

FLOODSOLUTIONS

Commercial



Overall Opinion
FURTHER ACTION



Argyll's Overview

The Site has a moderate to high risk of pluvial flooding, as 8.7% of the Site footprint is susceptible to flooding greater than 1m above ground level.

In addition, the Site is susceptible to groundwater flooding, due to local variations in the shallow sub-surface geology.

Furthermore, the Site may not be insurable at standard terms.



Report on:

80 The Strand, London, WC2N 6HT

Report prepared for:

Sample

Report Reference:

Sample

Report date:

29 June 2012

Client Reference:

Sample

National Grid Reference:

530416,180579

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Site Location

Report prepared on

Site Near: 80 The Strand, London, WC2N 6HT

Site Area (m²)

6,783.20

Current Use

Commercial

Proposed Use

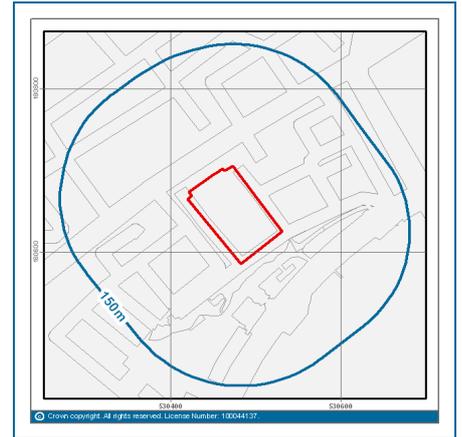
Commercial

Report Author

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Telephone: 0845 458 5250

Estimated Building Coverage (%)

75.00

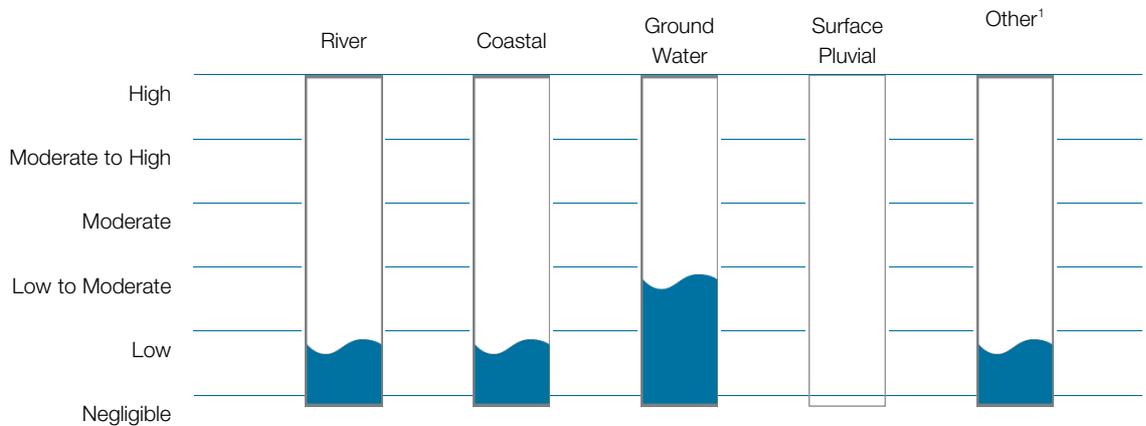




Flood Risk Screening

Risk	Issue	Evaluation
1. Insurability	Is the Site likely to be insurable at standard terms?	No
2. Development	If development is proposed would a detailed Flood Risk Assessment be required?	Yes (Full)
3. Flooding	What is the overall risk of flooding, assuming defences fail or are absent or over-topped?	High
4. Flood Defences	Are there existing flood defences that might benefit the Site?	Yes
5. Effect	What is the risk of flooding when these defences are operational?	Moderate to High

Flood Analysis



Argyll's Comment



- The Site lies in Flood Zone 3, but there are raised flood defences along the banks of the River Thames which should offer protection against a tidal flood event. This is why the risk rating for coastal (tidal) flooding differs when looked at with and without defences.
- The Site is in an area which is susceptible to groundwater flooding due to its proximity to the Thames and the highly unpredictable nature of local geology as a result of tunnels, service conduits and shafts. This will be more of a problem if the property has cellars or a basement. If so, you may wish to ask whether these have been tanked. Although there are flood defences within 500m these will not protect the Site against groundwater flooding.
- The Site, as a whole, has a moderate to high risk of surface water flooding. However, closer analysis of the data from JBA Consulting indicates that only 31.3% of the Site is at risk and that 8.7% of the Site area is at high risk. The expected depth of flooding in this part of the site is likely to be greater than 1m. Improvements in Site drainage might be able to reduce this risk, but you would need expert advice on this. This is also generally considered too deep to be controlled by flood resistance measures, so you may wish to consider flood resilience measures instead. More details are given on Page 6.

¹Other factors influencing flood risk include historic flood events, geological indicators of flooding, proximate surface water features and elevation above sea level.



Recommendations

- As the Site is at an increased risk of flooding, you may wish to contact us to discuss any next steps that you could take to assist in further clarifying the risk of flooding at the Site. This could involve undertaking a more detailed assessment (a Flood Solutions Consult Report). This would review additional site specific data (not available from UK-wide databases) and enquiries of statutory bodies (Environment Agency, Local Authority etc.). Such an assessment would identify more accurately the risk of flooding and review the standard of existing defences. It could provide a specification and budget cost estimate for a full Flood Risk Assessment to meet the requirement of National Planning Policy Framework (should this be required) and/or suggestions for flood resistance/resilience measures. Please contact us so we can discuss your requirements and, if necessary, provide a quotation.
- It would be prudent to ask the vendor to confirm whether or not they are aware of any previous flooding at the Site.



Other Flood-Related Issues

Riparian Ownership

Is there a Main River located within or adjacent to the Site? **NO**

Is there a drainage channel located within or adjacent to the Site? **NO**

Is there a canal located within or adjacent to the Site? **NO**

Argyll's Comment



A riparian owner describes anyone who owns a property where there is a watercourse within or adjacent to the boundaries of their property.

Under common law, a riparian owner has rights and responsibilities relating to the stretch of watercourse that falls within or beside the boundaries of their land. Their primary responsibility is to keep the watercourse free of any obstructions that could hinder normal water flow. If the riparian owner fails to carry out their responsibilities, this could result in civil action.

