

Land off Kirton's Farm Road, Reading

Flood Risk Assessment

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Appendix A

Study Limitations

1 Introduction

1.1 Background

- 1.1.1 Arcadis Consulting (UK) Limited (“Arcadis”) has been commissioned by M&G Real Estate (“M&G”) acting on behalf of Prudential Assurance Company Ltd (“the Client”) to prepare a Flood Risk Assessment (FRA) in support of a Town and Country Planning Act (TCPA) application for the removal of soils and subsequent restoration of a site (the Proposed Development), for a parcel of land off Kirton’s Farm Road, near Reading, Berkshire (the “Site”).
- 1.1.2 The Site is currently vacant with extensive scrub and vegetation growth present. A quantity of natural soils (“previously imported soils”) generated as a result of forming a development platform for an adjacent historical development in the area were located to the Site under agreement with the freeholder (Englefield Estate Trust Corporation Limited) and have been present at the Site for over 20 years.
- 1.1.3 Prior to location of the previously imported soils on the Site, the surface soils in the east of the Site were placed in the west of the Site (the “indigenous materials”).
- 1.1.4 The Proposed Development involves the removal of the previously imported soils (approximately 18,000 m³) currently stored on part of the Site, including required enabling works, followed by the restoration and reprofiling of the land to its original level (using only indigenous material, placed elsewhere on the Site only) and condition for future agricultural use, as originally intended.

1.2 Scope of Works

- 1.2.1 The scope of works for this FRA is as follows:
- Desk study review of published flood risk data and reports;
 - Qualitative assessment of flood risk from all relevant sources;
 - Consider the potential impact of the proposals on floodplain storage and conveyance;
 - Identify any flood risk constraints and identify potential flood risk mitigation measures that may be required; and
 - Produce a concise FRA report guided by the requirements of the NPPF.
- 1.2.2 In the pre application advice provided by Wokingham Borough Council dated 9 February 2026, a construction-phase surface water management plan was recommended to reduce local flooding and silt pollution. This plan would be prepared by the Principal Contractor appointed to undertake the site remediation work.

1.3 Terminology

- 1.3.1 Flood risk is a product of both the likelihood and consequences of flooding. Throughout this document, flood events are defined according to their likelihood of occurrence. Floods are described according to an 'annual probability', meaning the chance of a particular flood occurring in any one year. This is directly linked to the probability of a flood. For example, a flood with an annual probability of 1 in 100 (a 1 in 100 probability of occurring in any one year), has an annual probability of 1%.

1.4 Limitations

- 1.4.1 This report has been compiled from number of sources which Arcadis believes to be trustworthy. However, Arcadis is unable to guarantee the accuracy of information provided by others. The report is based on information available at the time of writing. Additional information may become available in the future which may have a bearing on the conclusions of this report and for which Arcadis cannot be held responsible. Reference should be made to the Study Limitations presented in Appendix A.
- 1.4.2 Arcadis' liability, pursuant to the terms of the appointment of Arcadis by the Client, is strictly limited to the work undertaken and the matters contained and specifically referred to in this report.

1.5 Reliance

- 1.5.1 This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report and previous work. Reference should be made to the Study Limitations presented in Appendix A.
- 1.5.2 Arcadis' liability, pursuant to the terms of the appointment of Arcadis by the Client, is strictly limited to the work undertaken and the matters contained and specifically referred to in this report

2 Site Background

2.1 Location and Description

- 2.1.1 The Site location is shown on Figure 2-1: Site Location Plan.
- 2.1.2 The Site covers approximately 2.4 hectares of former agricultural land. Of this 0.8 hectares falls within the administrative area of West Berkshire District Council and 1.6 hectares within the Wokingham Borough Council. The central and eastern areas feature previously imported soils, largely composed of local materials with a distinct minor area of construction and demolition debris, while the western part contains the original surficial Site soils (indigenous material) that were relocated prior to the import of the previously imported soils.
- 2.1.3 The Site is bordered by a willow lined ditch to the south, a line of trees and mixed scrub to the north (partially) and east, and a line of scrub along a railway line to the west. Kirton's Farm Road provides access to the Site from the east. Currently the Site is vacant scrub land.
- 2.1.4 The Site is located approximately 150m west of the Foudry Brook, an Environment Agency designated Main River. The Burghfield Brook (Ordinary watercourse) is located approximately 500m to the south of the Site. There is also a small artificial ditch that runs along the southern boundary of the Site that flows from west to east eventually through a culvert under Kirton's Farm Road and then Longwater Ave to discharge into the Foudry Brook. There is another ditch flowing from south to north along the western edge of Kirton's Farm Rd that runs to the southeast of the Site boundary, likely discharging into the same culvert under Kirton's Farm Road.
- 2.1.5 The Site is located around multiple water bodies. This includes two unnamed waterbodies. They are located either to the west of the railway line or south of M4. They are used by Hi5 Open Water Swim Centre and Lagoon Park.
- 2.1.6 The Environment Agency Flood Map for Planning (Rivers and Sea)¹ shows that the Site is located partially within Flood Zone 3, defined as with a 1% or greater annual probability (AP) of river flooding or a 0.5% or greater AP of tidal flooding.
- 2.1.7 In line with requirements of the National Planning Policy Framework (NPPF)², all proposals requiring planning permission within Flood Zone 3 should be supported by an appropriate Flood Risk Assessment (FRA) that considers the risk of flooding from all sources.

¹ Environment Agency, Flood Map for Planning (Rivers and Sea), accessed June 2026. <https://flood-map-for-planning.service.gov.uk/>

² Ministry of Housing, Communities and Local Government, August 2026, National Planning Policy Framework, accessed August 2026. <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

