/s.

The nearest public foul sewer is located approximately 200m southwest of the site beneath Shermanbury Road. At this stage, it is proposed to discharge foul effluent from the proposed development to manhole 5301 on the public foul sewer network subject to agreement with Southern Water. Consultation has been undertaken with SW in the form of a pre-development enquiry to confirm acceptable pass forward flow rates from the proposed development to the public foul sewer network. A response is yet to be received.

Further consultation with Southern Water will be required at the Reserved Matters stage to confirm the proposed foul discharge location.

Based on the topography of the site and wider area and given the invert levels of the receiving public sewer, it is anticipated that there will be a requirement to pump foul effluent to the public sewer network. Final pump rates will be confirmed at the Reserved Matters stage in consultation with SW.

The existing residential dwelling in the southwestern area of the site will be retained as part of the proposed development. Foul effluent from the existing dwelling is currently drained via a septic tank. As part of the proposed development, a new connection from the existing dwelling to the proposed foul pumping station will be provided via a private pumping station thus providing an improvement over the current foul drainage situation.

8. Conclusions

This report has been prepared to support the outline planning application for the proposed construction of up to 75 residential dwellings and associated access, parking, landscaping and infrastructure.

The EA Flood Map for Planning indicates the site is located within Flood Zone 1. The site is also shown to have a predominantly very low chance of surface water flooding with the exception of limited areas of low chance surface water flooding in the southern area of the site and a linear extent of low to high chance surface water flooding adjacent to the eastern boundary of the site. The site is considered to be at an overall negligible to low risk of flooding from all sources and no specific flood risk mitigation is considered to be required. Notwithstanding, it is recommended that finished floor levels of proposed dwellings are raised a minimum of 150mm above surrounding ground levels.