A riparian owner should also check before carrying out any works near to the edge of a river, as such works may be subject to byelaws. If infringed, this could lead to enforcement action by the Environment Agency.

There is a presumption that the boundary between properties abutting a watercourse is the centre line of that watercourse. To confirm whether this is the case, a solicitor should check the deeds or the Index Map.

The Environment Agency has published useful guidance "Living on the edge" for owners of land or property alongside a watercourse. Sometimes, the Environment Agency or other organisations managing flood risk, may have statutory rights of access to properties which adjoin a watercourse. This may be for for maintenance, repair or rebuilding of any part of the watercourse or for access to or repair of monitoring equipment.

Development Control

Is there a Main River or canal located within 250m of the Site? **YES**

Argyll's Comment



Sites which lie close to (but do not adjoin) a watercourse, may be subject to planning controls should redevelopment be considered. The Environment Agency and Internal Drainage Boards are normally consulted regarding any development within 50m of a Main River or drainage channel. Navigation authorities are normally consulted regarding any development within 250m of a canal, although this varies on a site by site basis.

Sewer Flooding

Has the Site or local sewer network been subject to sewer flooding? **NO**

Argyll's
Comment



In times of extreme rainfall events sewers can overflow and cause local flooding. Ofwat's 'DG5 - At Risk Registers' record properties that have flooded from sewers and are at risk of flooding again, with separate registers for internal and external flooding. The At Risk Registers are maintained by each of the ten water and sewerage companies in England and Wales and details of properties subject to sewer flooding are normally kept for between two and five years. These registers are not necessarily complete as not all episodes of past flooding may be recorded. The answer to this question is based on replies given by the relevant water and sewerage provider to specific enquiries. The response provided is based on the information held. Sometimes, the water and sewerage provider is unable to confirm whether the Site has flooded, but provides a response based on all properties connected to a local sewer network (normally up to ten houses). This is due to the way in which the data is collected.

"NA" response - Where a specific postal address cannot be attributed to the Site, an answer to this question cannot be provided.

Dam and
Reservoir Failure

Could the Site be affected by dam or reservoir failure? **NO**

Argyll's
Comment



The answer is based on detailed models provided by JBA Consulting. These predict the areas liable to flood around approximately 1700 key dams and reservoirs across England and Wales (if that dam or reservoir were to fail).

Risk Management Options

Flooding can usually be managed by the installation of flood protection measures either on/within the building(s) or across the Site. Flood protection measures can be divided into two categories; flood resistance and flood resilience.

Both flood resistance and flood resilience solutions can be integrated with design proposals for new build properties or retro-fitted to existing properties. Specific flood protection packages can often include both resistance and resilience measures. What is suitable will depend on a number of factors including flood source, likely flood depths, property design and age.

Research conducted by CLG Sustainable Buildings Division and the Environment Agency revealed that installing flood resistance measures may be inappropriate where likely flooding will be deep. Certain types of building construction are unable to resist the pressure load placed on the exterior skin of the building by retained flood waters. Generally a flood depth between 0.6m and 1.0m above ground level is used as a benchmark to decide whether to consider flood resilience measures rather than rely on flood resistance measures. This is dependent on the age and construction of the property.

Guideline Costs for Resistance Measures

Building Feature	Cost Estimate for Baffles (+ VAT)
Standard (900mm) single door	£725 - £875
Standard (1800mm) double entrance door	£850 - £1,000
Large roller shutter door (up to 2,745mm span)	£1,600 - £1,750
Standard garage door	£1,400 - £1,575
Standard window (up to 1,240mm span)	£350 - £500
Large window (1,240mm to 2,150mm span)	£550 - £700
Single air brick	£70 - £220
Double air brick	£80 - £230
Building Feature	Cost Estimate for Tanking (+ VAT)
Tanking (of basement, walls or floors)	£25 - £50 per metre ²
System Component	Cost Estimate for Plumbing (+ VAT)
Simple non-return valve	£50
Sophisticated non-return valve	£660 - £800

The costs above are for indicative budget purposes only. They are based on installing components of a standard design and colour. If the Site requires bespoke products, these are likely to cost more (for example, if the Site is in a conservation area, different colours may be required).

If you require a property specific assessment of which measures are suitable, and a more accurate cost appraisal, Argyll will need to complete a FLOODSOLUTIONS Consult Report. This report normally costs from £500 to £1,000 (plus VAT) and provides more detailed information on the likelihood and, in particular, the depth of all potential types of flooding. Argyll can also arrange for one of a panel of specialist contractors to provide a tailored estimate for flood protection measures.