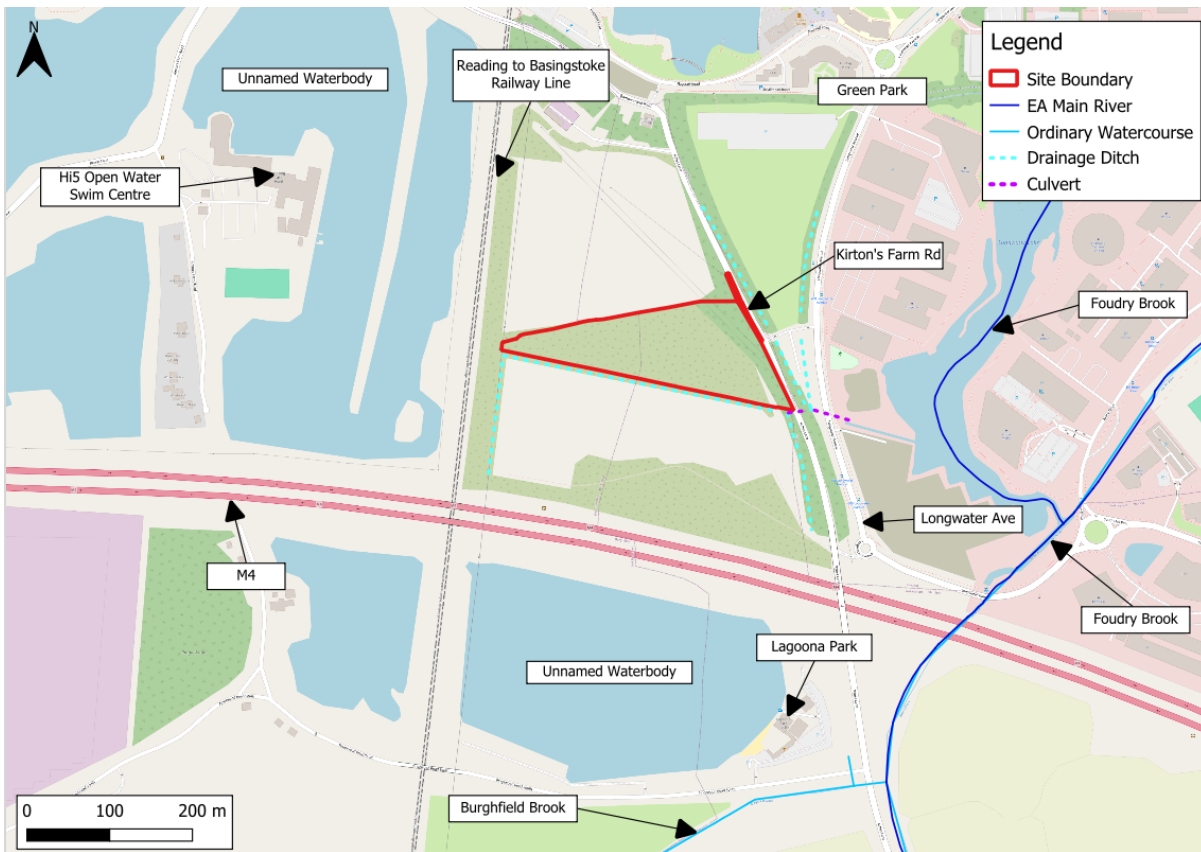


Figure 2-1: Site Location

Background mapping © OpenStreetMap. Contains Environment Agency information © Environment Agency and/or database right.

2.2 Proposed Development

- 2.2.1 The Proposed Development involves the removal of the previously imported soils (approximately 18,000 m³) currently stored on part of the Site, including required enabling works, followed by the restoration and reprofiling of the land to its original level (using only the indigenous material) and condition for future agricultural use, as originally intended.

2.3 Existing Ground Levels

- 2.3.1 The topography of the Site has been reviewed using 1m spatial resolution composite DTM LiDAR data flown in 2023 (see Figure 2-2). The Arcadis 2025 Digital Terrain model has also been reviewed when assessing the Site topography. The overall topography on the Site is quite varied, including the previously imported soils in the central and eastern areas and the indigenous material in the western area. The high points are approximately 41.5mAOD to the west and 42.3mAOD to the east. In the centre of the Site there is a topographic low, where ground levels are around 38.5mAOD. Adjacent to the eastern boundary of the Site there are also lower areas at around 38.4mAOD.
- 2.3.2 Offsite, the general topography is relatively flat. The railway line to the west is raised to around 40mAOD and Kirton's Farm Road is raised to 41mAOD in some parts.

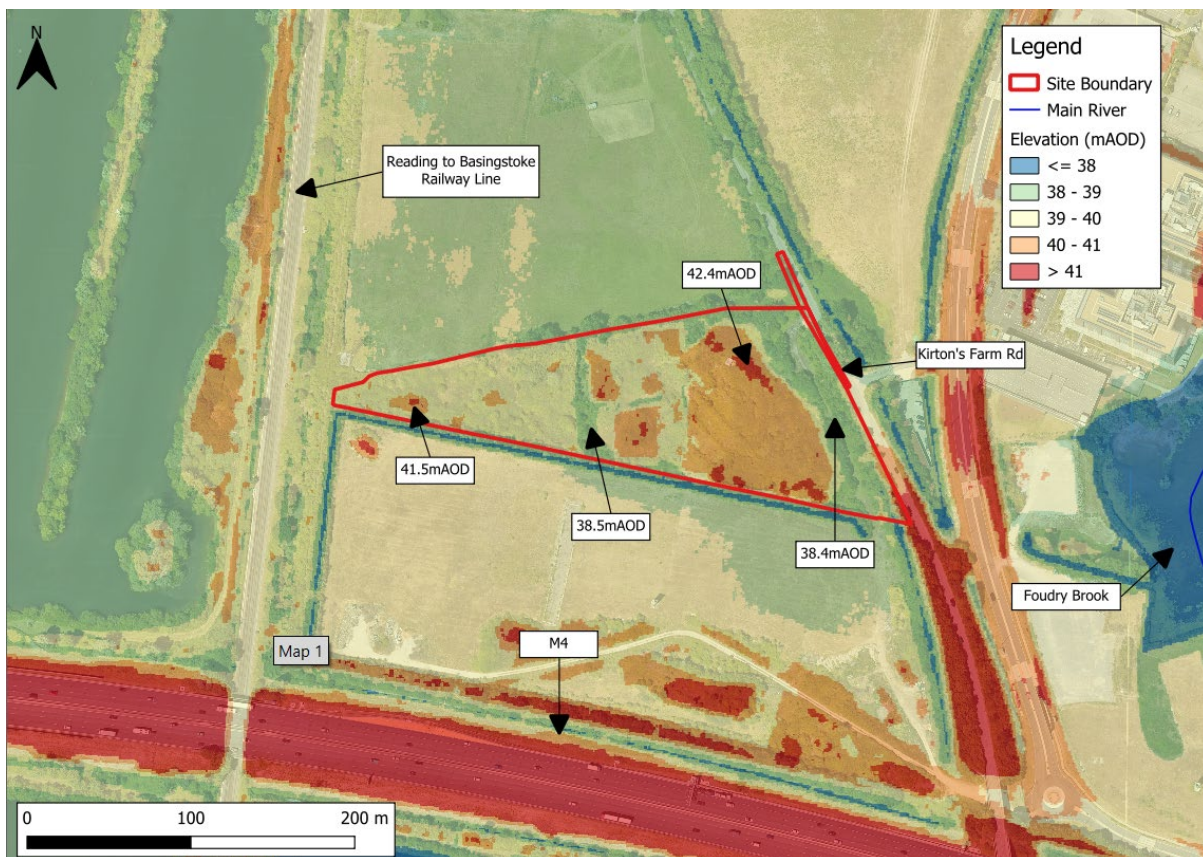


Figure 2-2: Site Topography

Background mapping © OpenStreetMap. Contains Environment Agency information © Environment Agency and/or database right.

