GPA_HO_ProgrammeX

MOD 015 Flood Risk Assessment

Second issue

Home Office

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Acronyms/Abbreviations

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AEP	Annual Exceedance Probability
BGS	British Geological Survey
CC	Climate Change
CDC	Cherwell District Council
EA	Environment Agency
FFLs	Finished Floor Levels
FRA	Flood Risk Assessment
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
MoD	Ministry of Defence
NPPF	National Planning Policy Framework
OCC	Oxfordshire County Council
PPG	Planning Practice Guidance
SFRA	Strategic Flood Risk Assessment
SPZ	Source Protection Zone
SuDS	Sustainable Drainage Systems

Note of Flood Frequencies

The frequency of a flood can be quoted in terms of a return period, which is defined as the average time between years with at least one larger flood, or as an annual exceedance probability (AEP), which is the inverse of the return period.

Return periods can be expressed more succinctly than AEP. However, AEP can be helpful when presenting results to members of the public who may associate the concept of return period with a regular occurrence rather than an average recurrence interval.

The following table is provided to enable quick conversion between return periods and annual exceedance probabilities.

AEP (%)	50	20	10	5	3.33	2	1.33	1	0.5	0.1
AEP	0.5	0.2	0.1	0.05	0.033	0.02	0.0133	0.01	0.005	0.001
Return Period (Years)	2	5	10	20	30	50	75	100	200	1000

1.0 Introduction

1.1 Purpose of this Report

1.1.1 The Home Office has instructed preparation of this Flood Risk Assessment (FRA) to support the consideration of future development at Ministry of Defence (MoD) Piddington Depot, Piddington, Oxfordshire, approximate postcode: OX25 1AE.

1.2 Scope of the Report

1.2.1 The FRA will consider all potential sources of flood risk including 'Main Rivers', 'Ordinary Watercourses', tidal, surface water and overland flow routes, groundwater, sewers, and reservoirs. It will identify the level of risk and, where necessary, propose mitigation to manage flood risk.

1.2.2 The assessment will be undertaken in accordance with the National Planning Policy Framework (NPPF) (Chapter 14), Planning Practice Guidance (PPG) (Flood Risk and Coastal Change), Environment Agency (EA) guidance and local guidance including the Cherwell District Council (CDC) Strategic Flood Risk Assessment (SFRA) and Oxfordshire County Council (OCC) Local Flood Risk Management Strategy (LFRMS).

1.3 Limitations of this Report

1.3.1 This report has been prepared on behalf of the Home Office in connection with the scope of the report as described in Section 1.3 above and taking into account the particular instructions and requirements set out in the relevant fee proposal and the Client's acceptance. It is not intended for and should not be relied on by any third party and no responsibility is undertaken to any third party.

1.3.2 The author organisation accepts no duty or responsibility (including in negligence) to any party other than the Home Office and disclaims all liability of any nature whatsoever to any such party in respect of this report.

1.3.3 This report cannot be reproduced without the author company's written consent.

1.3.4 This assessment has been completed based on the best available data at the time of writing. Flood risk and climate change is an evolving science and therefore documents such as this should be revisited at regular intervals in the future when new flood risk and climate change information, guidance or data is published.

2.0 Site Description

2.1 Existing Site

2.1.1 The site is located at MoD Piddington Depot (see Figure 2-1). The site's central grid reference is SP 63244 17759. The site boundary is approximately 50.1 hectares (ha) in size.

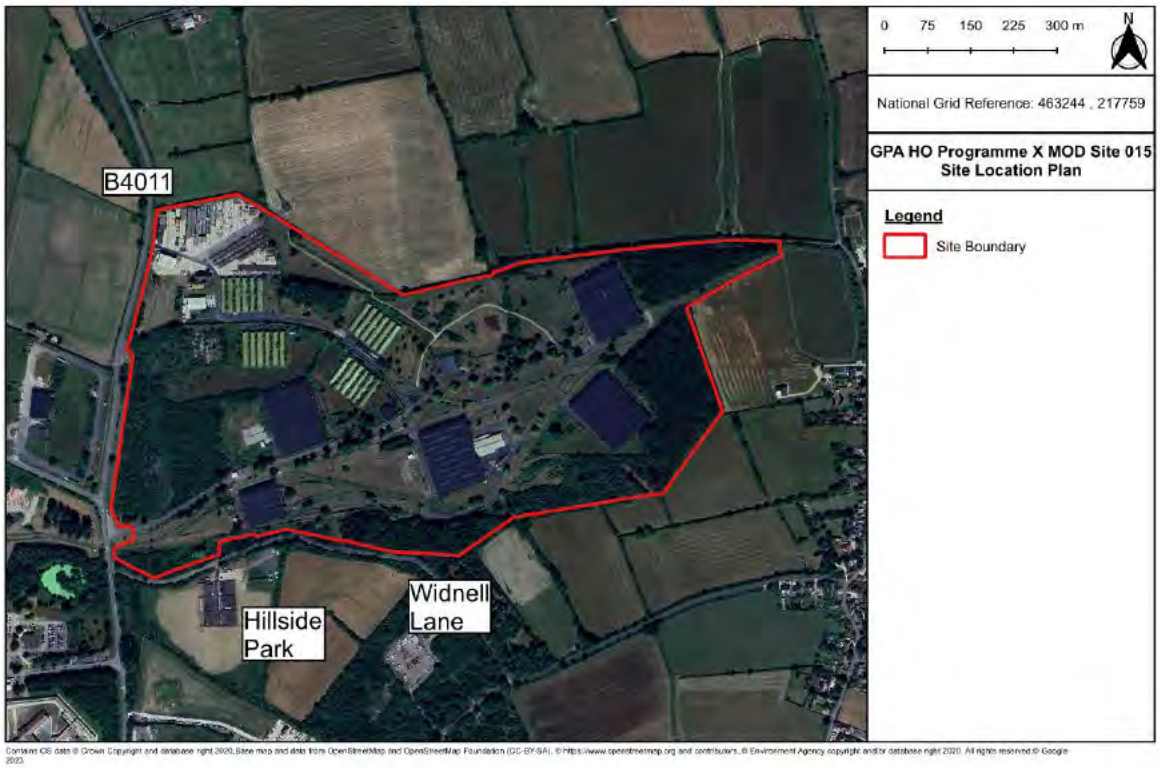


Figure 2-1 Site Location Plan

2.1.2 The site is located in a mixed setting and is formed by a combination of warehouse storage and grassed areas. The areas surrounding the site includes the following:

- Grass fields to the north, east and south with the village of Piddington approximately 150 m east of the site at its closest.
- Widnell Lane and Hillside Park to the south.
- The B4011 highway to the immediate west.

2.2 Site Topography

2.2.1 A topographic survey of central and western areas of the site was undertaken on 9th April 2026 and is included in Appendix A. This records levels in this area of the site as sloping southward from a maximum of approximately 67 m Above Ordnance Datum (AOD) in the south of the study area, to a minimum of approximately 63 m AOD in the northwest.

2.2.2 A review of EA LiDAR DTM indicates that the site slopes from south to north from a maximum 71.3 m Above Ordnance Datum (AOD) in the southeast, to approximately 63 m AOD in the far northwest of the site (see Figure 2-2).

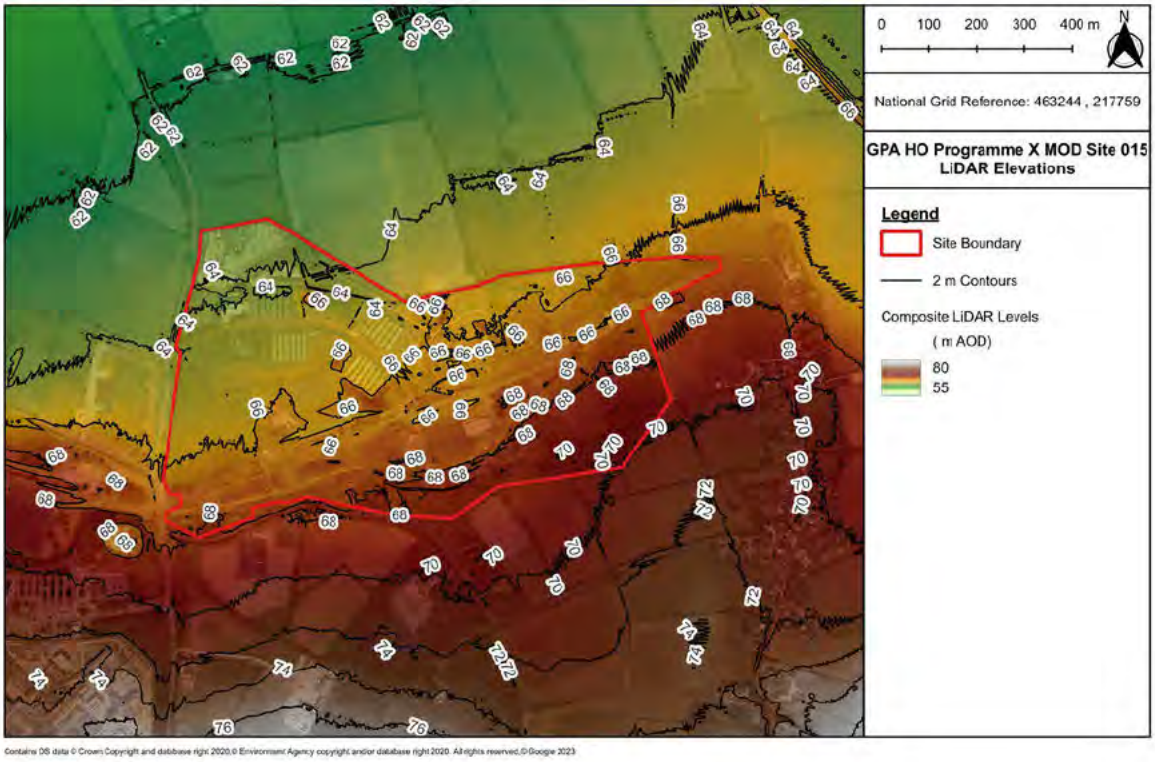


Figure 2-2 EA LiDAR DTM

2.3 Hydrology

Main Rivers

2.3.1 A review of EA Statutory Main River mapping indicates the presence of an unnamed tributary of the River Ray, runs westward at the northeastern border of the site (see Figure 2-3). This then runs northward beyond the site border.