Tabular Summary

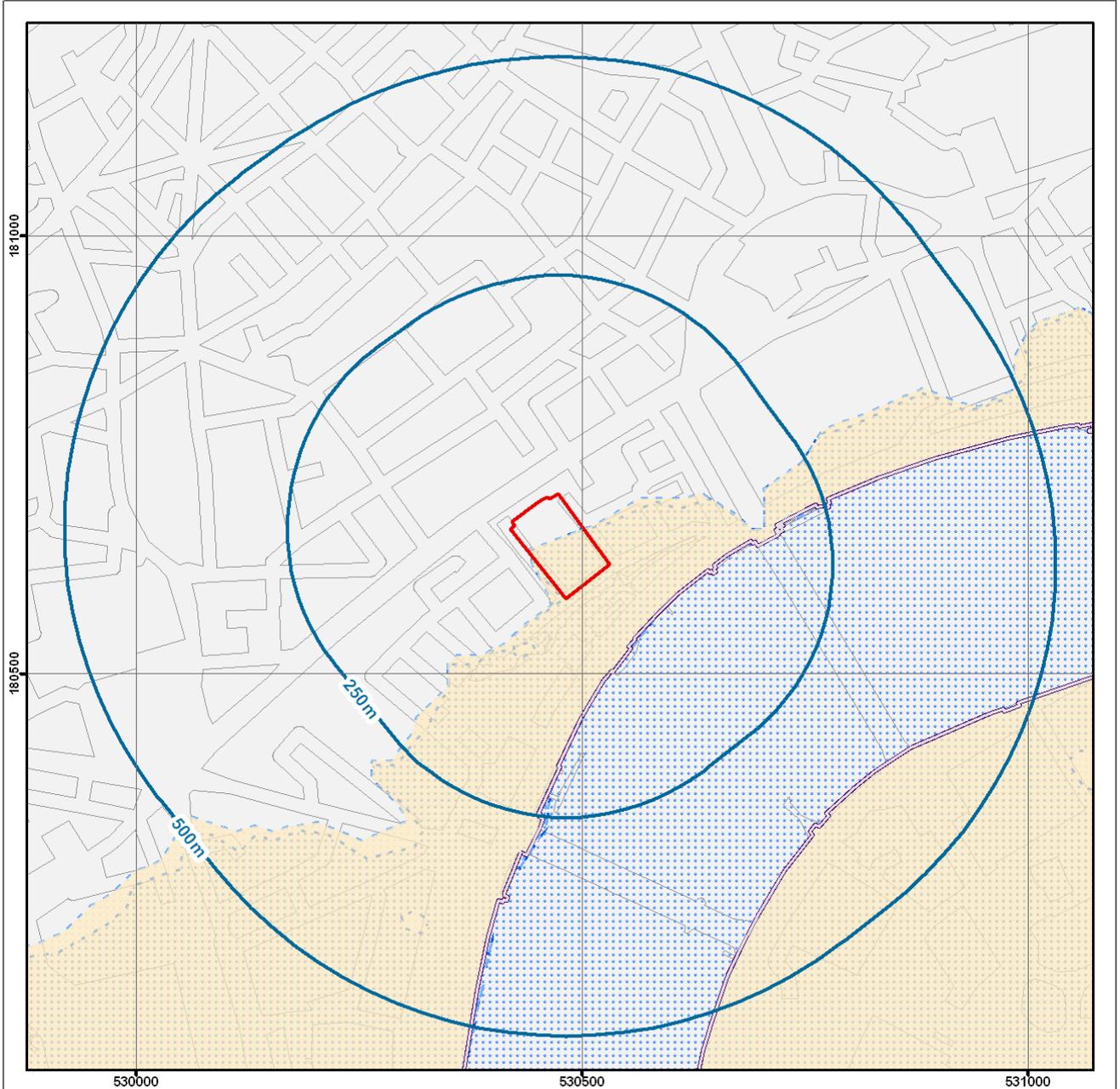
Flooding

Current Flood Risk	Source	On-site	1-250m	251-500m
Flooding From Rivers or Sea	EA	YES	YES	YES
Flooding From Rivers or Sea (in an Extreme Event)	EA	YES	YES	YES
Areas Benefiting from Flood Defences	EA	YES	YES	YES
Flood Water Storage Areas	EA	-	-	-
Flood Defences	EA	-	YES	YES
NAFRA Data	EA	YES	YES	YES
Groundwater Flooding Susceptibility	BGS	YES	YES	YES
Surface Water Flooding (1:75 year rainfall event)	JBA	YES	YES	YES
Surface Water Flooding (1:200 year rainfall event)	JBA	YES	YES	YES
Surface Water Flooding (1:1,000 year rainfall event)	JBA	YES	YES	YES
Dam or Reservoir Failure	JBA	-	-	-
Historical Flooding	Source	On-site	1-250m	251-500m
Historical Flood Events	EA	-	-	-
Geological Indicators of Flooding	BGS	YES	YES	YES
Other Flood Information	Source	On-site	1-250m	251-500m
Height of Site Above Sea Level	OS	11.4m	-	-
Distance of Site Boundary to Nearest Water Feature	OS	77.5m	-	-
Detailed River Network	EA	-	YES	YES

Tabular Summary Explanation

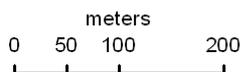
Argyll has carefully selected a range of datasets which are considered appropriate for the intended use of this report. Each dataset is searched to a set radius from the Site boundary and the tabular summary is divided into different search bands accordingly. If a database is searched and information is found, then the number of records available are detailed in the table above. If the database was searched and no data was found, then a zero will be present. If a database was not searched then the abbreviation N/A will be found, indicating this information was not available at the radius searched.

Flooding from Rivers or Sea



Legend of Environment Agency

- | | |
|--|--|
|  Client Site |  Defended Areas |
|  Flood Defences |  Flood Zone 2 |
|  Flood Storage |  Flood Zone 3 |



* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:7,250

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Flooding from Rivers or Sea

Flooding from River or Sea (Flood Zone 3)

Details	Distance	Reply or Direction
Are there any indicative flood plains within 500m?	<501m	YES
Type: Tidal Models, Source: Environment Agency, Head Office, Boundary Accuracy: As Supplied.	On Site	N/A

Flooding from River or Sea in an Extreme Event (Flood Zone 2)

Details	Distance	Reply or Direction
Are there any indicative flood plains (extreme events) within 500m?	<501m	YES
Type: Tidal Models, Source: Environment Agency, Head Office, Boundary Accuracy: As Supplied.	On Site	N/A



The Site (or part of it) is at a high risk of flooding from rivers and the sea, as defined by the Environment Agency's Flood Map. The risk of annual flooding is greater than 1% (from rivers) or greater than 0.5% (from the sea). Properties in Flood Zone 3 may have difficulty in obtaining flood insurance (most insurers will only cover risks of less than 1.33% annual probability). All development proposals would need to be accompanied by a Flood Risk Assessment, in accordance with NPPF. Developments such as emergency services stations, basement dwellings and caravans, mobile homes and park homes for permanent residential use, etc. are not compatible with this level of risk. Significant planning constraints would apply to such developments as residential, care homes, hotels, short-let caravan parks, camping, etc. Parts of the Site may be within the 'functional floodplain' (>5% annual risk of flooding) within which severe planning constraints apply. It is recommended that a Flood Solutions Consult Report is undertaken to further define the flood risk issues and potential development constraints.

Areas Benefiting from Flood Defences

Details	Distance	Reply or Direction
Does the Site or any areas within 500m benefit from flood defences?	<501m	YES



The Site is within an Area Benefiting from a Flood Defence, as defined by the Environment Agency. There is therefore a residual risk that the Site may flood if the protection standard of the defences is exceeded, or if the defences should fail. It is recommended that further investigations are undertaken into the standard of these defences. Please contact us for further information.

