

Flood Risk Assessment for Station Road, Bagworth, Leicestershire LE67 1BA

for:

A R Cartwright Ltd, Vicarage Street, Nuneaton CV11 4AZ

Date	Issued	Revision
12 August 2025	Issued	A

Reference: 83047-01

Prepared by:

[Redacted]
Dominic Larkins
BSc (Hons) FGS
Senior Geo-environmental
Engineer

Approved by:

[Redacted]
Jack Norris
BSc. C.Eng. M.I.Struct.E. M.a.p.s
Director
PRP UK Ltd

CONTENTS**Page**

1.	Executive Summary	3
2.	Introduction	4
3.	Site Location and Description	4
4.	Development	5
5.	Sequential and Exception Tests	5
6.	Analysis of Risk	5
7.	Surface Water Drainage System	7
8.	Geology	8
9.	Conclusions	8

APPENDICES

Appendix I	Site Plans
Appendix II	Fluvial Flood Maps
Appendix III	Surface Water Flood Maps
Appendix IV	Groundwater Flood Risk Map
Appendix V	General Conditions

1. **EXECUTIVE SUMMARY**

- 1.1 This flood risk assessment has been prepared on behalf of A R Cartwright Ltd to address the flooding risk for the proposed residential development at Sation Road, Bagworth. At the time of writing this report the majority of the site was agricultural land, with three single storey buildings within the south eastern corner.
- 1.2 The site lies in fluvial flood zone 1; therefore, the site is at a very low risk of fluvial flooding.
- 1.3 The Environment Agency (EA) surface water flood maps show that the majority of the site is at a very low risk of surface water flooding, with approximately 20% of the site at a high risk (1 in 30 year), increasing to 30% for a 1 in 1000 year flood event (low risk). The area at a low through to high risk of surface water flooding is located within the western section of the site.
- 1.4 No residential dwellings or supporting infrastructure, with the exception of an access road for the pumping station and an attenuation pond, will be constructed within the area at a medium or high risk of surface water flooding; therefore, no mitigation measures will be required.
- 1.5 The site is located within an area which is unlikely to be impacted by reservoir or groundwater flooding, therefore, the risk is deemed to be very low.
- 1.6 The proposed development is classified as a more vulnerable development by the Flood Risk Vulnerability Classification (Annex 3) in the National Planning Policy Framework (NPPF). Therefore, in line with the flood risk vulnerability and flood zone compatibility table (table 3) in the NPPF, the development is appropriate in flood zone 1, with no requirement for a sequential or exception test.

2. INTRODUCTION

- 2.1 This flood risk assessment has been prepared on behalf of A R Cartwright Ltd to address the flood risk associated with the proposed residential development at Station Road, Bagworth, Leicestershire LE67 1BA.
- 2.2 The purpose of the report is to establish the level of risk that exists for a flooding event to affect the site. Any increased flood risks to the surrounding area following the construction of the proposed development will be identified. The report will also outline measures that can reasonably be put in place to reduce the effects, should flooding occur, to acceptable levels based on the identified risk.
- 2.3 This assessment generally follows the principles as laid down in the NPPF and PPS25. Although PPS25 has been superseded by the NPPF, it still contains measures that are recognised as needing to be followed.
- 2.4 The general conditions contained in appendix V are applied to this report and it should be read and construed accordingly.

3. SITE DESCRIPTION AND LOCATION

- 3.1 The site is located to the west of Station Road, Bagworth, Leicestershire LE67 1BA. Grid reference easting: 443998, northing 309375 denotes the approximate centre of the site. At the time of writing this report the majority of the site was agricultural land, with three single storey buildings within the south eastern corner.
- 3.2 The site is irregular in shape and occupies an area of approximately 2.1ha. Site levels generally fall from east to west.
- 3.3 Summary details of the site boundaries and adjacent land use are:

Boundary	Construction	Adjacent Land Use	Proximal Land Use
North	Trees/wall	Woodland/residential	Woodlands/private roads
East	Fence	Residential/woodland	Railway/agricultural land
South	Trees	Woodland	Residential
West	Trees	Woodland	Agricultural land

- 3.4 A topographical survey is included in appendix I.

4. DEVELOPMENT

- 4.1 It is proposed to construct 46 multi storey residential dwellings, together with areas of hardstanding (roads and driveways) and soft landscaping (front and rear gardens).
- 4.2 The proposed development is classified as a more vulnerable development by the Flood Risk Vulnerability Classification (Annex 3) in the NPPF.