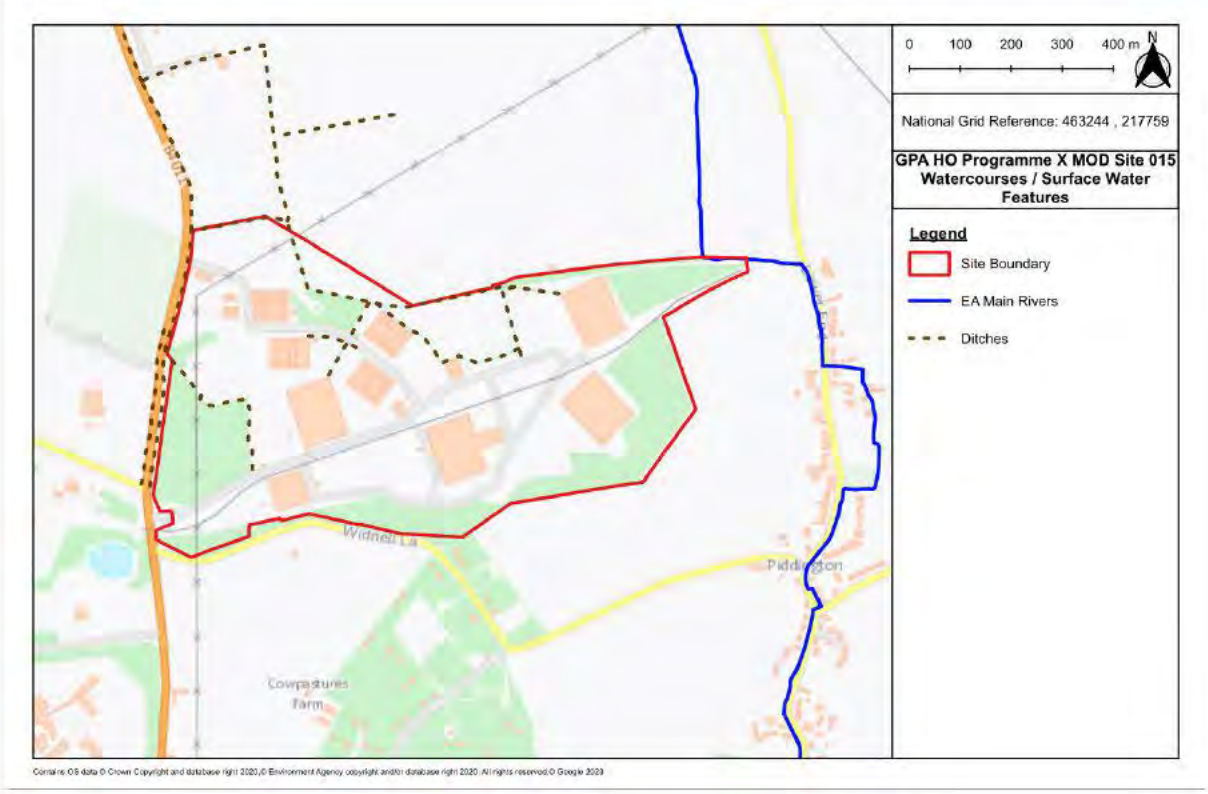


Figure 2-3 Watercourses and Surface Water Features

Ordinary Watercourses

2.3.2 The site is drained by a network of drainage ditches, as shown in Figure 2-3 and as recorded by the Topographic Survey (see Appendix A), which drain from southeast to northwest.

2.4 Existing Drainage

Public Sewers

2.4.1 A Thames Water Sewer Asset Plan is included as Appendix B, and indicates the following public sewer assets at and within the vicinity of the site:

[redacted]

2.5 Ground Conditions

Soils

2.5.1 A review of Defra's online 'Magic' mapping indicates that the underlying soils at much of the site are classified as '*Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils*'. The south of the site is indicated as being underlain by '*Lime-rich loamy and clayey soils with impeded drainage*'.

Geology

2.5.2 A review of the British Geological Survey (BGS) online geological mapping indicates the site is largely underlain by superficial deposits of Alluvium consisting of clay, silt, sand and gravel. The south of the site is underlain by no superficial deposits. The north of the site is underlain entirely by bedrock deposits of Peterborough Member Mudstone, and the south of the site is underlain by bedrock deposits of Stewartby Member Mudstone.

2.5.3 A review of numerous BGS boreholes located approximately 300 m – 500 m southwest and east of the site indicates the presence of clays to a maximum proven depth of 2 m – 13.9 m Below Ground Level (BGL), which in some places is underlain by sands to a maximum proven depth of 4 m – 8 m BGL. Groundwater was struck at levels ranging from 2.5 m - 5.5 m BGL at. The location of the groups of boreholes is indicated in Figure 2-4.

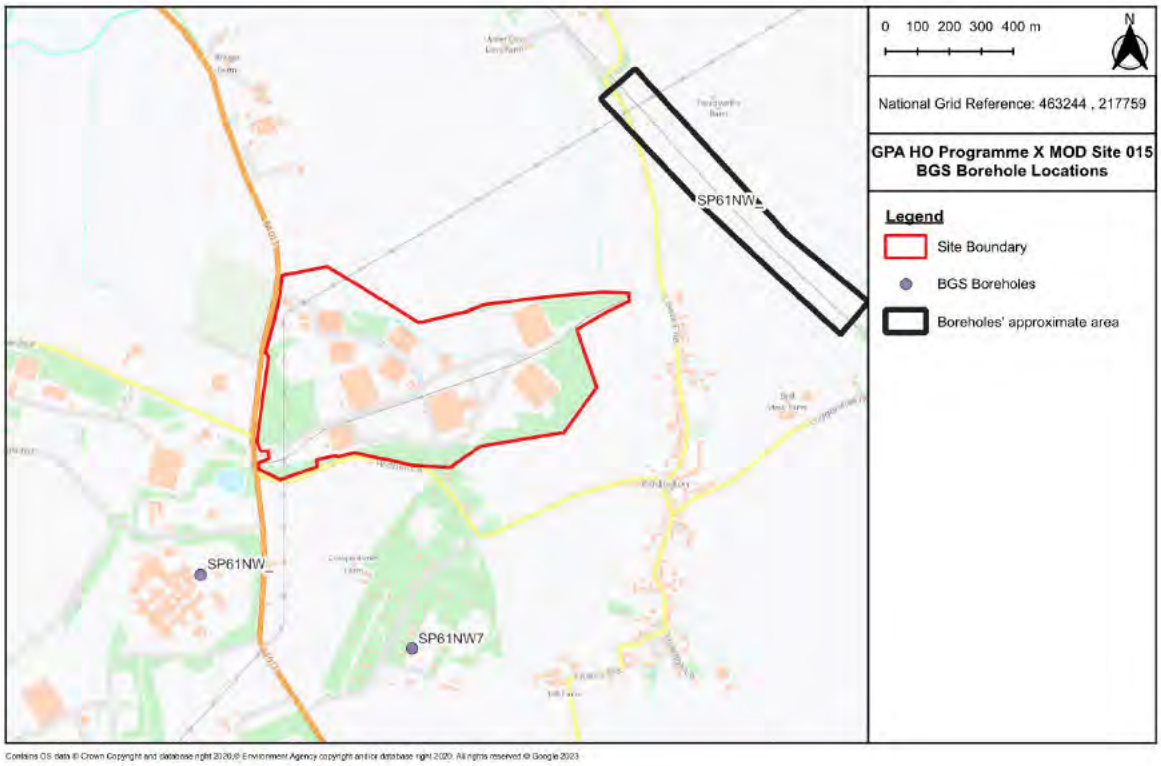


Figure 2-4 BGS Boreholes

Hydrogeology

2.5.4 A review of Defra's online 'Magic' mapping indicates that the superficial deposits' aquifers at the site are classified as Secondary A aquifer. The bedrock geology at the site is classified as unproductive with regard to aquifers.

2.5.5 Secondary A aquifers comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers

2.5.6 Unproductive strata are largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.

Source Protection Zones (SPZ)

2.5.7 A review of DEFRA's online 'Magic' mapping indicates that the site is not located within a SPZ. It is therefore considered unlikely that site activities will impact potable water supply through contamination.

3.0 Planning Policy

3.1 Planning Policy and Guidance

3.1.1 The Local Planning Authority (LPA) for the site is Cherwell District Council (CDC), and the Lead Local Flood Authority (LLFA) is Oxfordshire County Council (OCC).

National Planning Policy Framework

3.1.2 In accordance with the NPPF a formal FRA is required in support of a planning application for development located within Flood Zones 2 and 3 and developments located in Flood Zone 1 that are greater than 1 Ha in size.

3.1.3 A small part of the site is located within Flood Zones 3 and 2, and the site area is 50.1 ha. Therefore, an FRA is required.

3.1.4 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied with a presumption in favour of sustainable development. Chapter 14 'Meeting the challenge of climate change, flooding and coastal change' sets out the Government's policies in relation to flood risk and drainage.

3.1.5 The NPPF aims to guide development away from areas at the highest risk of flooding during the present day and future climate change scenarios.

Sequential Test

3.1.6 Paragraphs 173 and 174 of the NPPF outlines the requirements of the sequential test:

"*173. A sequential risk-based approach should also be taken to individual applications in areas known to be at risk now or in future from any form of flooding, by following the steps set out below.*

174. Within this context the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test."

3.1.7 Therefore, new development located within areas of surface water may trigger the need for a sequential test to be undertaken.