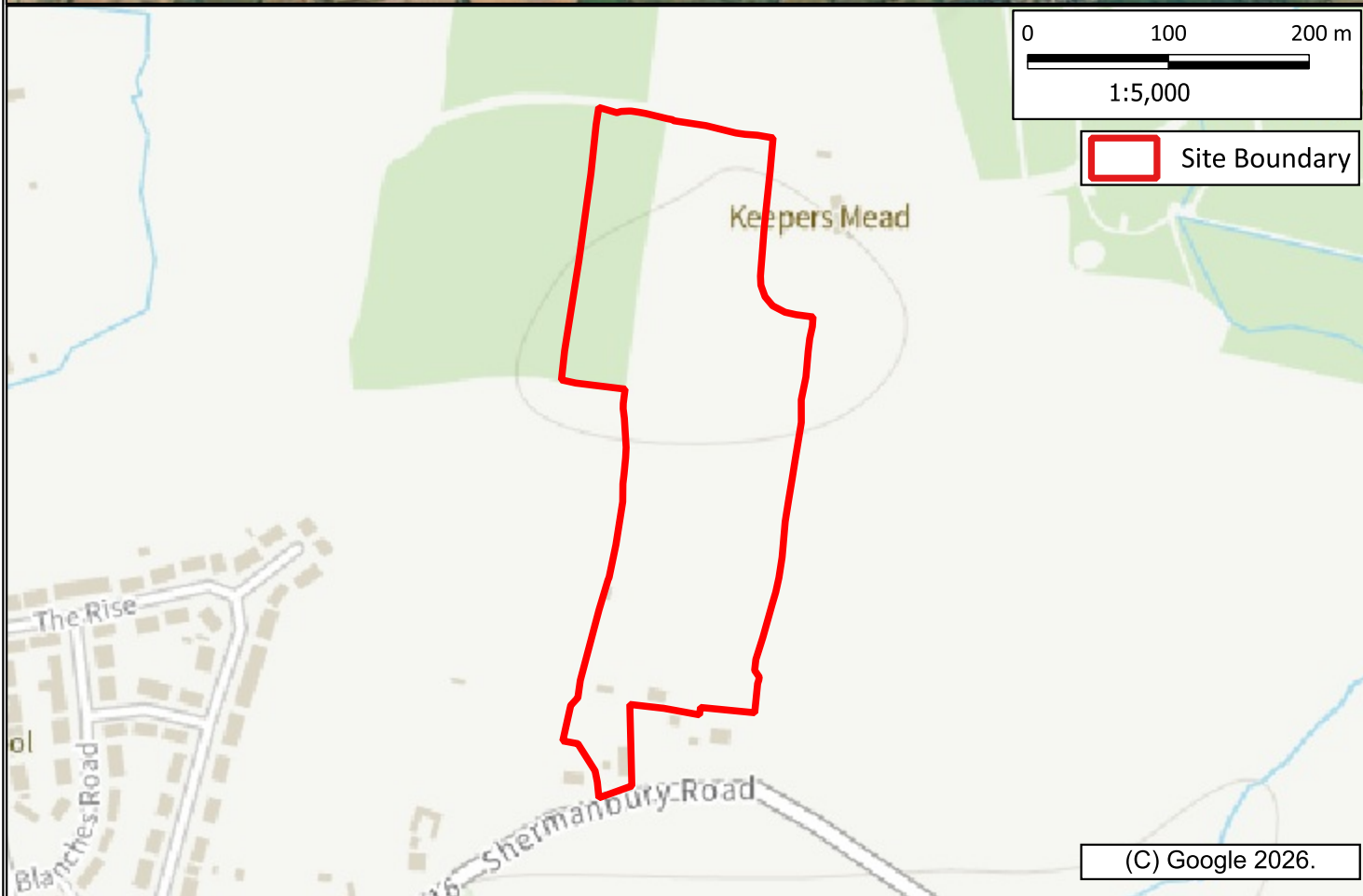
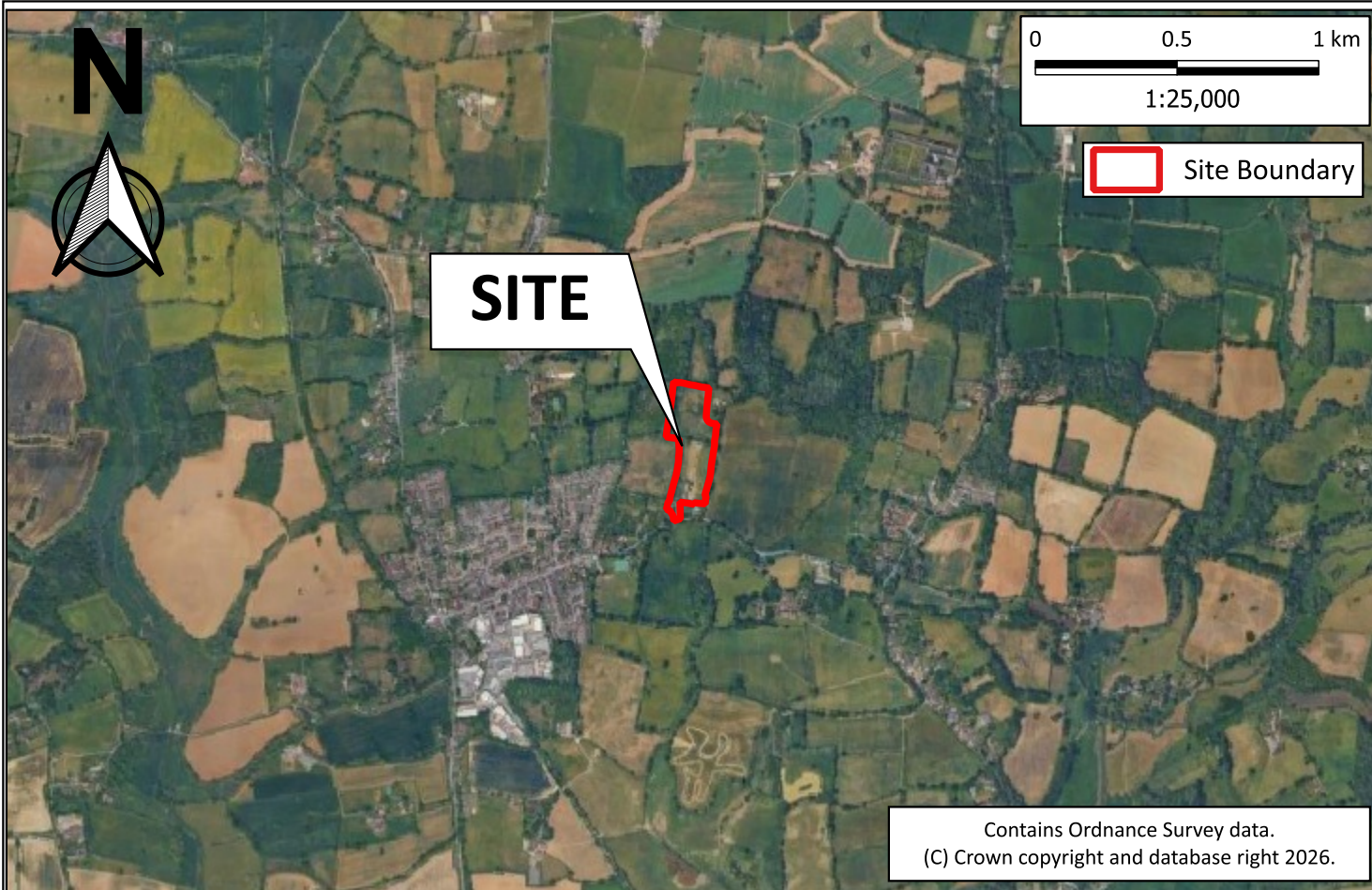
It is proposed to discharge surface water runoff generated by the proposed development to existing QBAR runoff rates during all events up to and including the 1 in 100 year plus 45% climate change event. For the purposes of this assessment, the site has been separated into two catchment areas with attenuation provided within each catchment area. Surface water runoff is proposed to discharge into the watercourse adjacent to the southern boundary of the site at an overall discharge rate of 17.1l/s, subject to agreement with the LLFA. This report presents an Outline Surface Water Drainage Strategy which seeks to establish the principles of surface water management within the proposed development for the purposes of outline planning. Detailed surface water drainage design will be required at the Reserved Matters stage once the proposed site layout has been fixed.