5. SEQUENTIAL AND EXCEPTION TESTS

- 5.1 The whole of the site lies in flood zone 1, as shown on the appended EA flood map (appendix II); therefore, a sequential test is not required for the proposed development.
- 5.2 The exception test is not required as the development lies in flood zone 1.

6. ANALYSIS OF RISK

- 6.1 The source pathway receptor model will be used to analyse the likely risk of flooding affecting the site and the development.
- 6.2 The sources will be investigated and their risk of affecting the development assessed. Those that have a low or negligible risk of affecting the site will not need to be considered further.
- 6.3 Those sources with a medium or high risk of affecting the site will be considered further in terms of their pathway to the site. Where possible the pathway risk to the receptors will be reduced from medium or high risk to low or negligible risk.
- 6.4 The residual medium or high risks to the receptors will be managed to ensure that the users of the development and their possessions and property are not at a greater than a low risk of being affected.
- 6.5 The possible sources of flooding within mainland England are generally taken to be:
- Fluvial (rivers)
 - Tidal (sea or estuary)
 - Groundwater
 - Infrastructure
 - Sewer

- Surface water (pluvial)
- 6.6 Fluvial Flooding - The site is located within flood zone 1, with a very low risk of fluvial flooding.
- 6.7 Tidal Flooding - The site is approximately 100km from the sea, with site levels approximately 153m above sea level. The risk of tidal flooding affecting the site is therefore negligible.
- 6.8 Groundwater Flooding - In accordance with Leicestershire County Council SFRA Flood Risk Map, the site is located within an area at a very low risk of groundwater flooding (<25%). This is confirmed on the EA website, which states that groundwater flooding is unlikely in this area.
- 6.9 Surface Water (Pluvial Flooding) - The EA surface water flood maps show that the majority of the site is at a very low risk of surface water flooding, with approximately 20% of the site at a high risk (1 in 30 year), increasing to 30% for a 1 in 1000 year flood event (low risk). The area at risk is located within the western section of the site.
- 6.10 As shown on the appended proposed site plan, no development will take place within the area at a high or medium risk of surface water flooding, with the exception of an access road to the pumping station and an attenuation pond. Therefore, no mitigation measures will be required.
- 6.11 Safe access and egress will be achievable during a surface water flood event, as none of the residential dwellings or roads will be impacted.
- 6.12 Infrastructure - Burst water mains are unlikely to affect the site as the water will be channelled away from the site via curb lines located within Station Road. Given the topography of the site and the surrounding area, it is likely that the land to the north and west of the site will flood before the site is affected. In accordance with the EA flood risk website, the site is unlikely to be impacted by reservoir flooding; therefore, the risk of infrastructure flooding is deemed to be very low.
- 6.13 Sewer Flooding - In accordance with Leicestershire County Council SFRA, there are 36 recorded incidents of sewer flooding within the North West Leicestershire District between 1989 and 2014. The majority of the incidents occurred within the LE67 post code area (area of the site). It is unlikely that sewer flooding will impact the proposed development, as surface water flooding is likely to flow south along Station Road. Therefore, the risk is considered to be low.

6.14 Pathways - From analysing the above sources, surface water flooding has been identified as being the most likely cause of flooding; however, it should be noted that the majority of the site is at a very low risk. The possible pathways for flooding affecting the site need not be considered further.

6.15 Receptors - The receptors will include the users of the site and the surrounding properties. The proposed change of use is very unlikely to increase the flood risk to the surrounding area. This is because the areas of surface water flooding will remain undeveloped.

6.16 Outcome of Risk Analysis

Source	Risk	Population at Risk	Mitigation Measures	Residual Risk
Fluvial	Very low	Site users	None required	Very low
Tidal	Negligible	N/A	None required	Negligible
Groundwater	Very low	Site users	None required	Very low
Surface water run off (pluvial flooding)	Very low to high (very low in area of residential properties)	Site users	None required	Very low
Sewer	Low	Site users	None required	Low
Infrastructure	Very low	Site users	None required	Very low

7. SURFACE WATER DRAINAGE SYSTEM

7.1 A Drainage Strategy (Ref:101 P1 and 102 P1 dated August 2025) has been produced by PRP. For the full details of the surface water drainage solution, reference should be made to the above mentioned drawings, however, the salient details are noted below.