3.1.8 Paragraph 175 of NPPF outlines the following exemption:

"*175. 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 at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).*"

3.1.9 In line with the above the 17th September 2025 update of Planning Practice Guidance (PPG) on Flood Risk and Coastal Change now 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."*

3.1.10 Based on this, if the proposals can be designed such that development is located away from areas of surface water flood risk, it may not be necessary for the sequential test to be applied to this proposed development.

Exception Test

3.1.11 The existing site is understood to comprise a former defence storage and distribution centre, which have a vulnerability classification of '*Less Vulnerable*'. It is possible that any future development may be at a higher vulnerability.

3.1.12 In line with the NPPF Table 2: Flood Risk Vulnerability and Flood Zone Incompatibility, given the site is located almost entirely within Flood Zone 1, the development would be considered appropriate with regards to flood risk and an exception test would not be required.

Local Policy Documents

3.1.13 The CDC Local Plan 2011 – 2031 was adopted by CDC in July 2015. It sets out proposals to support the local economy and communities over the next few decades. It sets out the following policies with regard to flood risk and sustainable drainage:

"***Policy ESD I: Mitigating and Adapting to Climate Change***

…

The incorporation of suitable adaptation measures in new development to ensure that development is more resilient to climate change impacts will include consideration of the following:

- *Minimising the risk of flooding and making use of sustainable drainage methods*

…

Policy ESD6: Sustainable Flood Risk Management

The council will manage and reduce flood risk in the district through using a sequential approach to development; locating developments in areas at lower risk of flooding. Development proposals will be assessed according to the sequential approach and where necessary the exceptions test as set out in the NPPF and NPPG. Development will only be permitted in areas of flood risk when there are no reasonably available sites in areas of lower flood risk and the benefits of the development outweigh the risks from flooding.

In addition to safeguarding floodplains from development, opportunities will be sought to restore natural river flows and floodplains, increasing their amenity and biodiversity value. Building over or culverting of watercourses should be avoided and the removal of existing culverts will be encouraged.

Existing flood defences will be protected from damaging development and where development is considered appropriate in areas protected by such defences it must allow for the maintenance and management of the defences and designed to b resilient to flooding.

Site specific flood risk assessments will be required to accompany development proposals in the following situations:

- *All development proposals located in flood zones 2 or 3.*
- *Development proposals of 1 hectare or more located in flood zone 1.*
- *Development sites located in an area known to have experience flooding problems.*
- *Development sited located within 9 m of any watercourse.*

Flood Risk Assessments should assess all sources of flood risk and demonstrate that:

- *There will be no increase in surface water discharge rates or volumes during storm events up to and including the 1 in 100 year storm event with an allowance for climate change (the design storm event).*
- *Developments will not flood from surface water up to and including the design storm event or any surface water flooding beyond the 1 in 30 year storm event, up to and including the design storm event will be safely contained on site.*

Development should be safe and remain operational (where necessary) and proposals should demonstrate that surface water will be managed effectively on site and that the development will not increase flood risk elsewhere, including sewer flooding.

Policy ESD 7: Sustainable Drainage Systems (SuDS)

All development will be required to use sustainable drainage systems (SuDS) for the management of surface water run-off.

Where site specific Flood Risk Assessments are required in association with development proposals, they should be used to determine how SuDS can be used on particular sites and to design appropriate systems.

In considering SuDS solutions, the need to protect groundwater quality must be taken into account, especially where infiltration techniques are proposed. Where possible, SuDS should seek to reduce flood risk, reduce pollution and provide landscape and wildlife benefits. SuDS will require the approval of Oxfordshire County Council as LLFA and SuDS Approval Body, and proposals must include an agreement on the future management, maintenance and replacement of the SuDS features."

3.1.14 The CDC Level 1 SFRA was published in 2022, and its purpose is to guide development and to inform the selection of sites in relation to flood risk. The study assesses flood risk from all sources in both the present day and future scenarios, with consideration of relevant climate change guidance. It also outlines measures to reduce the causes and impacts of flooding.

4.0 Flood Risk

4.1 Historic Flooding

4.1.1 The EA Historic Flood Mapping indicates that the site is located beyond the extent of any historical flood events recorded by the EA, as shown in Figure 3-1.

4.1.2 The nearest area to have a recorded historic flood event is approximately 700 m to the north of the site.

Figure 4-1 EA Historic Flood Map

4.1.3 The OCC LFRMS Historic Flood Map, included as Appendix C, records no cases of flooding from any sources within 500 m of the site.

4.2 Fluvial and Tidal Flood Risk

4.2.1 A floodplain is the area that would naturally be affected by flooding if a river rises above its banks or is inundated by the sea (coastal or tidal flooding).

4.2.2 In England, floodplains of Main Rivers are divided into flood zones for planning purposes. These show the extent of the natural floodplain area at risk of inundation if there were no flood defences or certain other manmade structures and channel improvements. They are divided as follows:

- Flood Zone 1 is land assessed as having an annual probability of flooding of less than 1 in 1000 (<0.1%). The risk of flooding is low.
- Flood Zone 2 is land having between. 0.1% - 1% (1 in 100 to 1 in 1000) annual probability of flooding from rivers; or Between 0.1% - 0.5% (1 in 200 to 1 in 1000) annual probability of flooding from the sea and accepted recorded flood outlines. The risk of flooding is medium.
- Flood Zone 3 is areas shown to be at. A 1% (1 in 100) or greater annual probability of flooding from rivers; or 0.5% (1 in 200) or greater annual probability of flooding from the sea. The risk of flooding is high.

4.2.3 The EA Flood Map for Planning shows that the site is almost entirely located within Flood Zone 1 (low risk), with the exception of isolated areas of Flood Zones 3 and 2 at the northern and eastern borders of the site (see Figure 4-2). The extent of Flood Zones 3 and 2 at the sites northern and eastern borders are associated with the unnamed tributary of the River Ray, and the River Ray respectively.

4.2.4 The River Ray, and the unnamed tributary of the River Ray at the eastern border of the site feature flood defences in the form of natural high ground, with a design standard of protection of the 1 in 2 year event.

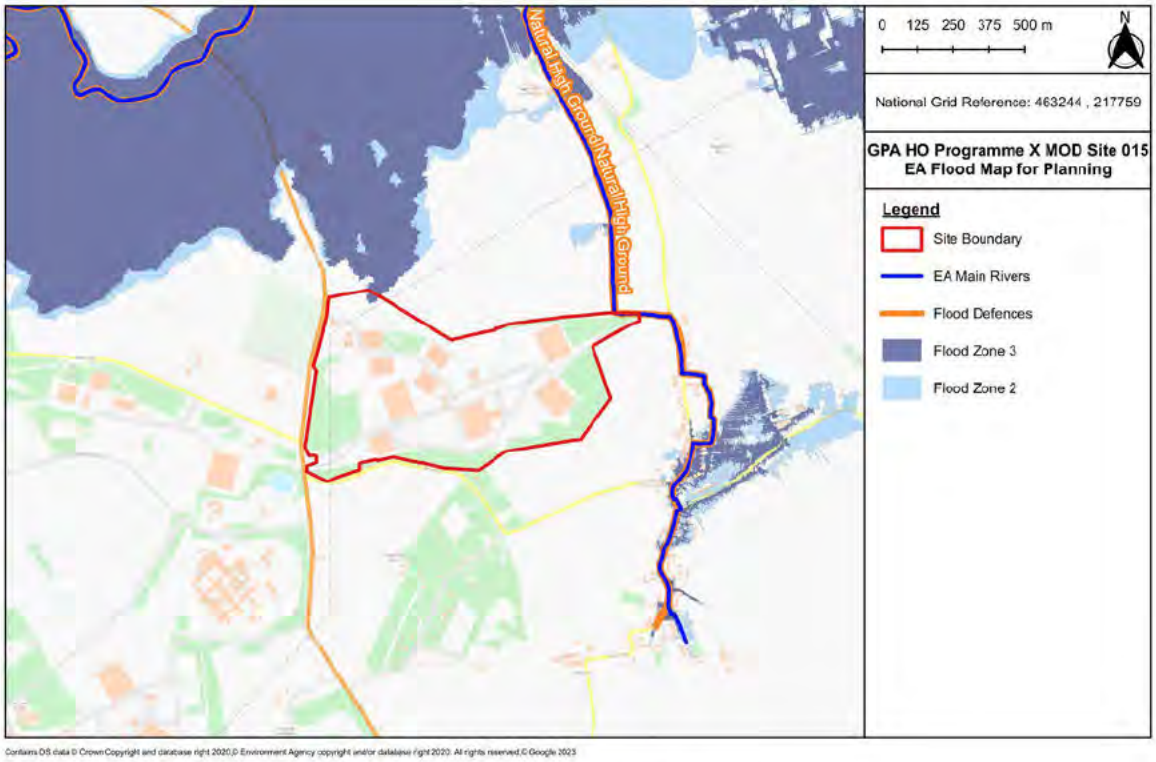


Figure 4-2 EA Flood Map for Planning

4.2.5 The EA Risk of Flooding from Rivers and Sea map, produced an published in 2025, displays the risk of flooding from rivers and sea taking into account the presence and condition of flood defences. When accounting for climate change and incorporating he 2050s epoch (2039 – 2069), the site is shown to be entirely at very low risk of flooding, as is shown in Figure 4-3.