Flood Water Storage Areas

Details	Distance	Reply or Direction
Are there any flood water storage areas within 500m?	<501m	NO



The Site is over 500m from a Flood Storage Area (FSA) as defined by the Environment Agency. These areas store flood water during significant flood events. It is unlikely that any FSA presents any associated flood risk to the Site.

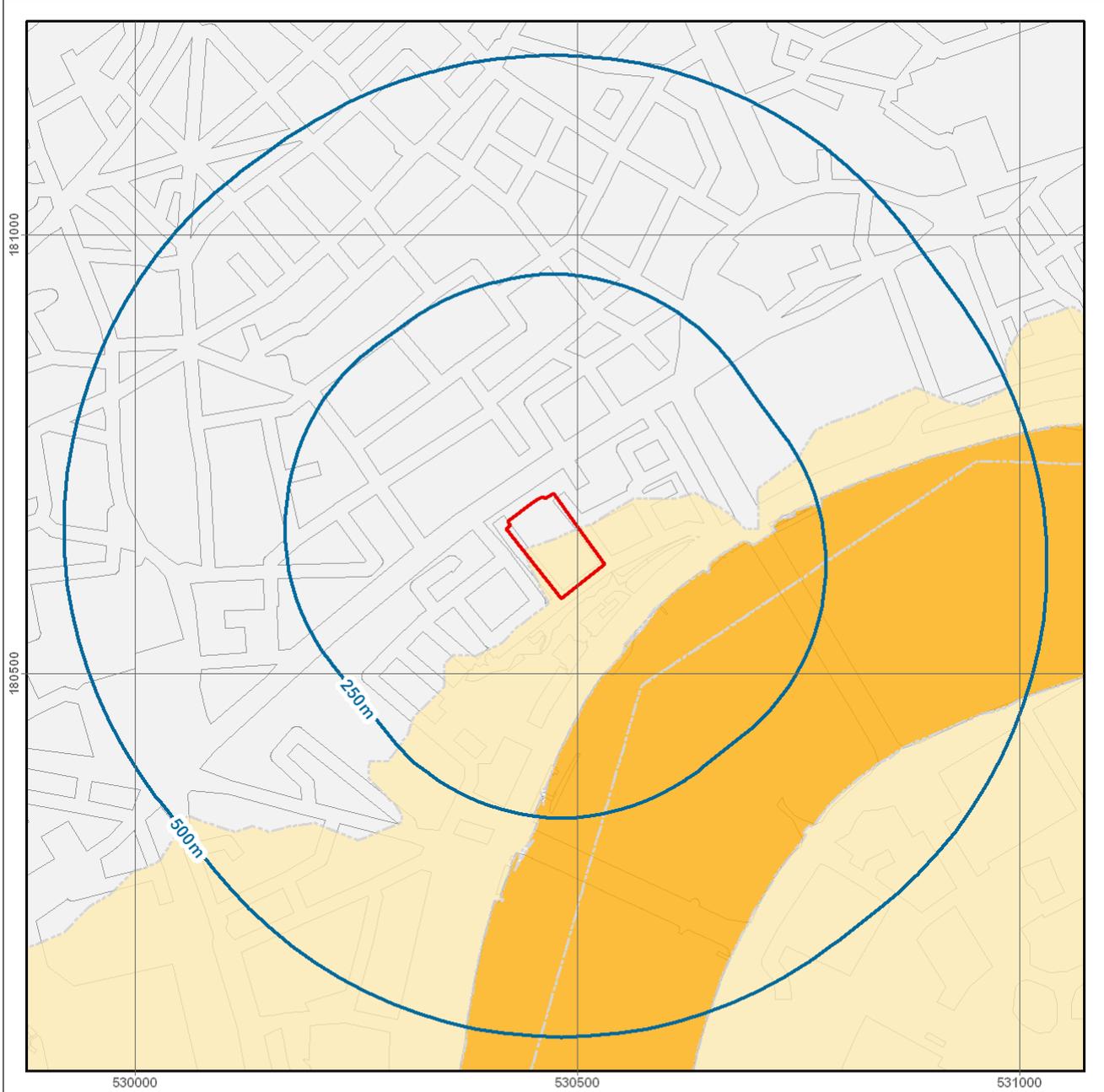
Flood Defences

Details	Distance	Reply or Direction
Are there any flood defences within 500m?	<501m	YES



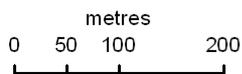
The Site is more than 5m above the base level at a flood defence. There may therefore be a small residual risk of flooding should the protection standard of the defences be exceeded (and the defences overtopped) or should the defence line fail. Reference should be made to the assessment of 'Areas Benefiting from Flood Defences' to ascertain whether the Site could potentially be at risk.

Environment Agency National Flood Risk Assessment (NAFRA)



Legend of NAFRA

-  Client Site
-  No Result
-  Low
-  Moderate
-  Significant



* - Not all features in legend may be present in above map

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Environment Agency National Flood Risk Assessment (NAFRA)

NaFRA Property Flood Likelihood Database

Details	Distance	Reply or Direction
What is the flood likelihood category for the Site?	On Site	Low