- A gravity system will be constructed carrying flows to an attenuation basin and a flow control device
- Permeable paving will provide treatment and storage of surface water runoff, as well as retaining the first 5mm of runoff within the site
- Attenuation basin is proposed to cater for all storms up to and including 1 in 100 year plus 40% for climate change storm
- A hydro-break flow control will be used to restrict flows discharging into the culverted watercourse at 2l/s, subject to LLFA and ordinary watercourse agreement

- 7.2 In the event of system failure or an excessive rainfall event, some overland flows will travel westward, towards the attenuation basin, away from buildings and properties, with some flows being retained within the attenuation basin, hence preventing any adverse effects on properties.

8. GEOLOGY

- 8.1 Within the accuracy of the available geological information (British Geological Survey (BGS) Geology of Britain at a scale of 1:50,000) the solid geology beneath the northern part of the site is the Edwalton Member, described as red brown and greenish grey mudstone and siltstone.
- 8.2 The weathered Edwalton Member is likely to comprise clay and silt with a negligible to low permeability; therefore, soakaways and a means of dealing with surface water runoff are unlikely to be feasible.

9. **CONCLUSIONS**

- 9.1 The site lies in fluvial flood zone 1. As such, the proposed development is not at risk of flooding from any nearby watercourse during a 1:1000 year flooding event; therefore, the risk of fluvial flooding is deemed to be very low.
- 9.2 The EA surface water flood maps show that the majority of the site is at a very low risk of surface water flooding, with approximately 20% of the site at a high risk (1 in 30 year), increasing to 30% for a 1 in 1000 year flood event (low risk). The area at risk of surface water flooding is located within the western section of the site.
- 9.3 No residential dwellings or supporting infrastructure, with the exception of an access road for the pumping station and an attenuation pond, will be constructed within the area at a medium or high risk of surface water flooding; therefore, no mitigation measures will be required.
- 9.4 The site is located within an area which is unlikely to be impacted by reservoir or groundwater flooding, therefore, the risk is deemed to be very low.
- 9.5 Sequential and exception tests are not required as the site is located in flood zone 1.

APPENDIX I

SITE PLANS



SCHEDULE

● **AFFORDABLE HOUSING @ 40% of 46 = 19**

AFFORDABLE RENT @ 75% of 19 = 14

Small dwellings
 1 bed apartments - 2
 2 bed bungalow - 2
 2 bed houses - 4
TOTAL - 8 = 42.1% of 19

Medium / large dwellings
 3 bed houses - 4
 4 bed houses - 2
TOTAL - 6 = 31.5% of 19

● **FIRST HOMES @ 25% of 19 = 5**

Small dwellings
 2 bed houses - 2
TOTAL - 2 = 10.6% of 23

Medium / large dwellings
 3 bed houses - 3
TOTAL - 3 = 15.8% of 23

TOTAL = 19

MARKET HOUSING

2 bed bungalows - 4
 2 bed houses - 20 = **70% of 34**
 3 bed houses - 7
 4 bed houses - 3 = **30% of 34**
TOTAL = 34

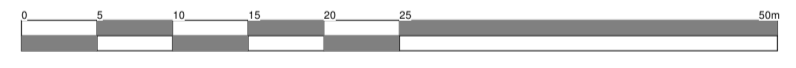
TOTAL DWELLINGS = 57

Total housing split

36 x smaller and medium size units = **63%** of which 2 (5%) are flats.
 21 x medium and larger family units = **37%**

LANDSCAPING

- Proposed new tree planting
 - total area = approx. 2187m²
 = 10% of total site area
- Proposed new BNG planting
 - total area = approx. 5050m²
- Root protection areas



Cartwright HOMES

Station Road Bagworth

Client: Cartwright Homes		Project Title: Proposed development Station Road Bagworth		Date: Aug 2024		Sheet: A1		Job No: 24/19		Drawing No: 04d	
Author: ZLM		Checked by:		Scale: 1:500		Status: PLANNING		 19 Station Road, Hincley, Leicestershire, LE10 1AW Tel: 01455 635 665 Fax: 01455 618 971 www.hayward-architects.co.uk			