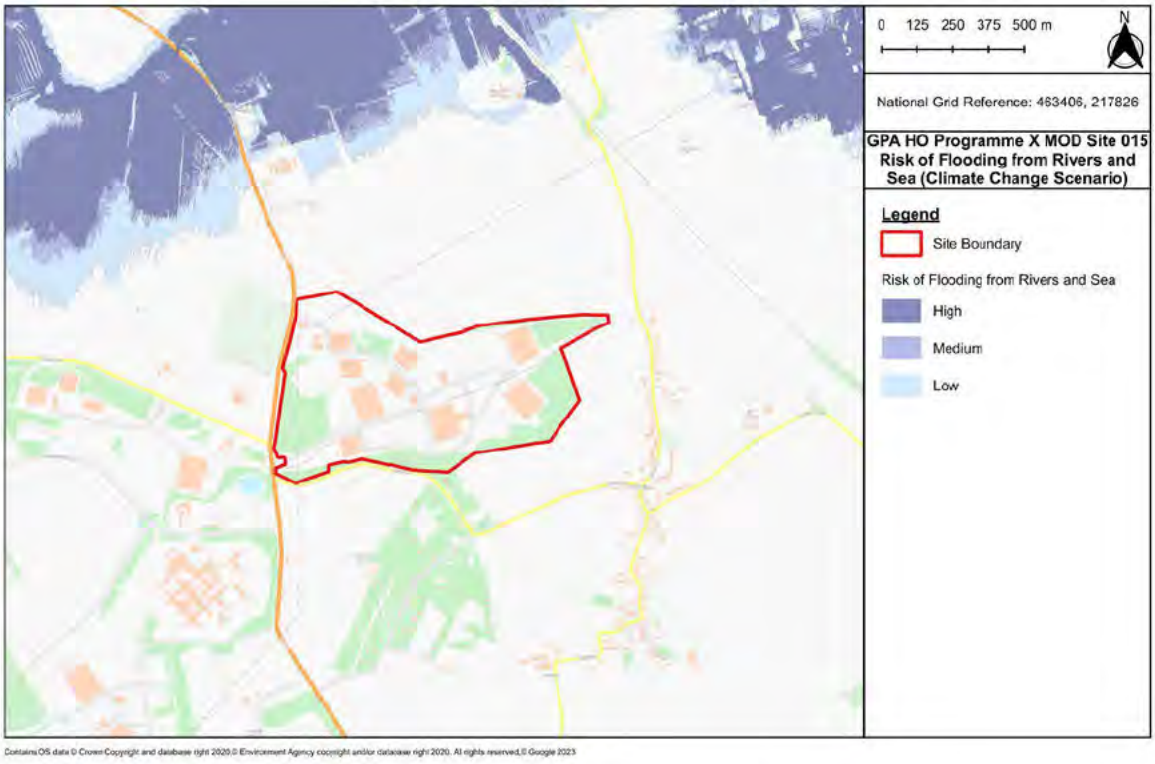


Figure 4-3 Risk of Flooding from Rivers and Sea with consideration of climate change

4.2.6 Based on the above, the site is considered to be at low risk of flooding from fluvial sources in the present day and future climate change scenarios.

4.2.7 Given the site's inland location and minimum elevation of 63 m AOD, the risk of flooding from tidal sources is therefore considered as negligible.

4.3 Surface Water and Overland Flows

4.3.1 Surface water flooding can occur during high intensity rainfall events as sheet runoff from fields or hard paved areas. It is particularly prevalent in areas with significant hard standing or poorly permeable soils (i.e. clay). This is because the grounds capacity for infiltration is reduced. In addition, the inability to enter local drainage systems also contributes to risk from this source. The risk of surface water flooding is divided as follows, as defined by the EA:

- Very low risk means that the annual probability of flooding is less than 1 in 1000 (<0.1% AEP).
- Low risk means that the annual probability of flooding is between 1 in 1000 (0.1% AEP) and 1 in 100 (1% AEP).
- Medium risk means that the annual probability of flooding is between 1 in 100 (1% AEP) and 1 in 30 (3.3% AEP).
- High risk means that the annual probability of flooding of greater than 1 in 30 (3.3% AEP).

4.3.2 The Risk of Flooding from Surface Water map shows considerable areas of the site are at high (>3.3% AEP) to low (0.1% - 1% AEP) risk of surface water flooding (see Figure 4-4), particularly in central and western areas of the site.

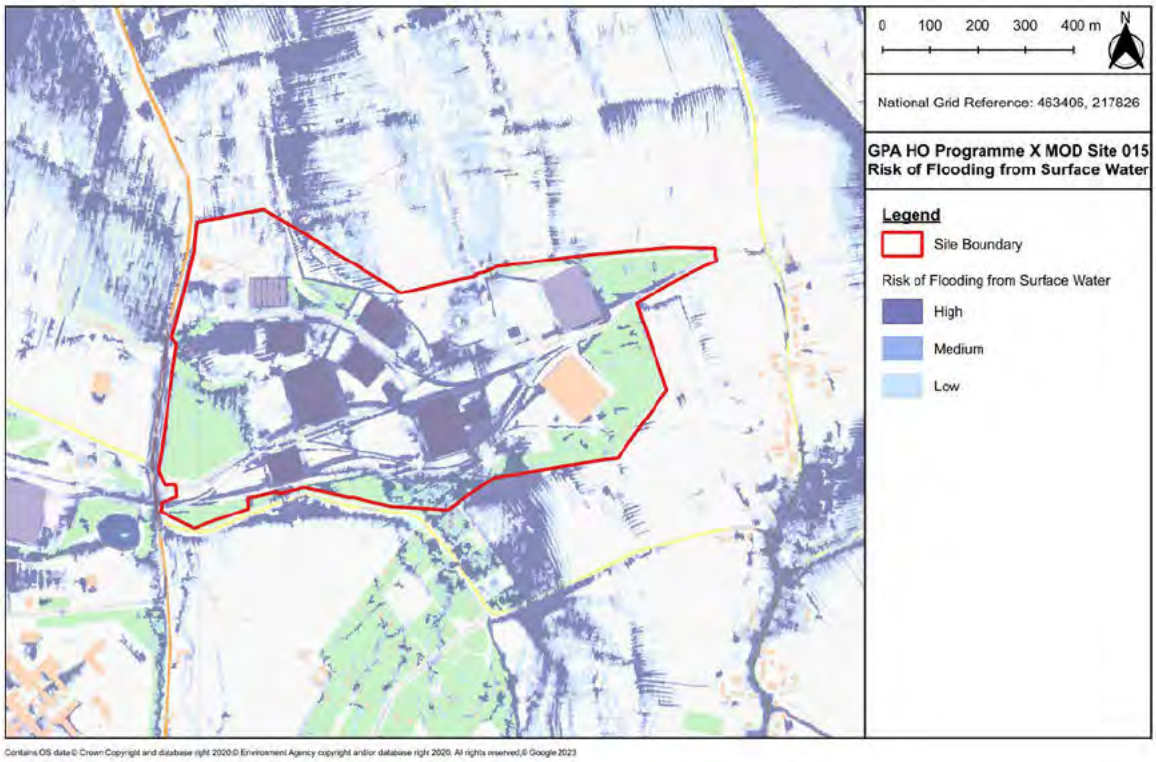


Figure 4-4 Risk of flooding from Surface Water

4.3.3 The EA Risk of Flooding from Surface Water map shows high (>3.3% AEP) to low (0.1% - 1% AEP) risk within the footprints of the existing buildings across much of the site.

4.3.4 Review of the corresponding depth mapping for the high (>3.3% AEP) to low (0.1% - 1% AEP) risk events indicated that surface water flood extents as modelled at the existing buildings are almost entirely limited to less than 600 mm, with any greater depths limited to the existing ditch network on site (see Figure 4-5).