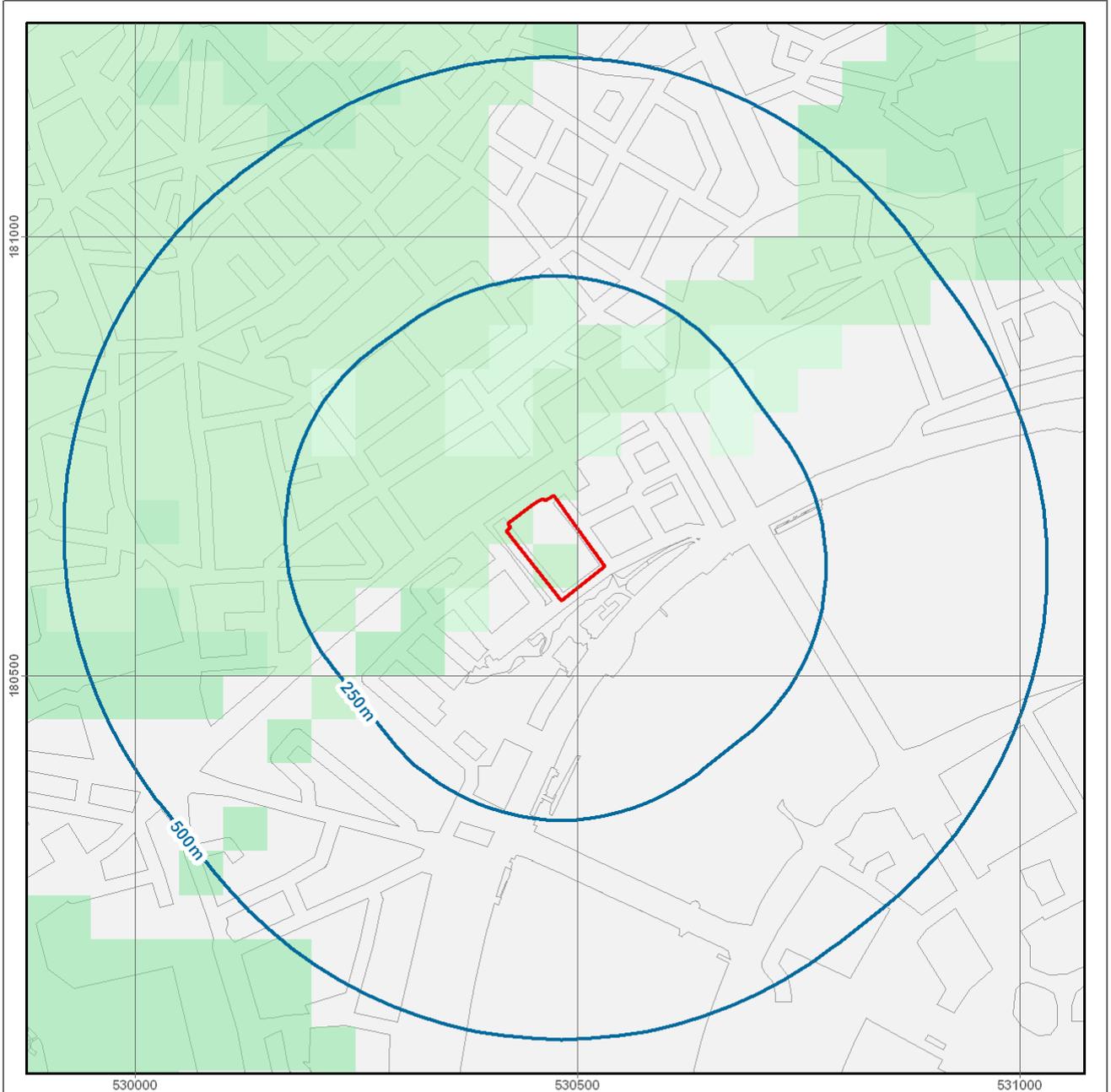


The Site (or part of it) has been defined as being at Low Flood Risk within the Environment Agency's National Flood Risk Assessment. This classification relates to the locality as a whole, rather than the individual Site and relates only to the risk of coastal or river flooding. This classification should not raise difficulties in obtaining flood insurance for properties on the Site.

Environment Agency Data

The data in the NaFRA Property Flood Likelihood Database is sourced from the Environment Agency's National Property Dataset (NPD2). The information provided includes the flood likelihood category low, moderate, or significant according to the NaFRA flood risk analysis. Some areas may be classified as having no result. This occurs where there is no output data from the analysis used to produce NaFRA, but the area falls within the extreme flood outline (with a 0.1% or 1 in 1000 chance of flooding in any year).

Groundwater Flooding Susceptibility



Legend of Groundwater Flooding Susceptibility

-  Client Site
-  Very High
-  High
-  Moderate
-  Low
-  Negligible



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Groundwater Flooding Susceptibility

Groundwater Flooding Susceptibility

Details	Distance	Reply or Direction
What is the susceptibility to groundwater flooding at the Site?	On Site	High



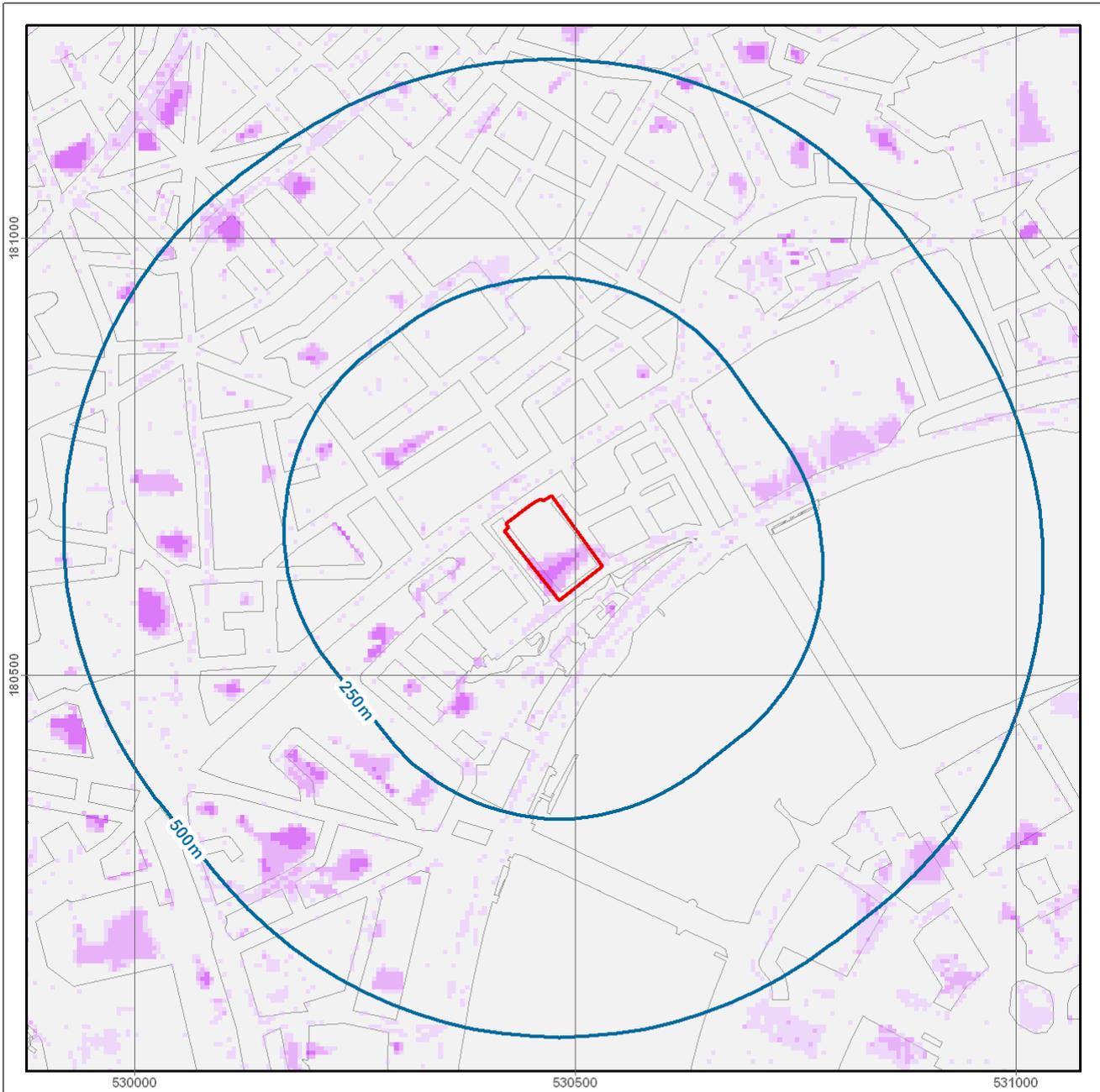
Information from the British Geological Society (BGS) indicates that the locality has a high susceptibility to groundwater flooding. However, the BGS advise that this data should not be used to assess the precise risk to any particular Site. A further detailed hydrogeological study could be undertaken to further quantify this risk, to include a review of any previous records of flooding, rainfall records, property type and land drainage information.