Sheet

APPENDIX II

FLUVIAL FLOOD MAPS

Flood map for planning

Your reference
83047

Location (easting/northing)
443999/309378

Created
1 July 2025 12:11

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

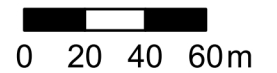
Your reference
83047

Location (easting/northing)
443999/309378

Scale
1:2,500

Created
1 Jul 2025 12:12

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area



APPENDIX III

SURFACE WATER FLOOD MAPS

Get a boundary report

 Edit

 Delete

Datasets

Flood zones 2 and 3

River and sea with defences

River and sea without defences

Surface water

None

Annual likelihood of flooding

1 in 30

1 in 100

1 in 1000

Map features

Water storage



Environmental Agency Flood Map: Surface Water – 1 in 30 Year (High Risk) (Source: <https://flood-map-for-planning.service.gov.uk>)

Get a boundary report

 Edit

 Delete

Datasets

Flood zones 2 and 3

River and sea with defences

River and sea without defences

Surface water

None

Annual likelihood of flooding

1 in 30

1 in 100

1 in 1000

Map features

Water storage



Environmental Agency Flood Map: Surface Water – 1 in 100 Year (Medium Risk) (**Source:** <https://flood-map-for-planning.service.gov.uk>)