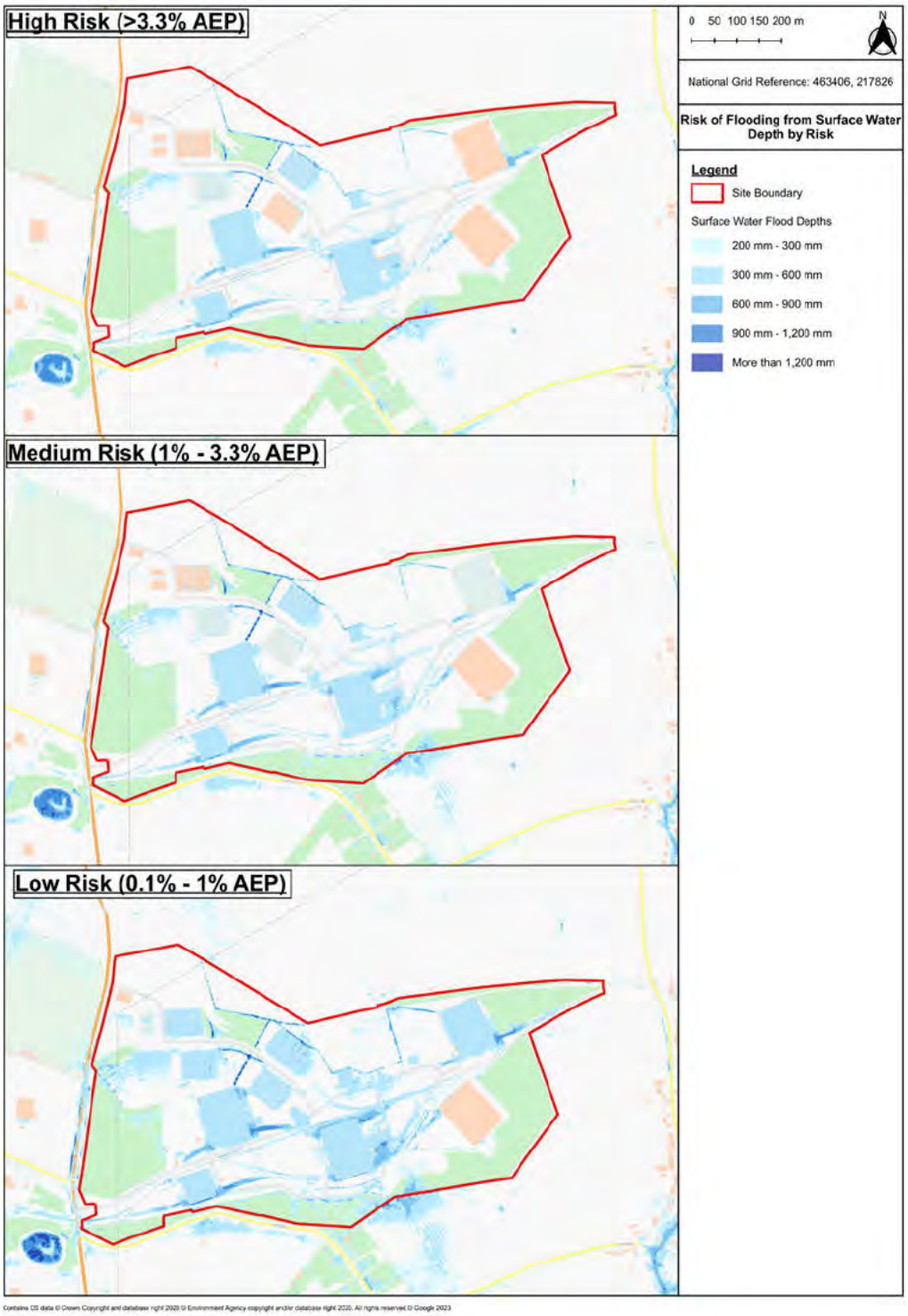


Figure 4-5 Surface Water Flood Depth in present day

4.3.5 In the future climate change scenario, the high (3.3% AEP), medium (1% - 3.3% AEP) and low (0.1% - 1% AEP) flood extents are greater than in the present day scenario (see Figure 4-6).

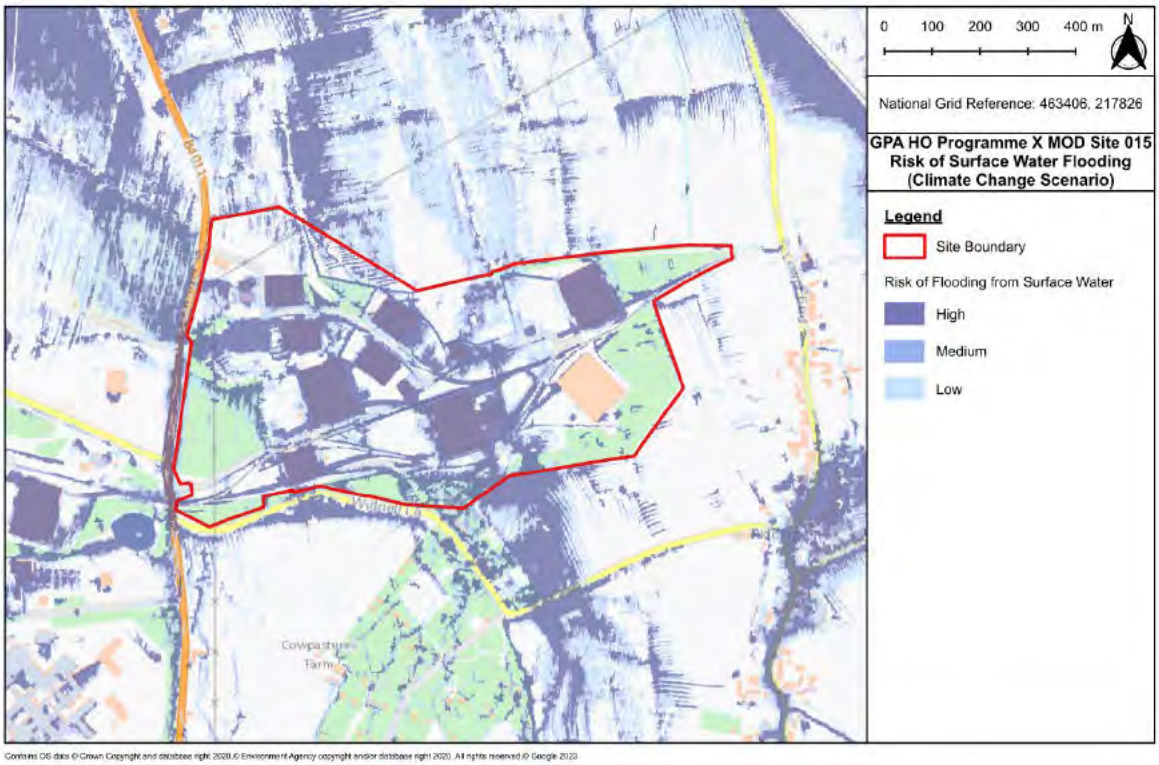


Figure 4-6 Risk of Surface Water Flooding - Future Climate Change Scenario

4.3.6 Review of the corresponding depth mapping for the high (>3.3% AEP) to low (0.1% - 1% AEP) risk events indicate that surface water flood extents as modelled at the existing buildings are almost entirely limited to less than 600 mm, with any greater depths limited to the existing ditch network on site (see Figure 4-7).

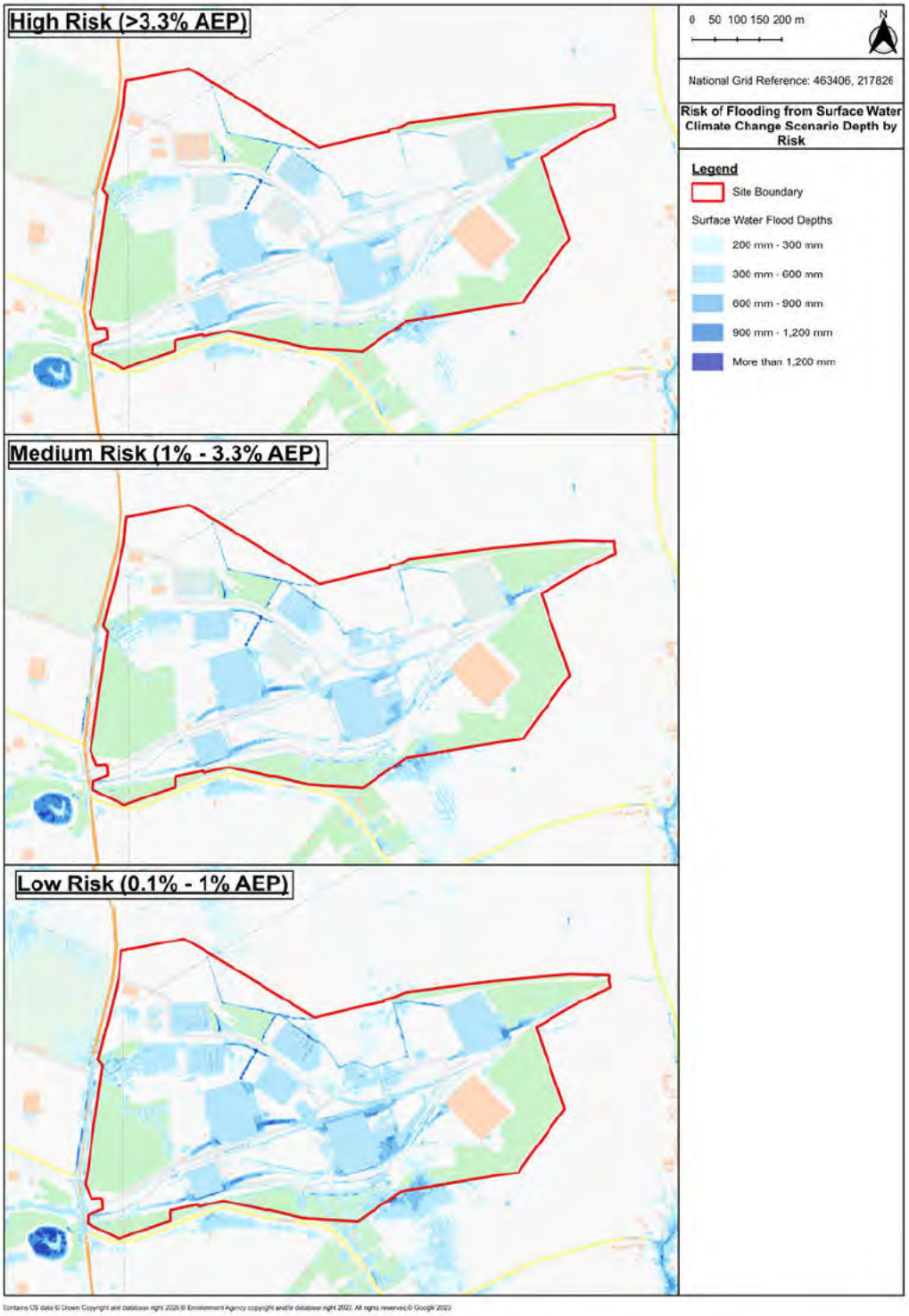


Figure 4-7 Surface Water Flood Depths in Climate Change Scenario

4.3.7 It is worth noting that EA Risk of Surface Water Flooding modelling does not include a detailed representation of local drainage networks, therefore the extents shown in the risk of flooding from surface water mapping are considered as conservative.

4.3.8 The site features a private surface water drainage network, including pipes and drainage ditches, as recorded by the Topographic Survey (see Appendix A) (see Figure 4-8). These help to mitigate the risk of the surface water flooding to the buildings and surrounding site area by helping take surface water off site.

4.3.9 In addition, no flooding has been recorded at the site, despite much of it being indicated as being affected in the high (3.3% AEP) risk event.

Figure 4-8 Drainage channels, ditches and Risk of Flooding from Surface Water extents with climate change

4.3.10 Given the presence of the existing surface water drainage network at and around the site, the risk of flooding to the site from surface water is considered as medium in both the present and future climate change scenarios.

4.4 Groundwater Flooding

4.4.1 Groundwater flooding occurs when groundwater emerges at the surface under conditions where the 'normal' range of groundwater levels and groundwater flows is exceeded.