The proposed development is estimated to generate approximately 3.47l/s of foul effluent. It is proposed to discharge foul effluent into the existing public foul sewer network beneath Shermanbury Road subject at manhole 5301 subject to agreement with SW. Based on existing topography and given the invert level of the receiving sewer, it is anticipated that pumped foul connection is likely to be required.

Overall, it has been demonstrated that the site will be safe from flooding and will not result in an increase in flood risk elsewhere.

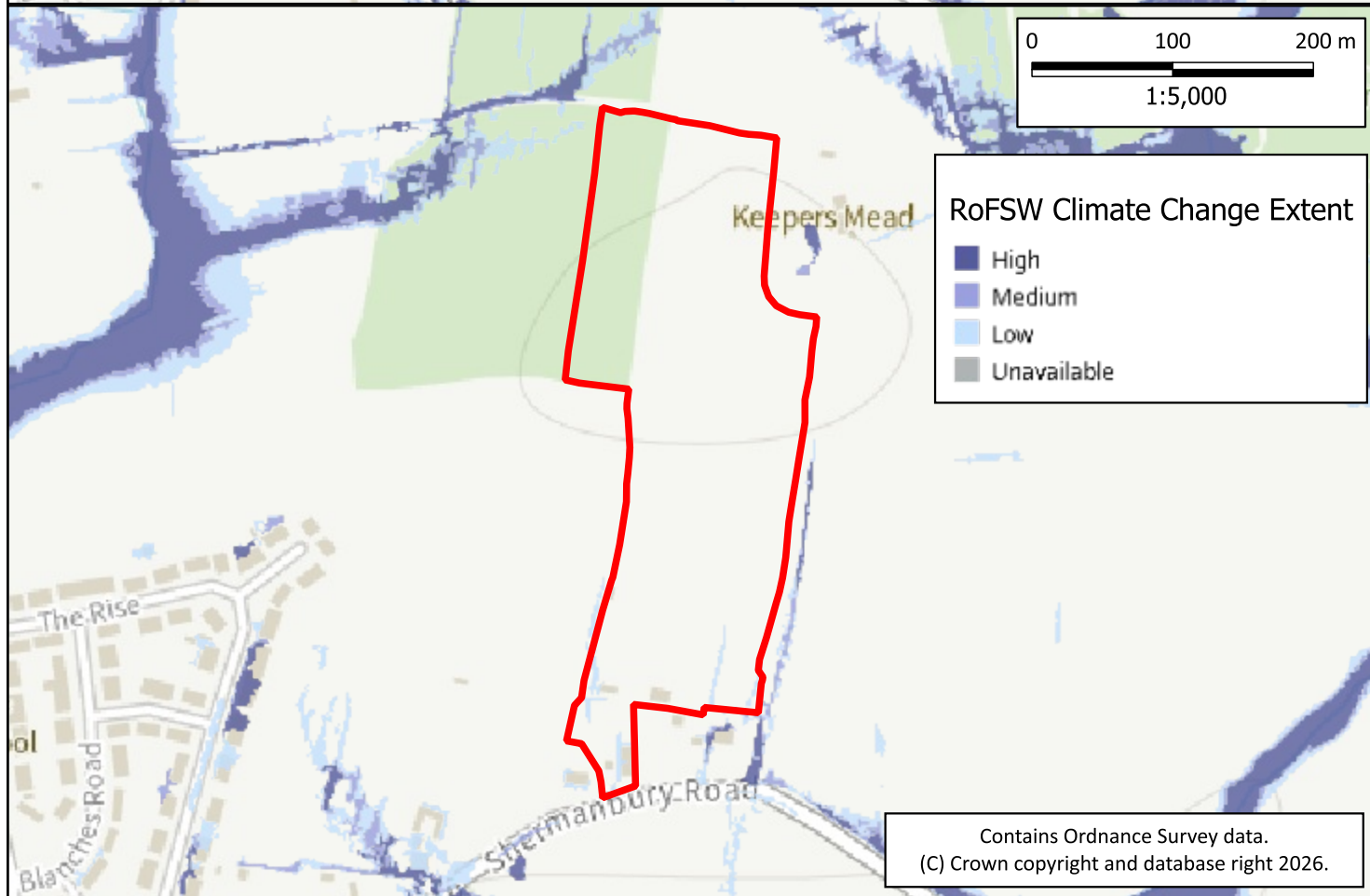
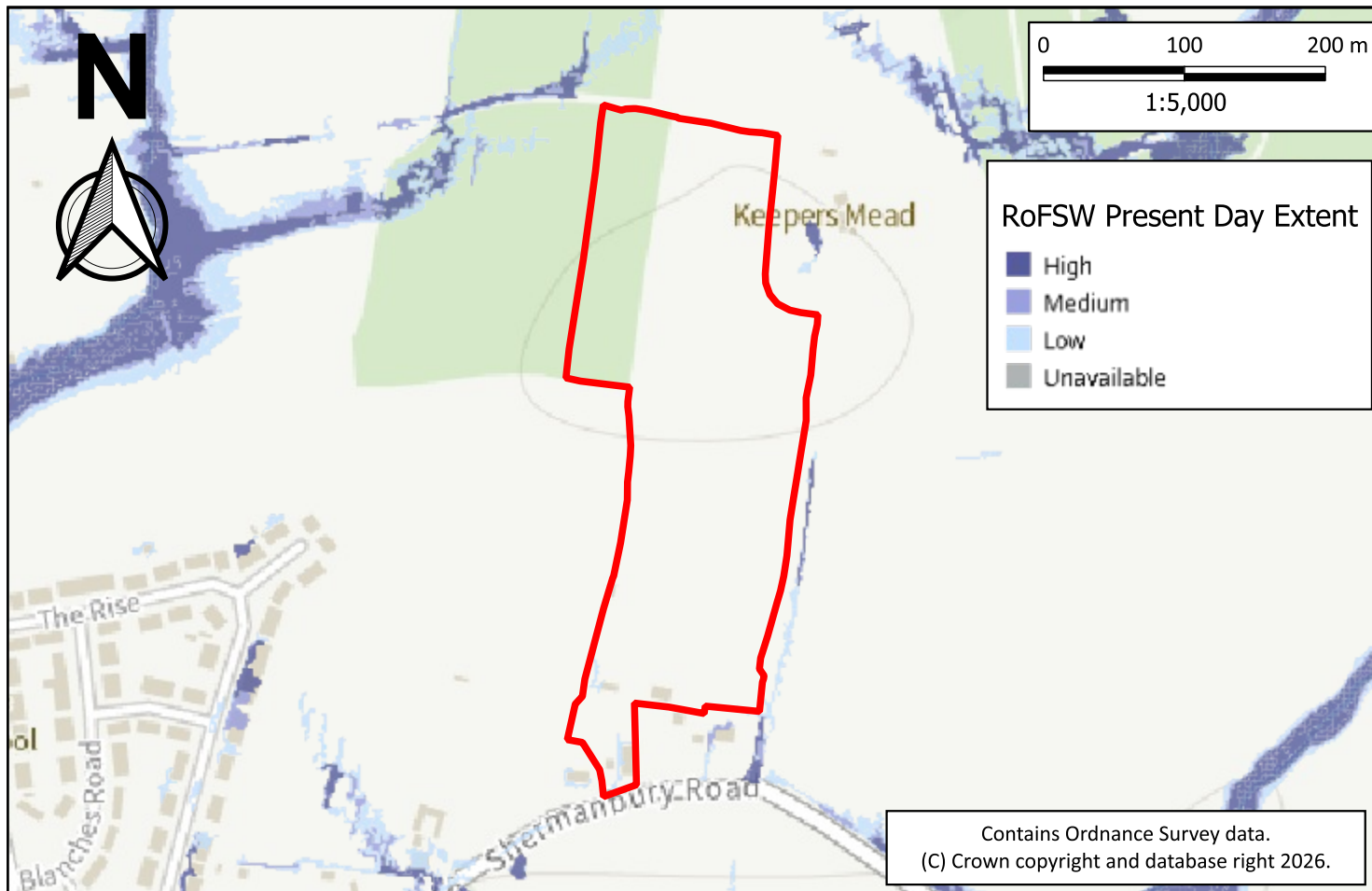
Figures