Get a boundary report

 Edit

 Delete

Datasets

Flood zones 2 and 3

River and sea with defences

River and sea without defences

Surface water

None

Annual likelihood of flooding

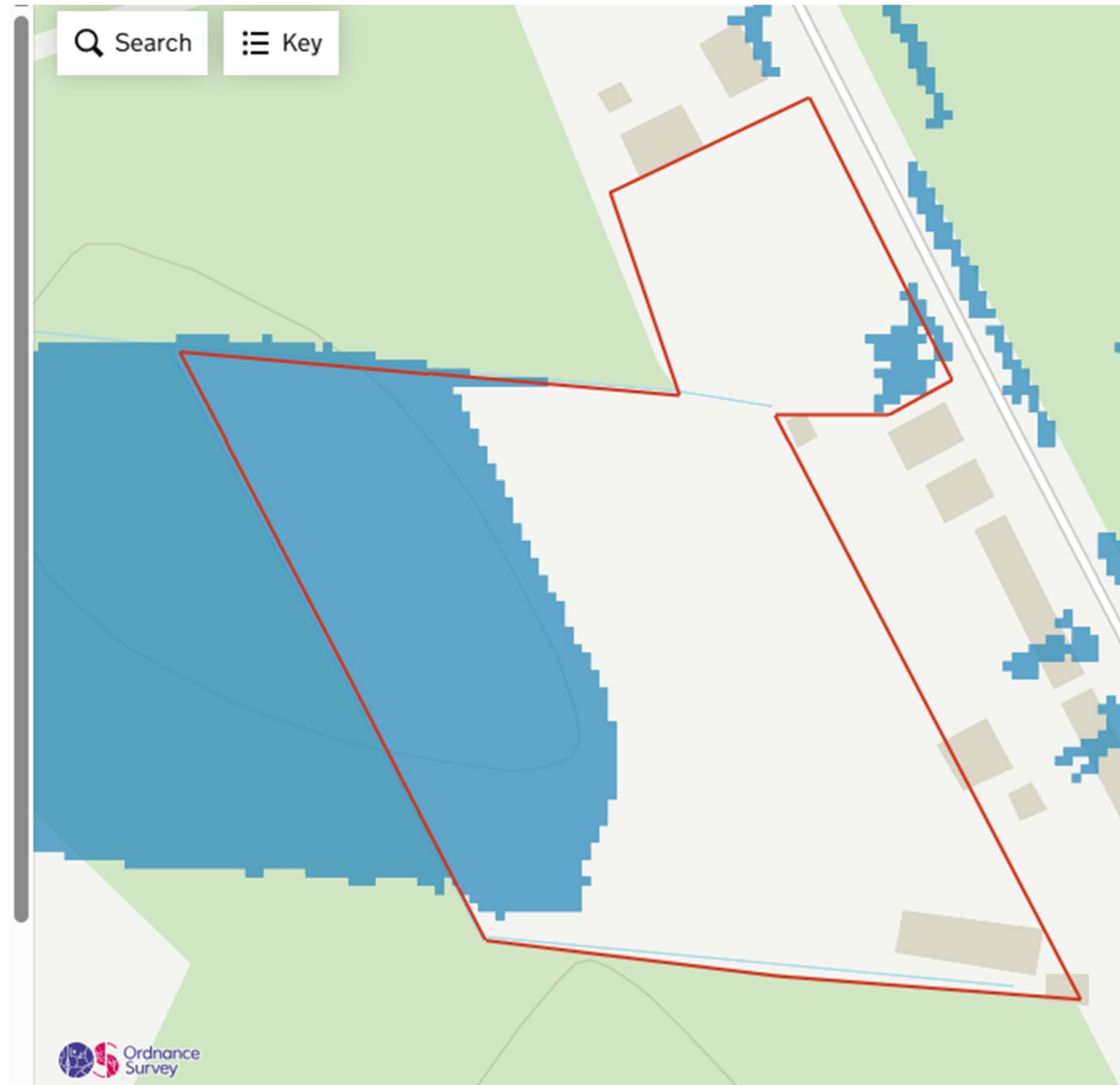
1 in 30

1 in 100

1 in 1000

Map features

Water storage



Environmental Agency Flood Map: Surface Water – 1 in 1000 Year (Low Risk) (**Source:** <https://flood-map-for-planning.service.gov.uk>)

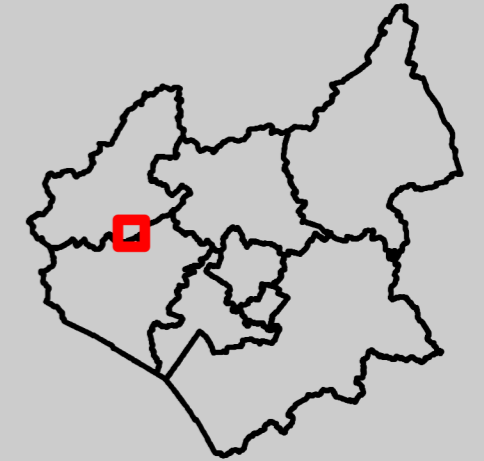
APPENDIX IV

GROUNDWATER FLOOD RISK MAP

**STRATEGIC FLOOD RISK ASSESSMENT
LEVEL 1**

APPENDIX A: FLOOD RISK MAPPING

INDEX GRID: 89



LEGEND

Authority Information

- Study boundary
- Main Rivers
- Detailed River Network

Climate Change (2080s)

- 1% AEP Climate Change Lower
- 1% AEP Climate Change Central
- 1% AEP Climate Change Upper

Flood Zones

- Flood Zones 3b
- Flood Zones 3a
- Flood Zones 2

Areas Susceptible to Groundwater Flooding

- >= 75%
- >= 50% <75%
- >= 25% <50%
- < 25%

Surface Water

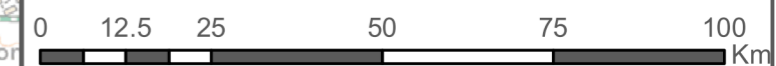
- RoFfSW 3.3% AEP
- RoFfSW 1% AEP
- RoFfSW 0.1 AEP