4.4.2 The site is situated above a Secondary A superficial aquifer, therefore baseflow from the site may potentially be supporting rivers, lakes and wetlands.

4.4.3 The CBC SFRA states the following with regard to groundwater flooding:

"*In the south of the district the soils for the most part are freely draining lime-rich soils permeable soils with a peaty surface. However, in the far south in areas including southern Bicester and Kidlington loamy soils with naturally high groundwater are also present. Where, soils are freely draining, the mobile water table may present a groundwater flood risk in low lying areas particularly near watercourses. Where water tables are naturally high, this may result in standing water on low lying ground that is unable to reach a ditch or watercourse and is unable to percolate through the ground due to seasonally high water perches in groundwater levels.*"

4.4.4 Based on the above, the risk of groundwater flooding is considered as low in both the present day and future climate change scenario.

4.5 Sewer Flooding

4.5.1 Sewer flooding occurs when intense rainfall overloads the sewer system capacity and/or when sewers cannot discharge properly to watercourses due to high water levels. Sewer flooding can also be caused when problems such as blockages, collapses or equipment failure occur in the sewerage system.

4.5.2 Sewer flooding incidents as presented within the CDC SFRA indicate no cases of internal or external sewer flooding as having been recorded within the OX25_1 postcode area (see Appendix D).

4.5.3 The site features a private surface water drainage network consisting of pipes and drainage ditches (see Topographic Survey as Appendix A and Figure 2-3). Review of Google Maps Streetview indicates the presence of highway drainage beneath the B4011 highway located to the west of the site.

4.5.4 In the event of failure of the existing public and private sewers at and within the vicinity of the site, it is considered likely that any flooding would be short lived and limited to the highways within and outside of the site.

4.5.5 The risk of flooding from sewers is considered as low in both the present day and future climate change scenarios.

4.6 Reservoir Flooding

4.6.1 Flooding from reservoirs occurs when a reservoir dam is overtopped or breaches due to structural failure. The consequence of such an event would be severe but the probability of a catastrophic dam failure is considered to be extremely low due to the management and maintenance required under the Reservoirs Act 1975.

4.6.2 The EA Risk of Reservoirs Flooding map shows the site to be located entirely outside of any reservoir flood extents.

4.6.3 The risk of flooding from reservoir sources is therefore considered as negligible in the present day and future climate change scenarios.

4.7 Canal Flooding

4.7.1 Flooding from a canal occurs when the canal is overtopped or breaches due to failure.

4.7.2 As set out in Section 2.3, no canals are located within the vicinity of the site, and therefore the risk of flooding from canals is considered as negligible.

4.8 Summary of Flood Risk

4.8.1 The flood risk at the site is summarised in Table 3-1.

Table 3-1: Flood Risk Summary

Source	Present Day Risk	Future Climate Change Risk
Fluvial	Low	Low
Tidal	Negligible	Negligible
Surface Water	Medium	Medium
Groundwater	Low	Low
Sewer	Low	Low
Reservoir	Negligible	Negligible
Canals	Negligible	Negligible

4.9 Development and Flood Risk

Flood Risk to the site

4.9.1 The site is located entirely within areas classified as being at very low risk of flooding from fluvial and tidal sources.

4.9.2 Much of the site is indicated as being at risk of surface water flooding in the high (3.3% AEP) to low (0.1% - 1% AEP) risk surface water flood events. However, this mapping does not make detailed consideration of the local private drainage network, which includes pipes and drainage ditches, which in reality, would intercept this surface water and convey it to the lower lying areas to the north of the site.

4.9.3 The risk of flooding to the site is considered to be low to negligible from all other sources.

Flood Risk Arising from the site

4.9.4 Any future development could result in a change in hardstanding areas at the site, and therefore surface water flow regime within the site. A Drainage Strategy has been prepared to mitigate this risk and will be submitted separately from this FRA. This will ensure that there is no increase in surface water flood risk to the site and surrounding areas as a result of any proposed development.

4.9.5 Any future development could result in new structures within surface water flood extents as indicated by the EA Risk of flooding from Surface Water modelling. As set out above, this risk extent mapping does not make detailed consideration of existing surface water drainage networks such as ditches and surface water pipes. This would likely reduce the extent of surface water as indicated to the drainage ditches, and hence minimise any displacement caused by proposed development. In addition, any displacement of surface water that does occur as a result of the proposed development would be limited to within the confines of the site boundary.

4.9.6 It is anticipated that any development will be at or above the ground surface only, and therefore there will be no displacement of groundwater at the site or to areas surrounding it.

5.0 Consents

5.1 Flood Risk Activity Permit

5.1.1 Under the Environmental Permitting (England and Wales) Regulations 2016, an environmental permit is required from the Environment Agency for work:

- on or near a main river
- on or near a flood defence structure
- in a flood plain
- on or near a sea defence

5.1.2 An unnamed tributary of the River Ray is located in the far east of the site. This Main River is fluvial in nature, and therefore any development within 8 m of it or its defences will necessitate completion of a Flood Risk Activity Permit to support the planning application.

5.2 Ordinary Watercourse Consents

5.2.1 The site and the areas immediately surrounding it are drained by a network of drainage ditches. Any modifications to these or ordinary watercourses that my affect the flows or the channel and any new outfalls into a watercourse will need to obtain Land Drainage Consent as per Section 23 of the Land Drainage Act 1991.

5.3 Section 104

5.3.1 If any new sewers were to be adopted an application would be required to [the relevant service provider] under Section 104 of the Water Industry Act 1991. The application should be made following completion of the detailed drainage design.

5.4 Section 106

5.4.1 Where a new connection is to be made to the public sewer network, an application would be required to [the relevant service provider] for the new outfall and connection under Section 106 of the Water Industry Act 1991.

6.0 Conclusions and Recommendations

6.1 Conclusions

6.1.1 The Home Office has instructed preparation of this Flood Risk Assessment (FRA) to support the consideration of future development at Ministry of Defence (MoD) Piddington Depot, Piddington, Oxfordshire, approximate postcode: OX25 1AE.

6.1.2 The site is located almost entirely within Flood Zone 1, with a minor area of Flood Zones 3 and 2 in the far north and east of the site. The site is entirely at very low risk of flooding from rivers and sea.

6.1.3 Much of the site is indicated as being at high (3.3% AEP) to low (0.1% - 1% AEP) risk of flooding from surface water, including the existing buildings. It is important to note that the site features a private surface water drainage system, including a series of surface water pipes and drainage ditches. However, EA surface water modelling does not take account of local drainage networks. The risk of flooding from surface water is therefore considered as moderate in the present day and future climate change scenario.

6.1.4 Any future development could change hardstanding areas at the site, and therefore surface water flow regime within the site. A Drainage Strategy has been prepared to manage this, and will be submitted separately from this FRA. This will ensure that there is no increase in surface water flood risk to the site and surrounding areas as a result of the proposed development.

6.1.5 The risk of flooding from all other sources is considered as negligible to low.

6.2 Recommendations

6.2.1 The following is recommended:

- Where possible, any new development should be located outside of any flood extents to avoid triggering the need for a Sequential Test.
- Consideration should be given to the location of any future development and changes to levels. Any future development or changes to levels should be located outside areas of surface water flood risk.
- A hydraulic model of the overland flow path may be appropriate to further analyse the flood risk to the site from surface water flooding. It is recommended that no development is located within the surface water extents that could impede this flow path.
- A CCTV survey should be undertaken to determine the condition of the private surface water sewer network at the site.

- The existing drainage network is to be maintained to reduce the potential for failures and blockages, therefore reducing the potential risk of flooding form the drainage network.
- A full Ground Investigation Study should be prepared in order to confirm groundwater levels beneath the site.