³ Environment Agency, accessed June 2026. Available at: <https://environment.data.gov.uk/survey>

2.4 Proposed Ground Levels

- 2.4.1 Following the removal of approximately 18,000m³ of previously imported soil from the Site, the land will be restored to as close as possible to its original level and condition. The Site will gently slope from west to east, with proposed elevations ranging from of 39.1m AOD to 38.45m AOD. This means that areas of soil removal would be required in the east and west of the site. The central area of the Site and to the east where there are topographical low points, will increase in elevation to 38.85m AOD and 38.45m AOD.

2.5 Historical Flooding

- 2.5.1 The Environment Agency Historic Flood Map⁴ and the Environment Agency Recorded Flood Outlines⁵ datasets show areas of land that have previously been subject to flooding. These datasets have been reviewed, and they show that the Site has been impacted by two past fluvial flood events. These occurred in 1971 and in the winter of 2002 when the capacity of the Foudry Brook was exceeded.
- 2.5.2 There are no specific records of historic flooding at the Site in the Wokingham Borough Council⁶ or West Berkshire Council⁷ as Lead Local Flood Authorities (LLFAs) Strategic Flood Risk Assessment (SFRA). The Environment Agency were consulted on the history of flooding for the proposed development and confirmed there are no records of flooding from groundwater, rivers or surface water at the Site.

2.6 Existing Flood Defences

- 2.6.1 The Environment Agency Spatial Flood Defence dataset shows there are flood defences along the Foudry Brook and Longwater Lake to the east of the Site providing fluvial protection⁸. The defences are Natural High Ground and have a standard of protection of 1 in 2 years. Around 1.5km upstream of the Site is the River Kennet which branches off to the Foudry Brook. The Green Park Flood Relief channel has been added that then feeds the Foudry Brook Lake seen to the east of the Site. This second channel allows further channel capacity and therefore would help in a flood event conveying water away from the Site.

⁴ Environment Agency, May 2026, Historic Flood Map, accessed June 2026. <https://www.data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map1>

⁵ Environment Agency, May 2026, Recorded Flood Outlines Dataset, accessed June 2026.

<https://www.data.gov.uk/dataset/16e32c53-35a6-4d54-a111-ca09031eaaaf/recorded-flood-outlines1>

⁶ Wokingham Borough Council, May 2023, Strategic Flood Risk Assessment (Level 1), accessed June 2026.

https://www.wokingham.gov.uk/sites/wokingham/files/2024-05/WBC%20Level%201%20SFRA%202023%20-%20Main%20report_0.pdf

⁷ West Berkshire Council, November 2022, Strategic Flood Risk Assessment (Level 1), accessed June 2026.

<https://www.westberks.gov.uk/sfra>

⁸ Environment Agency, November 2025, AIMS Spatial Flood Defences, accessed June 2026.

<https://www.data.gov.uk/dataset/cc76738e-fc17-49f9-a216-977c61858dda/aims-spatial-flood-defences-inc-standardised-attributes>

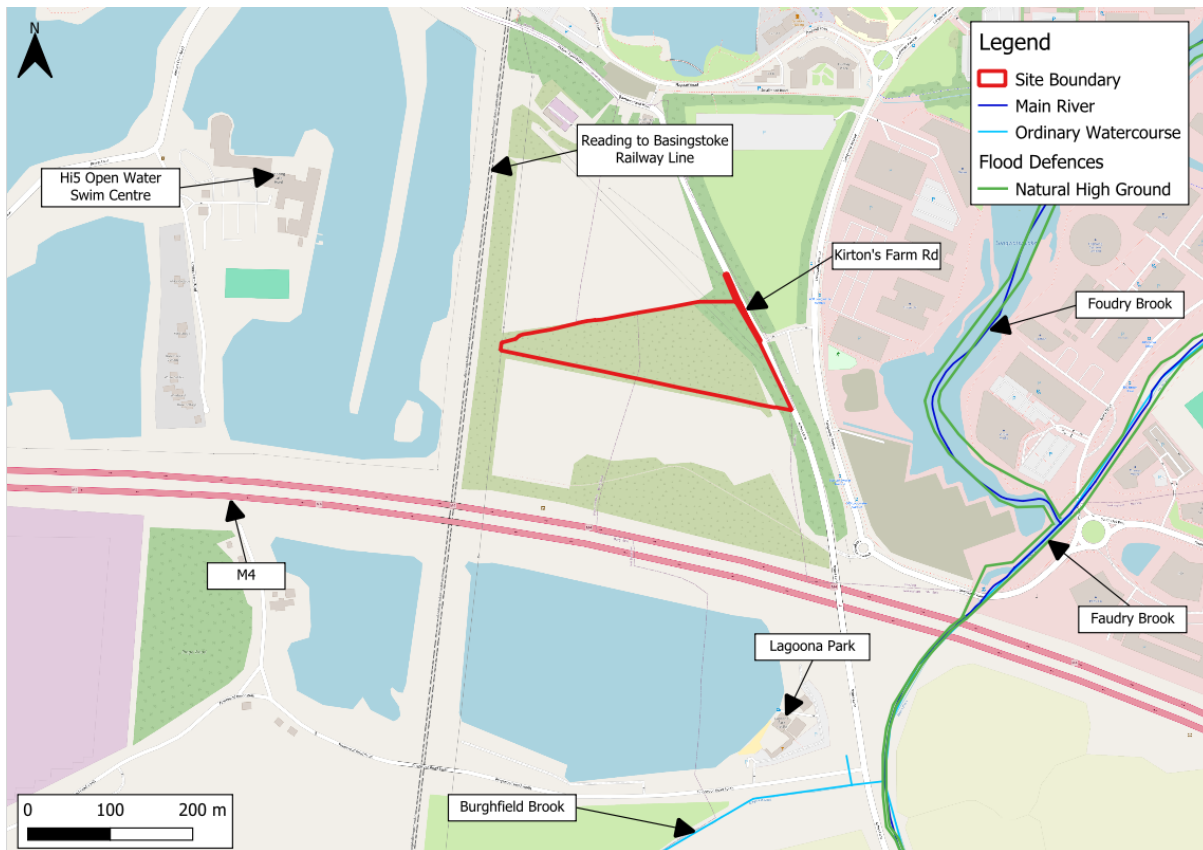


Figure 2-3: Existing Flood Defences

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3 Planning Policy Context

3.1 NPPF and Flood Risk

- 3.1.1 With regard to flood risk and surface water drainage, the NPPF² and its accompanying flood risk and coastal change Planning Practice Guidance⁹ (PPG) set out the Government's planning policy for England and advises on '*how to take account of and address the risks associated with flooding and coastal change in the planning process*'. The principal aim of the NPPF is to achieve sustainable development by accounting for flooding at all stages of the planning process, avoiding inappropriate development in areas at risk of flooding and directing development away from areas where risks are highest. Where development is necessary in areas at risk of flooding, the NPPF aims to ensure it is safe, without increasing flood risk to third parties. Early adoption of, and adherence to, the principles set out in the NPPF with respect to flood risk, can ensure that detailed designs and plans for development take due account of flood risk and the need for appropriate mitigation, if required.