British Geological Survey Data

The BGS Susceptibility to Groundwater flooding hazard dataset identifies where geological conditions could enable groundwater to come close to the surface and cause groundwater flooding. The susceptibility data is suitable for use for regional or national planning purposes where the groundwater flooding information will be used along with a range of other relevant information to inform land-use planning decisions. A high susceptibility does not necessarily mean that the Site is at high risk of groundwater flooding. BGS advise that the data should not be used to assess the precise risk at any particular site.

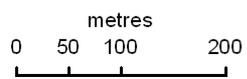
Argyll consultants therefore analyse this data manually in conjunction with other data (such as detailed geological maps, the relative height of the Site above sea level and infrastructure (presence of cellars/basements etc). Based on this assessment they may amend the overall groundwater flooding risk rating.

Surface Water Flooding (1:200 year rainfall event)



Legend of Surface Water: 200 year Risk

-  Client Site
-  10cm - 30cm depth
-  30cm - 1m depth
-  1m + depth



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Surface Water Flooding

Surface Water Flooding

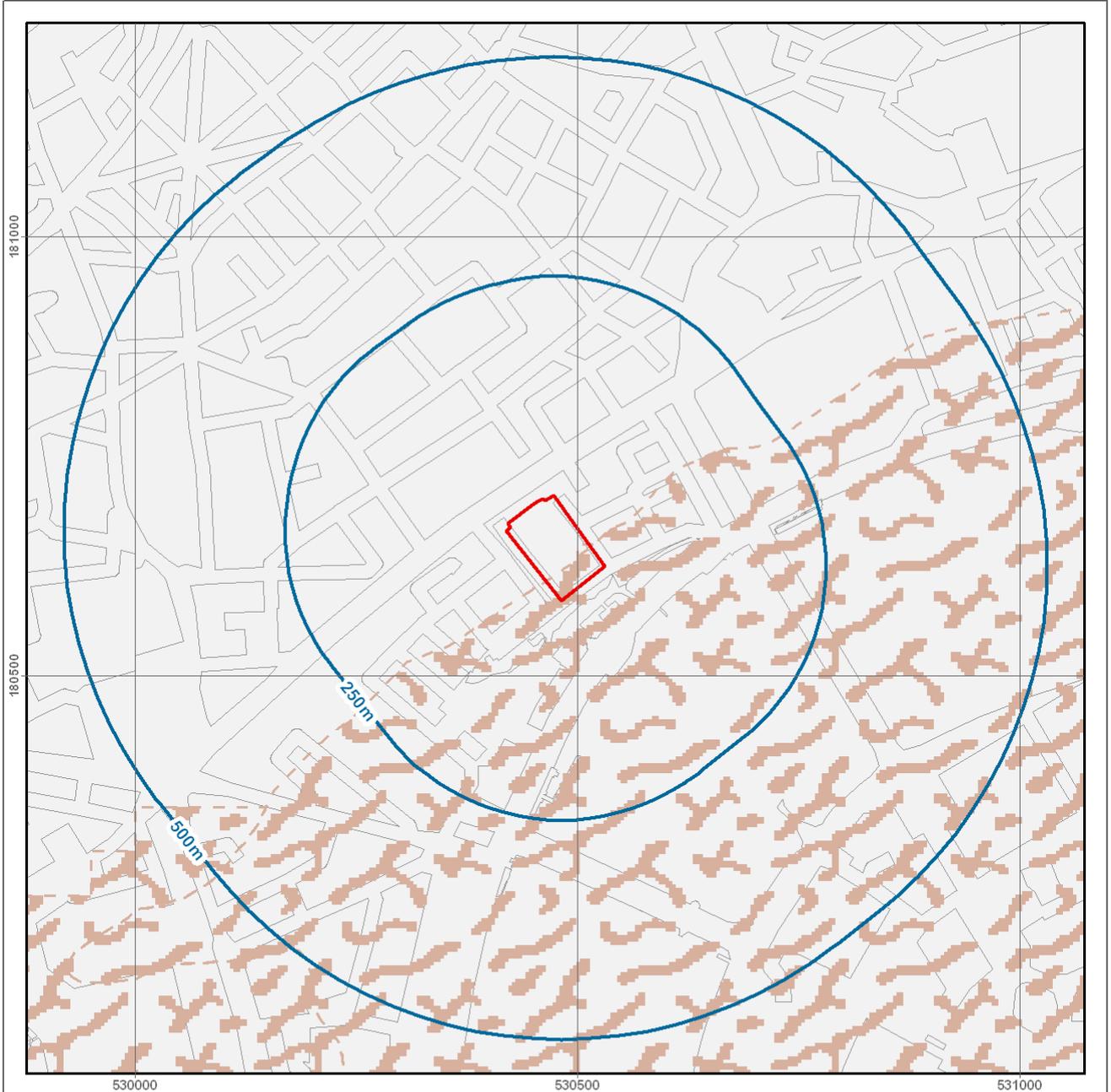
Details	Distance	Reply or Direction
What is the risk of surface water flooding at the Site following a 1 in 75 year rainfall event?	On Site	High
What is the risk of surface water flooding at the Site following a 1 in 200 year rainfall event?	On Site	High
What is the risk of surface water flooding at the Site following a 1 in 1,000 year rainfall event?	On Site	High