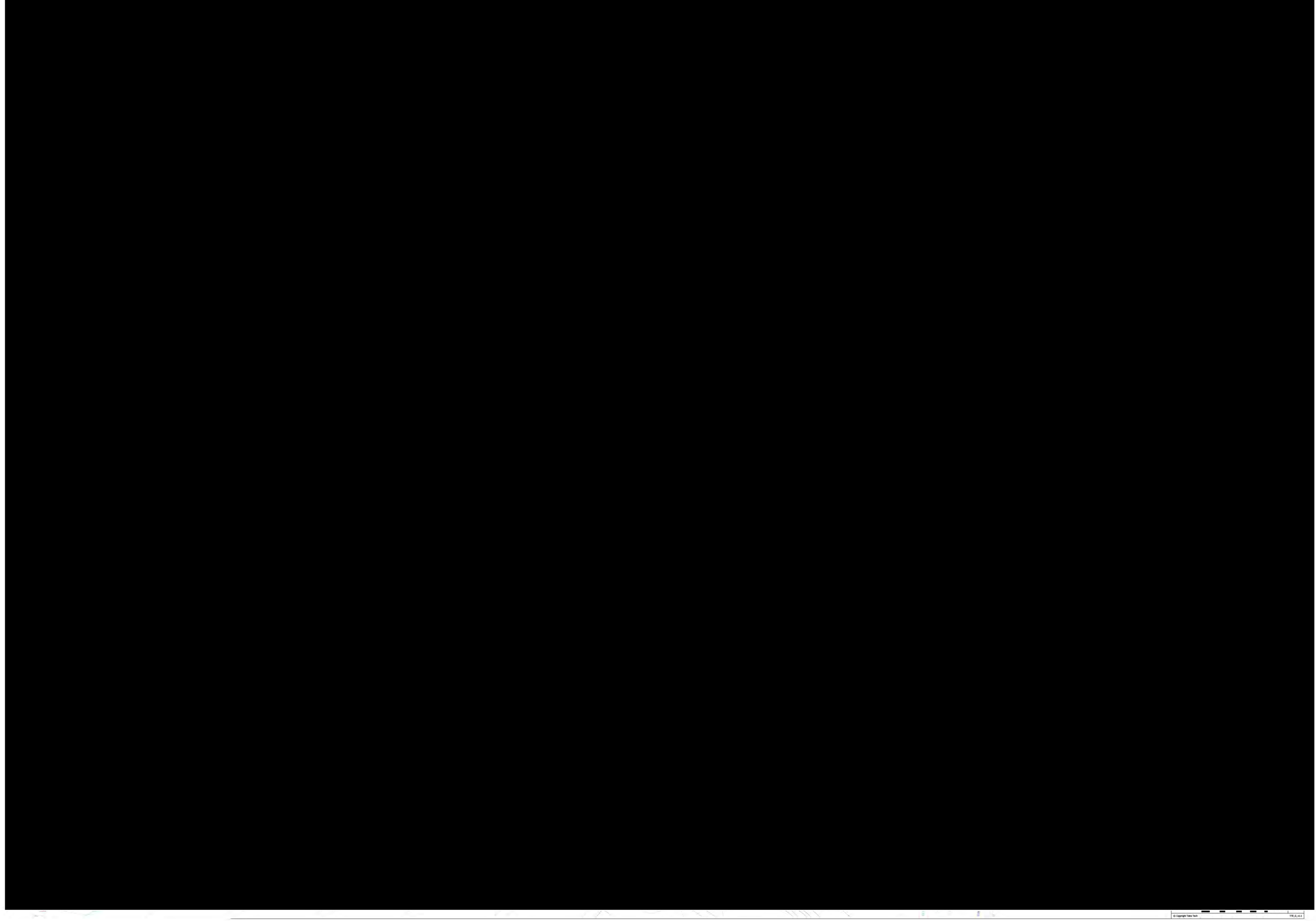
Appendix A: Topographic Survey

OS NORTH

NOTES

1. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ON THIS DRAWING ARE IN METRES.
2. LEVELS RELATED TO OS DATUM NEWLYN FROM GNSS POSITIONING USING THE NATIONAL GEOID MODEL OSGM15 AT SURVEY STATION SCxxx
3. LOCAL PLANE METRIC GRID RELATED TO ORDNANCE SURVEY GRID AT SURVEY STATION SCxxx

TODO: LEGEND



Appendix B: Thames Water Sewer Asset Plan and Sewer Flood Records

Asset Location Search

Property Searches

[redacted]

Search address supplied Wild Meadow
Blackthorn
Bicester
OX25 1TW

[redacted] 015

[redacted] [redacted]

Search date 1 May 2026

Keeping you up-to-date

Notification of price changes

We're changing our report prices from 4th June 2025. The price will increase by 3.5% based on Retail Price Index (RPI).

Find our new prices on our website thameswater.co.uk/property-searches

Any Questions? We're happy to talk through the changes with you – give our Property Searches team a call on 0800 009 4540 .

Thames Water Utilities Ltd
Property Searches,
Clearwater Court, Vastern Road, Reading RG1 8DB

property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches

0800 009 4540

Asset Location Search

Property Searches

Search address supplied: Wild Meadow, Blackthorn, Bicester, OX25 1TW

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position and size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk
Web: thameswater.co.uk/propertysearches

Asset Location Search

Thames Water Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

[redacted]

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority. Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners. The public sewer map relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus. The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

[redacted]

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

Asset Location Search

Thames Water Property Searches

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies. For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over issues please direct them to our service desk which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

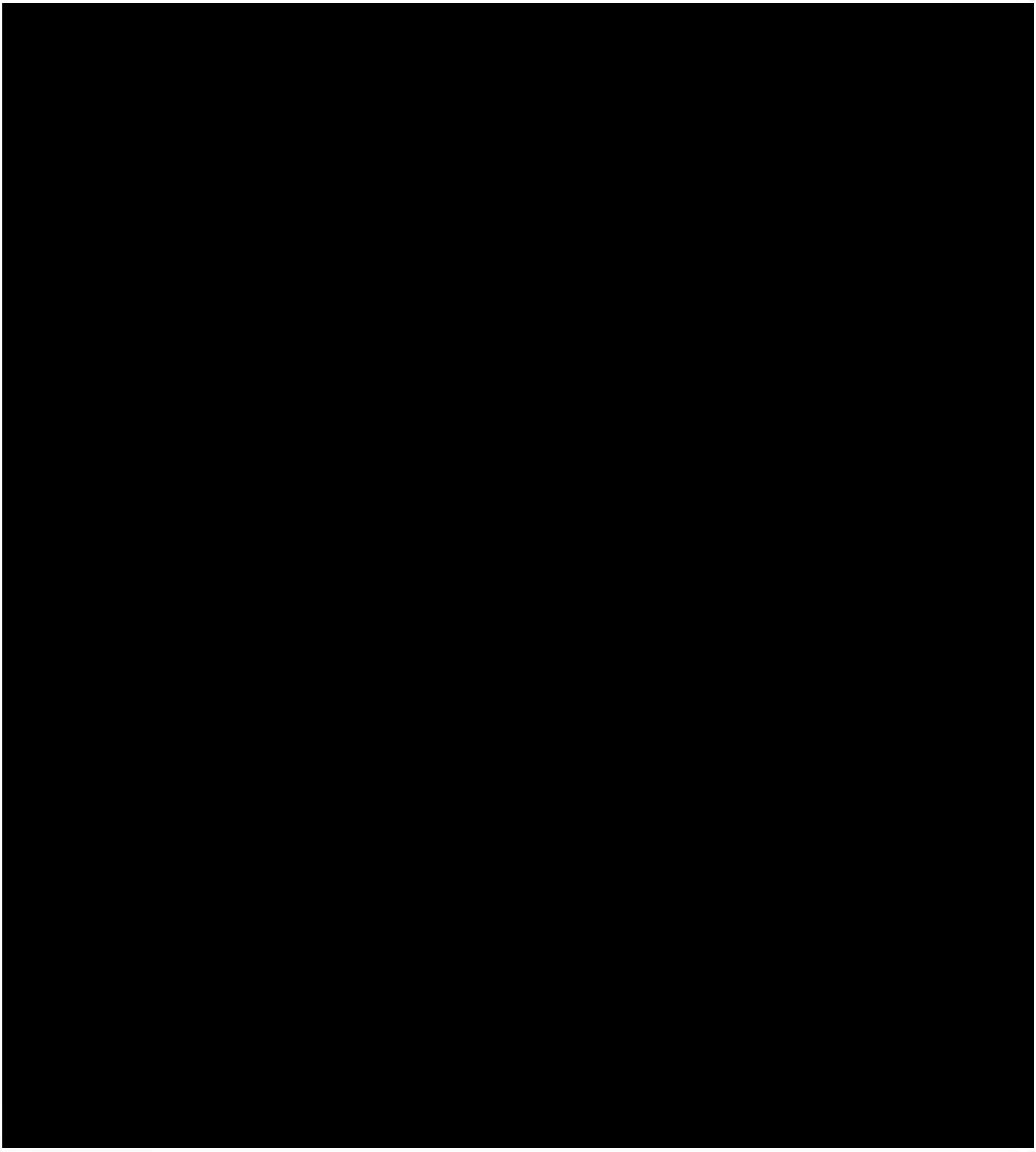
Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk



Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

A feature in a sewer that changes or divects the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Inlet
- Outfall
- Undefined End

Other Symbols

Symbols used on maps which do not fall under other general categories.

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement — Ducts may contain high voltage cables. Please check with Thames Water.
- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters.
Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.
If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Asset Location Search - Water Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

Casement: Ducts may contain high voltage cables. Please check with Thames Water.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Appendix C: OCC LFRMS