3.2 The Sequential and Exception Test

- 3.2.1 The PPG identifies four Flood Zone classifications, detailed in Table 3-1.

Table 3-1: Flood zones (PPG, Flood Risk and Coastal Change, Table 3-1)

Flood Zone	Annual Probability of Flooding (%)
1 Low Probability	Fluvial and Tidal <0.1%
2 Medium Probability	Fluvial 0.1 – 1.0 % Tidal 0.1 – 0.5 %
3a High Probability	Fluvial >1.0 % Tidal >0.5 %
3b The Functional Floodplain	Land where water has to flow or be stored in times of flood, identified by local authorities in Strategic Flood Risk Assessments. Identification of functional floodplain should take account of local circumstances and not be solely defined on rigid probability parameters. Functional floodplain normally comprises: Land having >3.3% annual probability of flooding (with any existing flood risk management infrastructure operating effectively); or Land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

⁹ Ministry of Housing, Communities and Local Government. Planning Practice Guidance, February 2024.
<https://www.gov.uk/government/collections/planning-practice-guidance>

- 3.2.2 The NPPF specifies that the suitability of all new development in relation to flood risk should be assessed by applying the sequential test to demonstrate that there are no reasonably available sites in areas with a lower probability of flooding that would be appropriate to the type of development proposed. The PPG provides further guidance on the compatibility of each land use classification in relation to each of the Flood Zones as summarised in Table 3-2.

Table 3-2: Flood risk vulnerability classification (Source: PPG, Flood Risk and Coastal Change, Table 3-2)

Flood Zone	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	✗	Exception Test required	✓	✓
Zone 3b*	Exception Test required	✗	✗	✗	✓
Key: ✓ Development is appropriate ✗ Development should not be permitted					

*the functional floodplain, see definition in Table 3-1.

- 3.2.3 When a development site falls partly within multiple Flood Zones, the highest risk Flood Zone should be used when assessing development vulnerability, as in Table 3-2.
- 3.2.4 If it is not possible for development to be located in zones with a lower risk of flooding, the exception test may have to be applied. For the exception test to be passed, it should be demonstrated that:
- The development would provide wider sustainability benefits to the community that outweigh flood risk; and
 - The development would be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall.

3.3 Flood Zone Classification

- 3.3.1 According to Environment Agency Flood Map for Planning (see Figure 3-1), the Site lies within Flood Zone 3, which is equivalent to an annual probability of flooding from rivers greater than 1% AP and an annual probability of flooding from the sea greater than 0.5% AP. This means that an FRA is required for planning purposes. As laid out in the Wokingham Borough SFRA, portions of the Site are within Flood Zone 3b
- 3.3.2 The proposed development involves soil removal and restoration, with the Site reverting to an area of greenspace with a revised topographical profile. No built development is proposed, hence it is considered that the Site would be classified as 'water compatible' development, and in-line with Table 3-2, this category is deemed an acceptable land use in Flood Zones 3a and 3b.

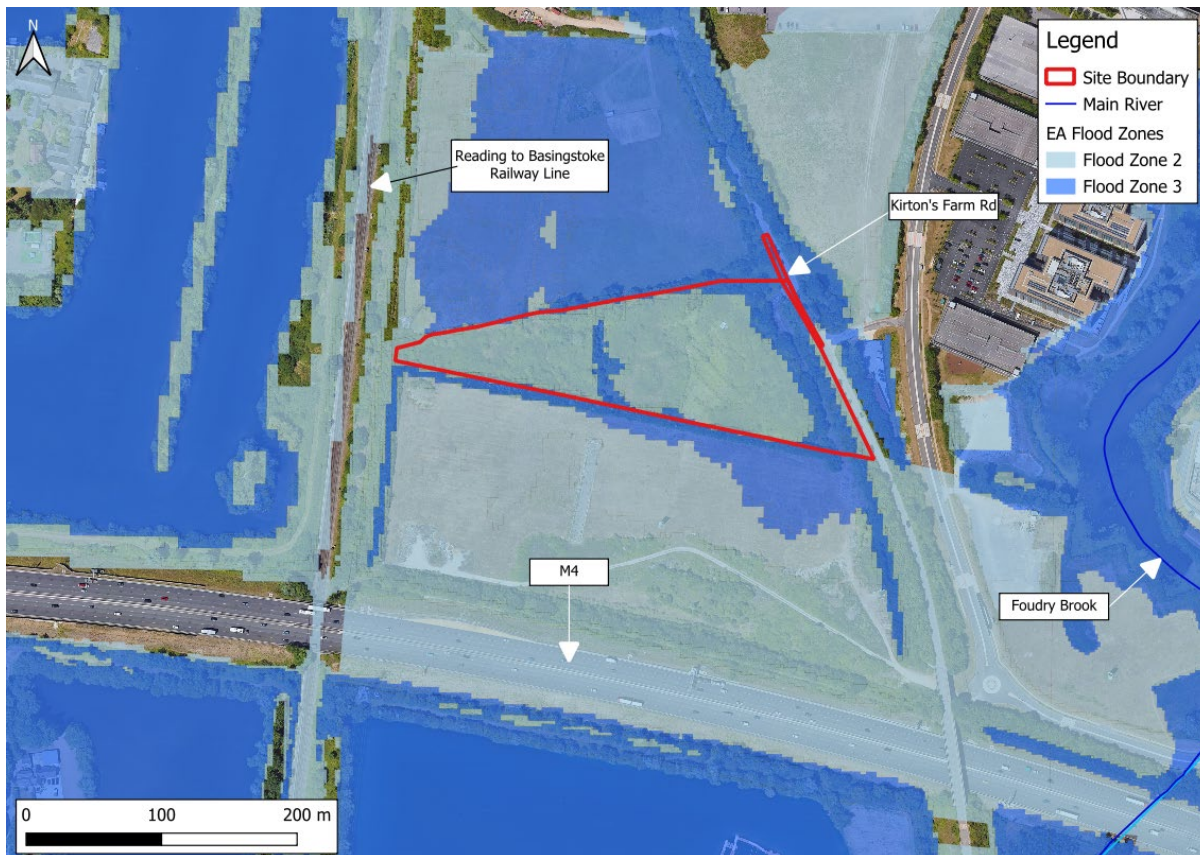


Figure 3-1: Flood Map for Planning (Rivers and Sea) - Flood Zone categorisation

Background mapping © Google Satellite. Contains Environment Agency information © Environment Agency and/or database right.