JBA Consulting Data

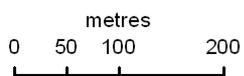
Surface Water Flooding - Information regarding the risk of natural surface water or pluvial flooding. The risk is classified by JBA into four categories, negligible, low (more than 0.1m), medium (more than 0.3m) and high (more than 1m) which reflect varying depths of potential surface water flooding during a range of rainfall events including 1:75 year, 1:200 year and 1:1,000 year events.

Historical Flooding



Legend of Historical Flooding

-  Client Site
-  Historic Floods
-  Geo Indicators



* - Not all features in legend may be present in above map

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Historical Flooding

Historical Flood Events

Details	Distance	Reply or Direction
Have any historic flood events occurred at the Site or within 500m?	<501m	NO



The Environment Agency's records have no indication of past flooding within 500m of the Site. As these records are not comprehensive, it may still be prudent to ask the Site owner whether they are aware of any previous flooding at the Site or in the surrounding area.

Environment Agency Data

Historic Flood Outlines - The EA has collated extensive records (including outlines) of flooding from rivers, the sea or groundwater which have occurred in England and Wales since c. 1950. This information comes from various sources including maps, aerial photographs and private records. It is not necessarily comprehensive.

Geological Indicators of Flooding

Details	Distance	Reply or Direction
Are there any geological deposits within 500m which indicate the Site or surrounding area may have been flooded in the past?	<501m	YES
Type: Tidal Models	On Site	N/A

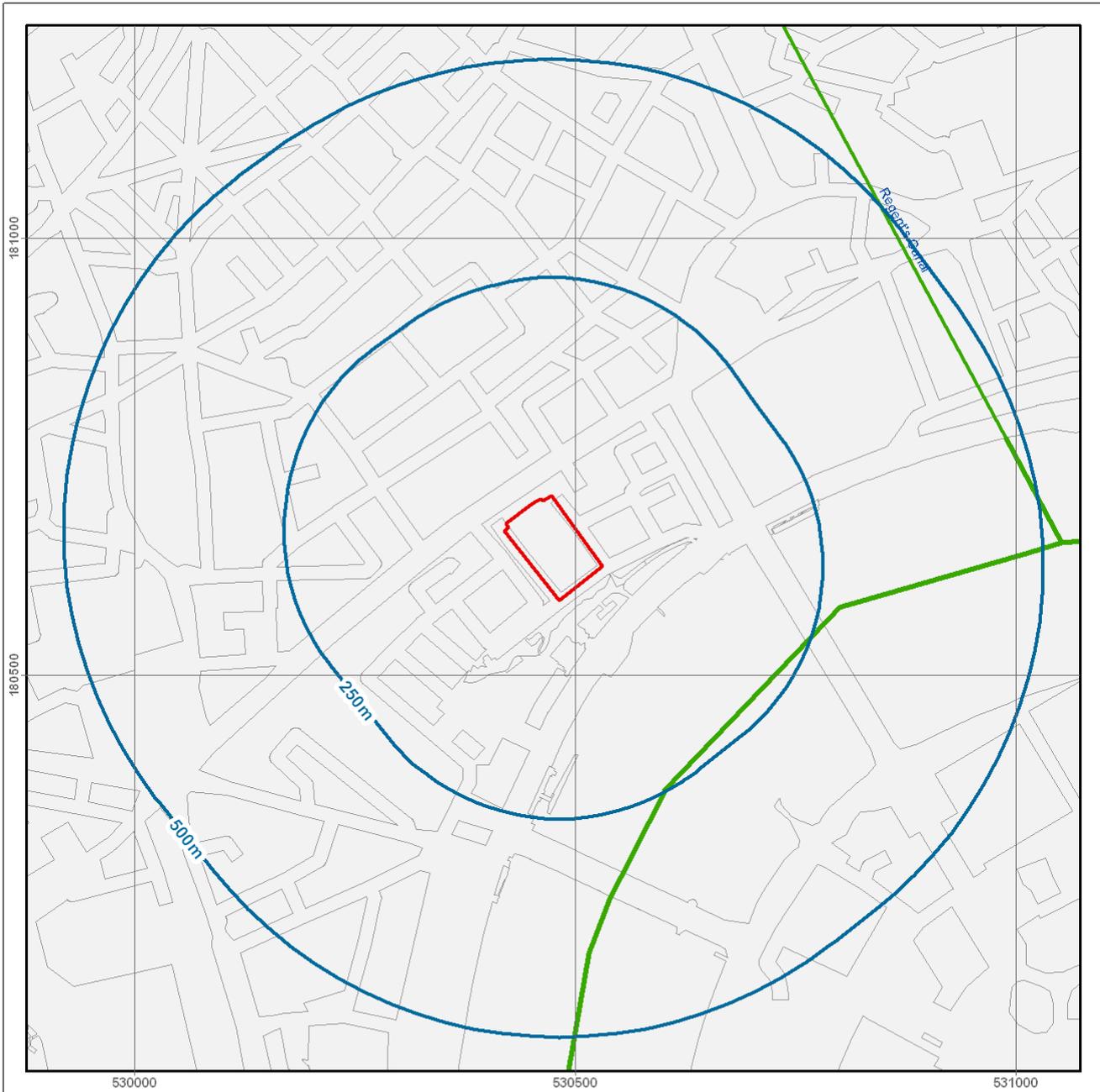


Data from the British Geological Society (BGS) indicates that the type of deposits in the locality of the Site are of the type normally associated with floodplains. However, this data should only be considered as complementary to the Environment Agency's Flood Map. This BGS data does not indicate the likelihood of flooding, since such deposits may be due to flood events which occurred thousands of years ago. Refer to the other assessments in this report for an overall assessment of flood risk.