Reservoir Inundation

- Reservoir Inundation

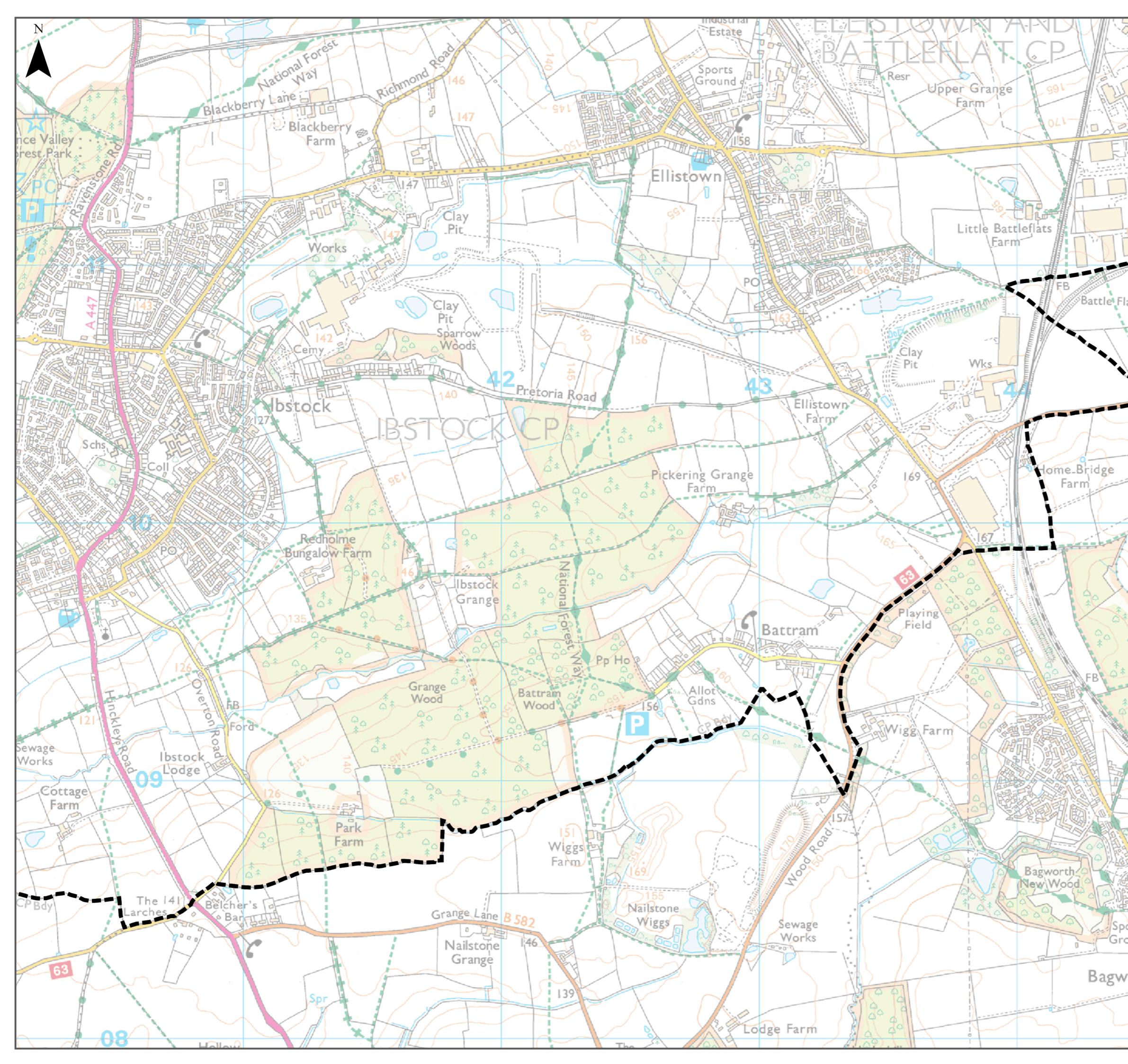
Mapping Supporting Information

Return to Index Map



Reproduced from Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright and database right 2017. © Ordnance Survey 100019271. Use of this data is subject to terms and conditions.

This document is the property of Jeremy Benn Associates Ltd. It shall not be reproduced in whole or in part, not disclosed to a third party, without the permission of Jeremy Benn Associates Ltd.



APPENDIX V**GENERAL CONDITIONS**

1. This report has been prepared and written specifically for the client named in the introduction and is exclusively for his/her/their benefit. No reliance may be placed in the contents of this report by any third party except with the express agreement of the original client and the written agreement of PRP. Such written agreement may require the payment of an additional fee.
2. This report has been prepared and written in the context of the proposals for the development of the site as stated by the client and will not be valid in a differing context. Furthermore, new information, improved practices, or legislation may necessitate alteration to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of this report, it should be referred to us for re-assessment.
3. There may also be special conditions appertaining to the site which were not revealed by the investigation and which will not, therefore, have been taken into account in this report. Any assessments may be subject to amendment in the light of additional information becoming available.
4. Whilst an opinion may be expressed or implied in this report on possible configurations or on the possible presence of features based either visual, verbal or published evidence, this is for guidance only and no liability can be accepted for the accuracy of such opinions.
5. Comments on groundwater conditions will have been based on observations made only at the time of any investigation or published data unless otherwise stated. It should be noted, however, that groundwater levels vary due to seasonal and other effects.
6. This report is not a site categorisation, and hazards could occur which have not been detected.
7. The copyright in this report and other related plans and documents prepared by PRP is owned by them and no such report, plan or document may be reproduced, published or adapted without their written consent. Complete copies of the report may however be made and distributed by the client as an expedient in dealing with matters related to its commission.
8. Where indicated reliance has been placed on data supplied by the environment agency and the strategic flood risk assessment for the area available at the time of writing this report. No liability can be entertained by PRP if this data later proves to be inaccurate or in any way incomplete.