Figure 1 – Site Location Plan



Client: Wain Estates (Land) Ltd				Title: Site Location & Boundary Plan		 LK CONSULT	
Site: Shermanbury Road, Partridge Green				Scale (see scale bar): 1:25,000 & 1:5,000 @ A4			
Job No.: FRA 251234		Drawn By: AF	Checked By: DP	Drawn: July 2026	Figure: 1		

Figure 2 – SW Flood Extent



Client: Wain Estates (Land) Ltd				Title: Risk of Flooding from Surface Water Extents			 LK CONSULT			
Site: Shermanbury Road, Partridge Green				Scale (see scale bar): 1:5,000 @ A4					Figure: 2	Revision: 1
Job No.: FRA251234	Drawn By: AF	Checked By: DP	Drawn: July 2026							

Appendices

Appendix A – Proposed Framework Plan

Notes:
Ordnance Survey base mapping - supplied by client.

Outline Application
Permitted development for
55 dwellings
(Ref:DC/22/0301)

Outline Application
Permitted development for
120 dwellings
(Ref:DC/24/0428)

	Existing Tree and Vegetation (subject to Survey)
	Veteran Tree with Root Protection Areas (RPA) Existing Vegetation (subject to Survey)
	Proposed Street Trees

drwn/chkd scale date
 DV / MPS 1:1000 @ A1 24 June 2026
 number rev
 13658-FPCR-ZZ-ZZ-DR-L-0002 P09




Development Framework

FPCR | environment
& design