3.4 Local Planning Context

- 3.4.1 The Site is bisected by two council boundaries, Wokingham Borough Council and West Berkshire Council. This Section will include policies from both Local Planning Authorities (LPAs) to make sure the works satisfy both districts.
- 3.4.2 The Wokingham Borough Council Development Plan¹⁰ outlines how developments should manage water to reduce flooding and its associated risks to people and property.
- 3.4.3 Policy CC09 “Development and Flood Risk (from all sources)” outlines the key measures which should be adopted to avoid and manage flood risk. These measures include:
- Locating development in areas with the lowest risk of flooding by applying the sequential approach;
 - Ensuring that development will not increase flood risk to any location;
 - Incorporate flood resilient and resistant measures into the design;
 - Be safe for its lifetime, taking account of the vulnerability of its users;
 - Appropriate evacuation and flood response procedures are in place to manage the residual risk associated with an extreme flood event.

¹⁰ Wokingham Borough Development Plan, February 2014. Accessed <https://www.wokingham.gov.uk/sites/wokingham/files/2023-06/Adopted%20MDD.pdf>

- 3.4.4 The Wokingham Borough Local Plan Update for 2023 – 2040¹¹ under Policy FD1 also requires all new developments to consider and manage flood risk from multiple sources. Developments should be directed to areas at the lowest risk of flooding, must not increase flood risk elsewhere, and should remain safe and resilient throughout its lifetime, including allowing for the effects of climate change. Where necessary, proposals must incorporate flood-resilient design measures and appropriate emergency access, evacuation and flood response arrangements to protect people, property and infrastructure.
- 3.4.5 The West Berkshire Local Plan Review¹² includes Policy SP6 that outlines how flood risk should be managed in future developments. These include, but are not restricted to, similar measures within the Wokingham Borough Council Development plan such as:
- Through the sequential and exception test (where required), that the benefits of the development to the community outweigh the risk of flooding;
 - It would not have a detrimental impact or impede on the flow of fluvial flood water, surface water or obstruct the run-off of water due to high levels of groundwater;
 - It would not increase the number of people, property or infrastructure at risk of flooding;
 - It would not reduce the capacity of the floodplain to store water and includes or contributes to compensation, flood mitigation and/or protection measures, where necessary, to manage flood risk associated with or caused by the development;
 - Provision is made for the long term maintenance and management of any flood protection and or mitigation measures for the lifetime of the development;
 - Safe access and exit from the site can be provided for routine and emergency access under both frequent and extreme flood conditions; and
 - Natural flood management measures can be implemented where possible

¹¹ Wokingham Borough Local Plan Update 2023 – 2040 Proposed Submission Plan.

<https://www.wokingham.gov.uk/sites/wokingham/files/2024-09/Local%20Plan%20Update%20-%20Regulation%2019.pdf>

¹² West Berkshire Local Plan Review 2023 - 2041, June 2025. https://www.westberks.gov.uk/media/64447/West-Berkshire-Local-Plan-Review-2023-2041/pdf/West_Berkshire_Local_Plan_Review_2023-2041_for_web_APPROVED.pdf?m=1771842181757

4 Potential Sources of Flooding

4.1 Overview

4.1.1 This section considers flood risk from the range of possible sources listed in Table 4-1.

Table 4-1 Sources of Flooding

Sources of Flooding	Description
Flooding from rivers (fluvial)	Flood water originating from a nearby watercourse when the amount of water exceeds the channel capacity of that watercourse.
Flooding from the sea (tidal)	High tides, storm surges and wave action, often acting in combination, flooding low-lying coastal land.
Flooding from surface water (pluvial)	Flooding caused by intense rainfall exceeding the available infiltration and/or drainage capacity of the ground.
Flooding from groundwater	Flooding caused when groundwater levels rise above ground level following prolonged rainfall. There are two forms of groundwater flooding, 'clearwater flooding' and 'river-groundwater interaction'
Flooding from sewers	Flooding originating from surface water, foul or combined drainage systems, typically caused by limited capacity or blockages.
Flooding from reservoirs, canals, and other artificial sources	Failure of infrastructure that retains or transmits water or controls its flow.

4.2 Flooding from Rivers

4.2.1 Two available sources of online mapping exist that consider the risk of flooding from rivers and the sea. The Environment Agency Risk of Flooding from Rivers and Sea Map¹³ (Figure 4-1) is based on the Environment Agency National Flood Risk Assessment 2 (NaFRA2), which takes account of modelled in-channel flood levels for watercourses and asset inspection information relating to raised flood defences where these exist. NaFRA2 mapping considers the risk of overtopping or failure of raised defences or natural ground to provide a probabilistic assessment of the risk of flooding. This contrasts with the previously described Environment Agency Flood Map for Planning (Rivers and Sea) (an extract of which is shown in Figure 3-1) which is deterministic and shows whether sites are 'in' or 'out' of given 'Flood Zones'. It ignores the presence of flood defences but highlights where defences exist.

¹³ Environment Agency, Risk of Flooding from Rivers, accessed June 2025. <https://www.gov.uk/check-long-term-flood-risk>

- 4.2.2 The Environment Agency Risk of Flooding from Rivers and Sea Map (Figure 4-1) shows that the majority of the Site is located on land at a very low risk of fluvial flooding and flooding from the sea, categorised as having an annual probability of flooding less than 1 in 1,000 (0.1%). There is land at 'high' risk of flooding that runs from north to south through the centre of the Site, as well as along and adjacent to the eastern boundary. A high risk is defined as an annual probability of flooding greater than or equal to 1 in 30 (3.3%). These flood extents correspond to the existing topographic lows of the Site, highlighted in Section 1.1.
- 4.2.3 The Site is approximately 70km north of the English Channel Sea therefore is not at risk of flooding from the sea.