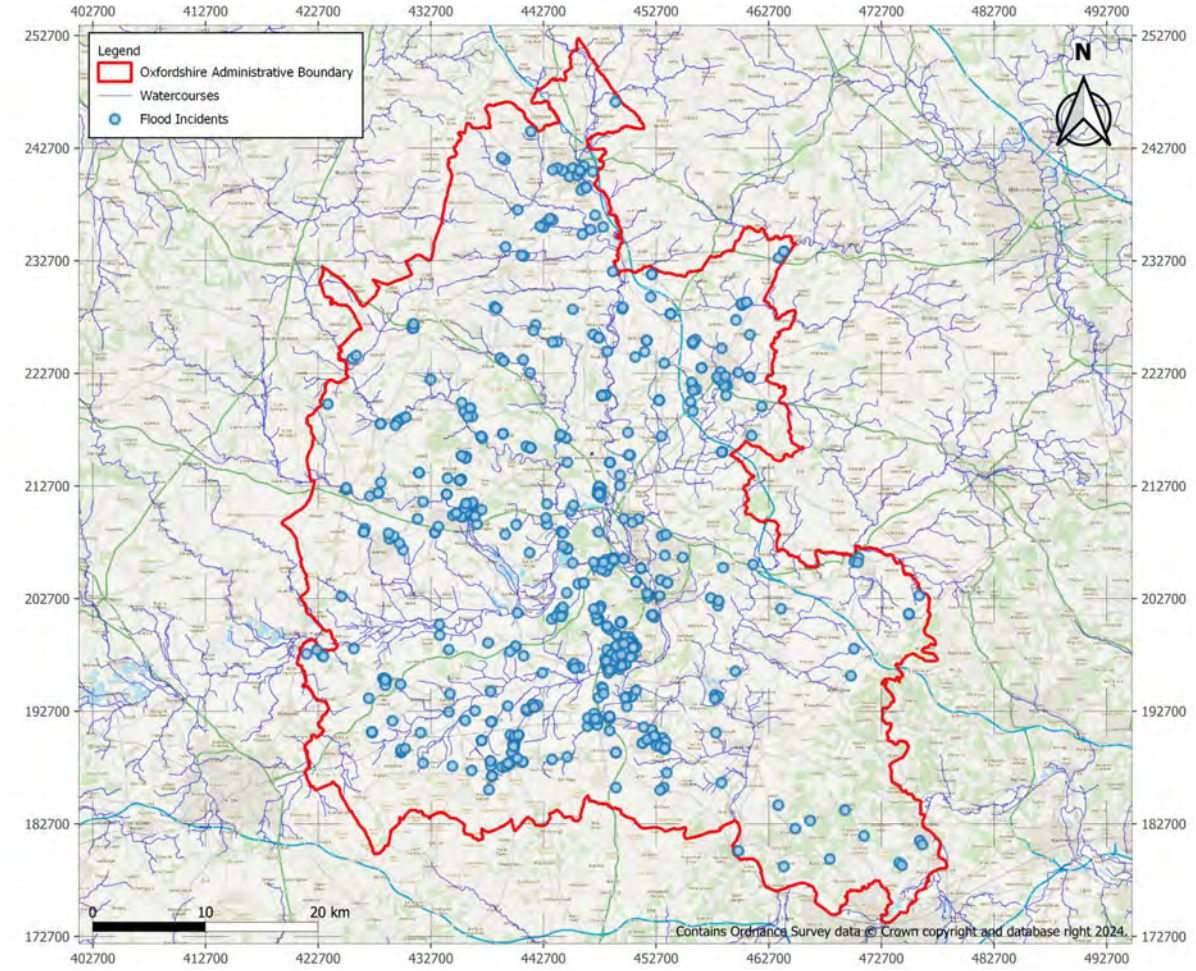


Figure 8- Oxfordshire Recorded Flood Incidents

It should be noted that in addition to the flood hotspots database, OCC are also a member of Project Groundwater[25]. The programme aims to improve monitoring of when and where groundwater emerges and overall awareness of groundwater flooding. It is led by Buckinghamshire Council in partnership with five other authorities including OCC and Flood Community Groups.

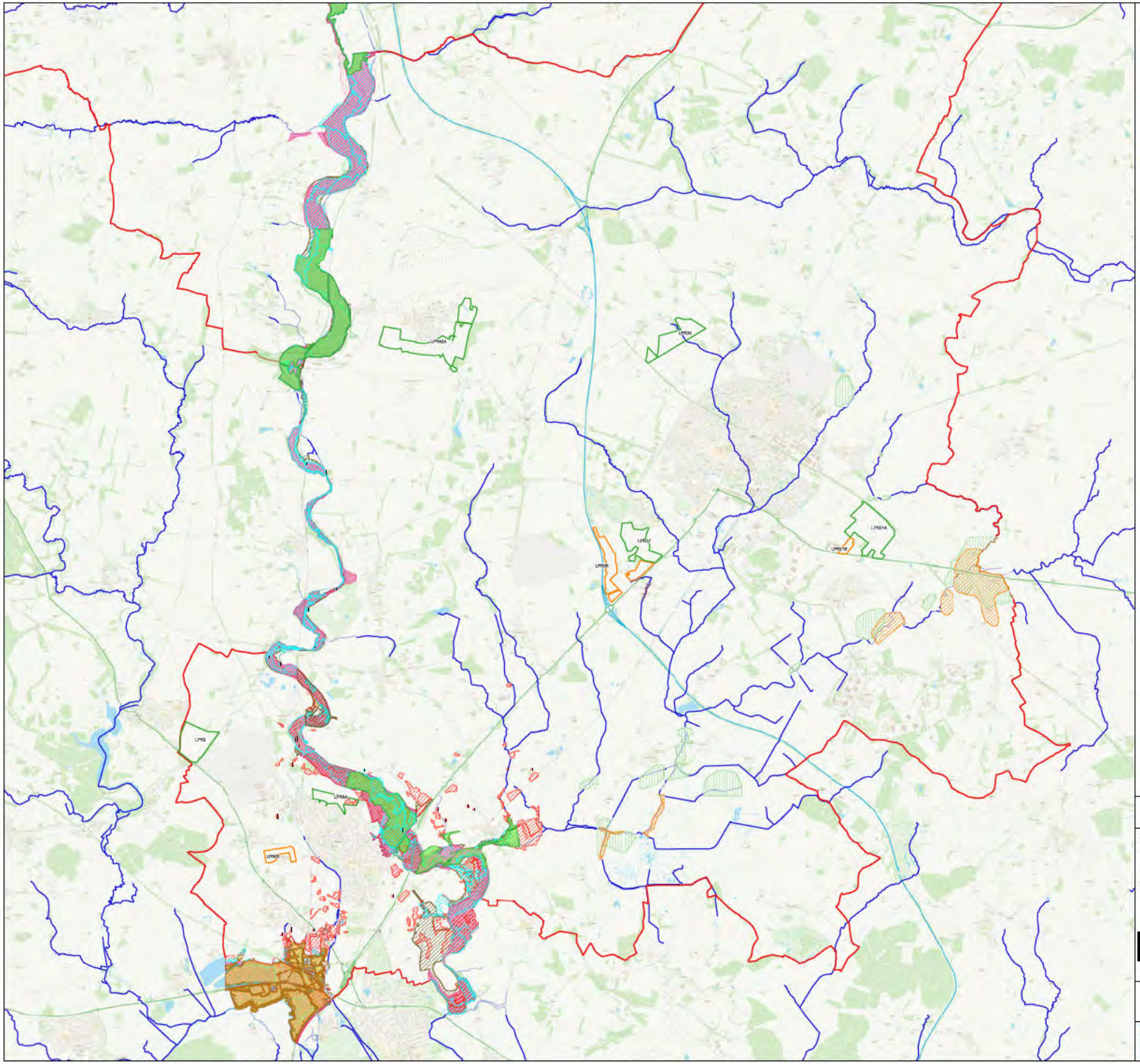
6.3 Objective 2 - Taking a Collaborative Approach

Take a collaborative approach to reducing flood risks, using all available resources and funds in an integrated way and in so doing manage and reduce overall flood risk.

A collaborative approach is vital to ensure effective delivery of the strategy. As outlined in section 4.2 there are existing governance arrangements in place which support collaboration within Oxfordshire. Ensuring that these arrangements are maintained and strengthened through the plan period will support flood risk management and ensure that the needs of all stakeholders are factored into the decision-making process.

[25] Project Groundwater (2024) https://www.projectgroundwater.co.uk/

Appendix D: CDC SFRA


Legend
Cherwell District Administrative Boundary
Preferred Employment Sites
Preferred Housing Sites
Preferred Mixed Site
EA Recorded Flood Extents
Spring 1947
Winter 1977
Winter 1992
Winter 1993
Summer 1998
Winter 1998
Winter 2000
Winter 2002
Summer 2007
Winter 2008
Summer 2008
Winter 2013
N
0 500 1,000 1,500 2,000 m
Project Title:
Cherwell District Level 1 Strategic Flood Risk Assessment
Figure Title:
EA Recorded Flood Extents for South Cherwell District
[redacted]
Contains Ordnance Survey data © Crownscopyright and database 2022. Contains public sector information licensed under the Open Government Licence v3.0.
Cherwell
DISTRICT COUNCIL NORTH OXFORDSHIRE
WHS

It should be noted that the records are somewhat dependent on reporting and are given for a point location. In this regard, caution should be exercised when ascribing a sewer flood risk to a particular area.

A summary of the spatial distribution of incidents of sewer flooding by post code area is summarised in Table 4. These show the Kidlington area to have the most incidents. Please note, that some of the post code areas cross the district boundary so may include events in neighbouring authorities.

Table 4 - Sewer Flooding Incidents by Post code area

Post Code	Settlements	External Flooding	Internal Flooding	Combined
OX150	Hempton, Deddington & Clifton	3	0	3
OX154	Bodicoe, Milton & Wiggington	11	4	15
OX155	Broughton, Sibford Gower & Hook Norton	1	0	1
OX156	Drayton, Balscote, Alkerton & Hornton	3	2	5
OX160	West Banbury	2	2	4
OX161	North West Banbury	4	0	4
OX162	North East Banbury	1	0	1
OX164	East Banbury	1	1	2
OX169	South Banbury	7	2	9
OX171	Claydon, Little Bourton & Hanwell	4	0	4
OX173	Adderbury, Twyford & Kings Sutton Astrop	6	0	6
OX252	Merton & Ambrosden	6	2	8
OX254	Steeple Aston & Middlton Stoney	3	1	4
OX255	Middle Aston, Lower Heyford & Upper Heyford	10	0	10
OX256	Duns Tew, North Aston & Somerton	5	4	9
OX261	Chesterton	6	0	6
OX262	West Bicester	1	0	1
OX265	Launton	7	0	7
OX266	South Bicester	2	0	2
OX277	Baynard's Green, Souldern & Buckwell	12	4	16
OX279	Stratton Audley, Poundon Hill & Godlington	10	0	10
OX3 9	Noke	8	0	8
OX5 1	Yarnton, West Kidlington & Thrupp	29	3	32
OX5 2	East Kidlington, Islip, Oddington & Murcott	28	1	29
OX5 3	Kirtlington, Bletchingdon, Bunkers Hill & Tackley	15	0	15
Total		**185**	**26**	**211**

2.1.6 Reservoir Flooding

In 2021 the EA published updated maps showing the flood risk associated with reservoirs. Dam breach and flood modelling techniques were used to produce a new national set of reservoir flood maps for England. The maps show two flooding scenarios, including a 'dry-day' and a 'wet-day'. The 'dry-day' scenario predicts the flooding that would occur if the dam or reservoir failed when rivers are at normal levels. The 'wet day' scenario predicts how much worse the flooding might be if a river is already experiencing an extreme natural flood.

The main reservoirs which could impact the district include the following:

- Banbury FAS (grid reference SP4672443436) Owner: Environment Agency
- Clattercote (grid reference SP4510048500) Owner: Canal & River Trust
- Wormleighton (grid refence SP4483351747) Owner: Canal & River Trust
- Grimsbury (grid reference SP4590042200) Owner: Thames Water Limited