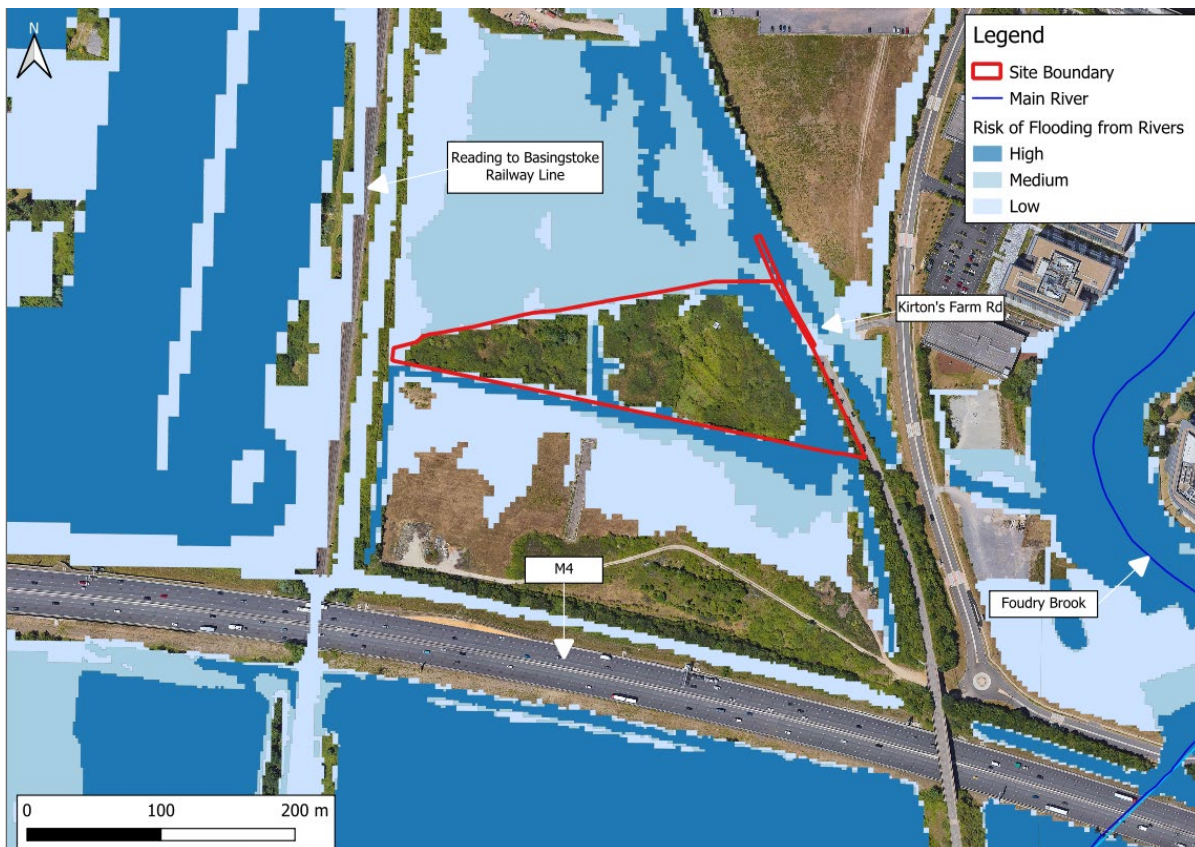


Figure 4-1: Risk from the Rivers (present day risk)

Background mapping © Google Satellite. Contains Environment Agency information © Environment Agency and/or database right.

- 4.2.4 The Environment Agency Risk of Flooding from Rivers and Sea Map (Figure 4-2) shows the potential depths of the river flooding during a 'high' risk event (3.3%). The map shows that the flooding in the centre of the Site is predicted to be less than 0.2m in depth. The flooding along the eastern edge of the Site has a maximum depth of up to 0.6m in small areas.



Figure 4-2: Risk from Rivers - Depths

Background mapping © Google Satellite. Contains Environment Agency information © Environment Agency and/or database right

- 4.2.5 The NaFRA2 data set includes climate change scenarios to indicate the predicted impacts of climate change on future flood risk. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5. A near-term “2050s” epoch (2040 – 2060) and central allowances are used to support short and medium-term decisions, informed by the highest flood likelihood projections.
- 4.2.6 Similar to the results seen in Figure 4-2, the NaFRA2 climate change map (Figure 4-3) shows the central and eastern areas of the Site to have a future high risk of fluvial flooding. The depths of floodwater in these areas are not indicated to exceed the present day depths.

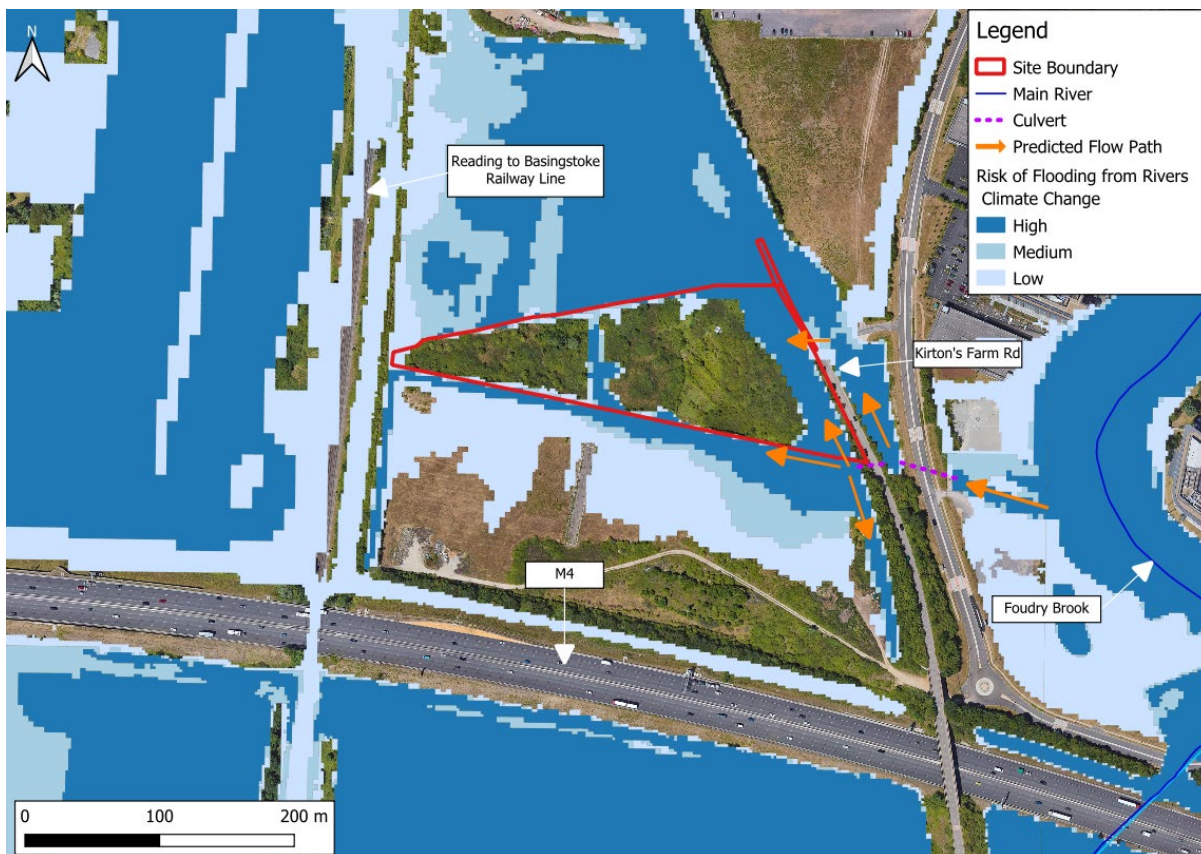


Figure 4-3: Risk of Flooding from Rivers (including climate change)

Background mapping © Google Satellite. Contains Environment Agency information © Environment Agency and/or database right.

- 4.2.7 Following a request to the Environment Agency, results from the Lower Kennet Hydraulic Model (2018) were provided. These modelling results show very similar extents to those in the Environment Agency mapping described above, including during climate change scenarios. The results aid the understanding of flow paths, as illustrated in Figure 4-3. The flow path toward the Site during a flood event is predicted to come from the southeast, likely a result of water backing up from the Foudry Brook during a flood event and flowing through the culvert under Kirton's Farm Road and Longwater Avenue. The backed up water then flows north onto the Site along the eastern portion.
- 4.2.8 As discussed in Section 2.4, the topographical profile of the Site will be altered as part of the restoration works. In large areas of the Site existing ground levels would be lowered offering the potential for floodwater emanating from the north of the Site to be stored within the Site, and so lowering the predicted flood depths.
- 4.2.9 The eastern portion of the Site is proposed to be raised to 38.45mAOD. This has the potential to restrict the flow path onto the Site however there are areas to the northeast where the land will remain the same elevation, allowing the flow path into the centre of the Site to be maintained. The removal of the soil deposits will allow significantly more flood storage capacity on Site, despite the slight increase in elevations in the centre and eastern boundary, and so the proposed development to the Site is not expected to increase the flood risk to third party lands.

4.3 Flooding from Surface Water

- 4.3.1 Flooding from surface water is a potential risk during short, intense rainstorm events or longer duration storms, where the capacity of underlying soils and drainage systems is exceeded, and rainfall runs overland to pond in depressions within the landscape.
- 4.3.2 The Environment Agency Surface Water flood map¹⁴ is informed by national and local scale modelling. An excerpt of the map is shown in Figure 4-4. The mapping shows the potential extents of current day risks of flooding from this source. The mapping shows that the Site is at very low risk, which is categorised as an annual probability of flooding less than 1 in 1,000 (0.1%). There are very localised and limited extents of the higher risk zones along the southern boundary of the Site, corresponding to an artificial drainage ditch.



Figure 4-4: Risk of Flooding from Surface Water (present day risk)

Background mapping © Google Satellite. Contains Environment Agency information © Environment Agency and/or database right.

¹⁴ Environment Agency, Risk of Flooding from Surface Water, accessed June 2026.
<https://environment.data.gov.uk/dataset/b5aaa28d-6eb9-460e-8d6f-43caa71fbe0e>

4.3.3 Surface water climate change mapping is also available. Similar to the data seen in Figure 4-4, the NaFRA2 climate change map (Figure 4-5) shows the majority of the Site is at very low risk of flooding in the future. In some small areas the risk increases to low. This is categorised as less than a 1 in 100 (1%) but greater than or equal to a 1 in 1000 (0.1%) probability in any given year. The flood depths associated with these extents are less than 0.2m.



Figure 4-5: Risk of Flooding from Surface Water (including climate change)

Background mapping © Google Satellite. Contains Environment Agency information © Environment Agency and/or database right.

4.4 Flooding from Groundwater

- 4.4.1 Groundwater flooding occurs when groundwater rises to the ground surface. This may happen during winter and/or after prolonged or heavy rainstorms. There are generally two forms of groundwater flooding (i) 'clearwater flooding' associated with the water table rising to the surface in areas of permeable bedrock geology such as chalk; and (ii) 'river-groundwater interaction' where river levels interact with permeable superficial deposits within river valleys, flooding areas far from the river without necessarily overtopping raised riverbanks.
- 4.4.2 According to British Geological Survey (BGS) mapping¹⁵, the Site is underlain by the Lambeth Group-Clay bedrock - silt and sands, classified as a Secondary A aquifer¹⁶. Secondary A aquifers are comprised of permeable layers that can support local water supplies.
- 4.4.3 Superficial deposits of Beenham Grange Gravel Member consisting of sand and gravel (classed as a Secondary A aquifer) overlie the bedrock across the Site. These deposits can be permeable and support river base flow. There is some potential for groundwater to reach the surface at the Site via clearwater flooding given the permeability of both the bedrock and superficial deposits, however neither support principal aquifers. Groundwater flooding through river-groundwater interaction in the superficial deposits is unlikely given the Site is around 150m from the Foudry Brook and sits approximately 1.5m higher than this feature. The soils under the Site are categorised as loamy soils with naturally high groundwater¹⁷, again supporting the possibility of groundwater flooding onsite.
- 4.4.4 The EA Areas Susceptible to Groundwater Flooding dataset indicates the degree to which areas are susceptible to groundwater flooding based on geological and hydrogeological conditions. It suggests the Site is >75% susceptible to groundwater flooding. JBA Consulting did further studies and created an Emergence Map shown in the Wokingham Borough SFRA⁶. It suggests that there could be groundwater below the site at a depth of less than 0.025m. See Section 5 for what measures should be taken if groundwater is encountered on Site during the restoration works.

4.5 Flooding from Sewers

- 4.5.1 Flooding from sewers can result from lack of sewer capacity, blockages within the sewer network or failure of infrastructure such as pumps. Any area that benefits from sewerage infrastructure has a potential risk of flooding, but the likelihood and consequences are increased by topographic constraints such as low spots or flow paths that could influence the behaviour of floodwater originating from sewers.

¹⁵ British Geological Survey, Geology of Britain Viewer, accessed June 2026. <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/>

¹⁶ Defra, MAGIC Maps, accessed June 2026. <https://magic.defra.gov.uk/MagicMap.html>

¹⁷ LandIS, Soilscales, accessed June 2026. <https://www.landis.org.uk/soilscales/>

- 4.5.2 There is very little infrastructure and utilities in the area of the Site so the risk of sewer flooding is unlikely. However, if floodwater originating from sewers did enter the Site, the proposed reprofiling of the ground profile from west to east, would encourage water to flow off the site rather than accumulating. There has been no record of onsite or nearby off-site sewer flooding in the area following review of Wokingham Borough⁶ or West Berkshire⁷ SFRA, so this risk is considered to be low.

4.6 Flooding from Reservoirs, Canals, and other Artificial Sources

- 4.6.1 The Environment Agency Risk of Flooding from Reservoirs map¹⁸ provides a general indication of areas that could be flooded if a large reservoir were to fail and release the water it holds. The Flooding from Reservoirs map indicates that the Site is not at risk, with no mapped flood extents nearby.
- 4.6.2 There are standing water bodies to the south and west of the Site that are not included in the reservoir mapping. However, if the water bodies did breach the topographical barrier of the M4 at 45mAOD and the railway track to the west at 40mAOD, would restrict flow of water to the Site. To the east of the Site is the Foudry Brook lake but similarly, Longwater Avenue between the waterbody and the Site is raised to 41.5mAOD and therefore would provide protection in the instance of a breach. There are no other forms of artificial flood sources near the Site.

¹⁸ Environment Agency, Risk of Flooding from Reservoirs, accessed June 2026. <https://check-long-term-flood-risk.service.gov.uk/map>

5 Mitigation Measures

- 5.1.1 The Outline Construction and Environmental Management Plan (oCEMP) provides details of the management measures and controls that would be put in place during restoration of the Site to manage surface water runoff and flood risk. These include the contractor signing up to receive flood alerts from the Environment Agency service and monitoring for forecasts of heavy rainfall, enacting suitable contingencies if severe weather or flooding is forecast. Furthermore, if perched groundwater is encountered during the ground reprofiling, suitable measures would be put in place by the contractor to manage this water to prevent any increase in flood risk.

6 Conclusions

6.1.1 This FRA has been prepared to inform the Proposed Development of the land off Kirton's Farm Road, Reading and concludes the following.

- The Site is located in Flood Zone 3 (indicative of a high risk of flooding from rivers and the sea). However, the Environment Agency Risk of Flooding from Rivers and Sea Map and flood modelling data shows that the majority of the Site is located on land at a very low risk of flooding from these sources.
- In accordance with the NPPF, the proposed development is considered to be appropriate, on flood risk grounds, for the type of development proposed.
- The Site is considered to be at very low risk of flooding from surface water, with some small areas at low risk introduced when accounting for climate change. The proposals would not result in an increase in impermeable land cover therefore would not increase surface water flood risk to third party lands.
- The Site sits on geology that is categorised as a Secondary A aquifer which has the capability to hold water and could result in a risk of groundwater flooding. Suitable controls would be put in place should groundwater be encountered during the restoration works.
- The Site is at low risk of flooding from all other sources considered in this FRA.
- Given the storage capacity that will be created following the removal of the previously imported soils and regrading of the Site, it is considered that the existing fluvial flood flow path onto the Site will be retained and therefore the proposed development will not increase flood risk to third party lands.

Appendix A

Study Limitations

This appendix should be read before reliance is placed on any of the information, opinions, advice, recommendations or conclusions contained in this report.

1. This report has been prepared by Arcadis Consulting (UK) Limited ('Arcadis'), with all reasonable skill, care and diligence within the terms of the Appointment and with the resources and manpower agreed with M&G Real Estate Limited acting on behalf of Prudential Assurance Company Ltd (the 'Client'). Arcadis does not accept responsibility for any matters outside the agreed scope.
2. This report has been prepared for the sole benefit of the Client unless agreed otherwise in writing. The contents of this report may not be used or relied upon by any person other than this party without the express written consent and authorisation of Arcadis.
3. Unless stated otherwise, no consultations with authorities or funders or other interested third parties have been carried out. Arcadis is unable to give categorical assurance that the findings will be accepted by these third parties as such bodies may have unpublished, more stringent objectives. Further work may be required by these parties.
4. All work carried out in preparing this report has used, and is based on, Arcadis' professional knowledge and understanding of current relevant legislation. Changes in legislation or regulatory guidance may cause the opinion or advice contained in this report to become inappropriate or incorrect. In giving opinions and advice, pending changes in legislation, of which Arcadis is aware, have been considered. Following delivery of the report, Arcadis has no obligation to advise the Client or any other party of such changes or their repercussions.
5. This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report.
6. Whilst this report and the opinions made are correct to the best of Arcadis' belief, Arcadis cannot guarantee the accuracy or completeness of any information provided by third parties. provided by third parties. Arcadis has taken reasonable steps to ensure that the information sources used for this assessment provided accurate information and has therefore assumed this to be the case.
7. This report has been prepared based on the information reasonably available during the project programme. All information relevant to the scope may not have been received.
8. This report refers, within the limitations stated, to the condition of the Site at the time of the inspection. No warranty is given as to the possibility of changes in the condition of the Site since the time of the investigation.
9. The content of this report represents the professional opinion of experienced environmental consultants. Arcadis does not provide specialist legal or other professional advice. The advice of other professionals may be required.
10. Where intrusive investigation techniques have been employed, they have been designed to provide a reasonable level of assurance on the conditions. Given the discrete nature of sampling, no investigation technique is capable of identifying all conditions present in all areas. In some cases, the investigation is further limited by Site operations, underground obstructions and above ground structures. Unless otherwise stated, areas beyond the boundary of the Site have not been investigated.
11. If below ground intrusive investigations have been conducted as part of the scope, safe location of exploratory holes has been carried out with reference to the Arcadis ground disturbances procedure. No guarantee can be given that all services have been identified. Additional services, structures or other below ground obstructions, not indicated on the drawing, may be present on Site.
12. Unless otherwise stated the report provides no comment on the nature of building materials, operational integrity of the facility or on any regulatory compliance issues.
13. Unless otherwise stated, an inspection of the Site has not been undertaken and there may be conditions present at the Site which have not been identified within the scope of this assessment.
14. Unless otherwise stated, samples from the Site (soil, groundwater, building fabric or other samples) have not been obtained.
15. Arcadis has relied upon the accuracy of documents, oral information and other material and information provided by the Client and others, and Arcadis assumes no liability for the accuracy of such data, although in the event of apparent conflicts in information, Arcadis would highlight this and seek to resolve.
16. Unless otherwise stated, the scope of works has not included an environmental compliance review, health and safety compliance review, hazardous building materials assessment, interviews or contacting Local Authority, requests for information to the petroleum officer, sampling or analyses of soil, ground water, surface water, air or hazardous building materials or a chain of title review.
17. Unless otherwise stated, this assessment has considered the ongoing use of the Site and has not been prepared for the purposes of redevelopment which may act as a trigger for Site investigation and remediation works not needed for ongoing use.

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