British Geological Survey Data

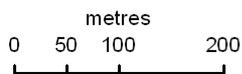
Geological Indicators of Flooding – The BGS Geological Indicators of Flooding (GIF) data set is a digital map based on the BGS Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising Superficial (Drift) Deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow and reflects areas which may have flooded in the recent geological past. This normally relates to flooding which happened many thousands of years ago.

Detailed River Network



Legend of Detailed River Network

- | | |
|-----------------|------------------------|
| Client_Site | Underground River |
| Primary River | Extended Culvert |
| Secondary River | D/S of High Water Mark |
| Tertiary River | D/S Seaward Extension |
| Lake/Reservoir | Canal |



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Detailed River Network

Detailed River Network

Details	Distance	Reply or Direction
Is there any information from the EA's Detailed River Network within 500m?	<501m	YES
	227.6	SE
	472.3	NE



The Site is more than 5m above canal or drainage channel identified by the Environment Agency's detailed river network. Although this suggests a low risk of flooding, other assessments of risk within this report should be consulted.

Environment Agency Data

This data was derived from Ordnance Survey Mastermap (the UK's most detailed digital mapping) and shows the centre-lines of the river network (rivers, drains and streams) in England and Wales. Where relevant, it assigns attributes such as river type and designation (i.e. Main River status). It can be important to know this because certain statutory bodies must be consulted about development proposals near to a Main River, canal or drainage channel.

Other Information

Height Above Sea Level

Details		
Maximum height of the Site above sea level	On Site	13.3m
Minimum height of the Site above sea level	On Site	8.8m
Average height of the Site above sea level	On Site	11.4m



The Site is at a relatively high elevation above sea level. However, this is not in itself indicative of the absence of flood risk and reference should be made to other assessments within this report.

Distance to Water Features

Details	Distance	Reply or Direction
Are there any water features within 500m?	<501m	YES
Nearest surface water feature	77.5m	SE



The Site is more than 5m above a water feature (as shown on the Ordnance Survey maps). Although this suggests a low risk of flooding, other assessments of risk within this report should be consulted.

Dam or Reservoir Failure

Details	Distance	Reply or Direction
Is there a risk of the Site being affected by the failure of a nearby dam or reservoir?	On Site	NO



Neither the Site nor areas near to it will be likely to flood if a dam or reservoir in the surrounding area failed.

JBA Consulting Data

Dam or Reservoir Failure – JBA has modelled approximately 1700 dams and reservoirs across the UK which are considered to pose the greatest risks to people and property. These models are able to predict the areas likely to flood on all sides of a feature, should an element of it fail e.g. a wall, dam or earth bund.

Glossary

Business Continuity Plan

A business continuity plan is a strategic plan of action for a business to implement in an emergency (i.e. flood event). This plan ensures a business can continue to operate during emergency situations and reduces the risk of suffering avoidable losses. For example, it may cover such items as emergency accommodation and computer back up off site.

Flood Evacuation Plan

A flood evacuation plan sets out clear steps to ensure the safe evacuation of staff during a flood. It will form part of the Business Continuity Plan.

Coastal Flooding

Coastal flooding is the inundation of land areas along the coast caused by sea water rising above normal tidal conditions. Coastal flooding can arise from a combination of high tides, wind induced tidal surge, storm surge created by low pressure and wave action.

Flood Resistance Measures

These measures are designed to prevent flood water from entering the buildings on Site.

Flood Resilience Measures

These measures are intended to make buildings more resilient to flood damage so that they recover more quickly from flooding. They are not designed to prevent flood water entering the property.

Flood Risk Assessment

A full Flood Risk Assessment (FRA) Report is a bespoke report required under NPPF for any development site within Environment Agency Flood Zones 2 or 3 and/or any development site larger than 1 hectare. These reports are generally prepared following liaison with the Local Planning Authority and the application of the sequential test.

Flood Zone 1

An area of low probability of flooding as defined by the Environment Agency – a flood return period of 1 in 1,000 or more.

Flood Zone 2

An area of medium probability of flooding as defined by the Environment Agency – a flood return period between 1 in 100 to 1 in 1,000 for river flooding and 1 in 200 to 1 in 1,000 for coastal flooding.

Flood Zone 3a

An area of high probability of flooding as defined by the Environment Agency – a flood return period between 1 in 20 to 1 in 100 for river flooding and 1 in 200 for coastal flooding.

Flood Zone 3b

This area is a functional floodplain as defined by the Environment Agency. It is an area which is designed to flood – a flood return period of 1 in 20 or less.

Groundwater Flooding

Groundwater flooding occurs when ground water levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys and in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels.

NPPF

This relates to the National Planning Policy Framework and the associated Technical Guidance.

Pluvial (Surface Water) Flooding

Pluvial flooding results from rainfall running over ground before entering a watercourse or sewer. It is usually associated with high intensity rainfall events (typically greater than 30mm per hour) but can also occur with lower intensity rainfall or melting snow where the ground is already saturated, frozen, developed (for example in an urban setting) or otherwise has low permeability.

Return Period

Return periods are a measure of how likely flooding is to occur. They are commonly expressed as a ratio (for example 1 in 75 or 1:75). This means that this level of flooding is expected once in every 75 years.

River Flooding

River flooding mainly happens when the river catchment (that is the area of land that feeds water into the river and the streams that flow into the main river) receives greater than usual amounts of water (for example through rainfall or melting of snow). The amount of runoff depends on the soil type, catchment steepness, drainage characteristics, agriculture and urbanisation as well as the saturation of the catchment. The extra water causes the level of the water in the river to rise above its banks or retaining structures.

Useful Contacts

Name and Address	Telephone/Fax/Email
<p>Argyll Environmental Limited Lees House 21-33 Dyke Road Brighton BN1 3FE www.argyllenvironmental.com</p>	<div style="display: flex; align-items: center;">  <div style="font-size: 24px; color: orange; font-weight: bold;">argyll</div> <div style="font-size: 18px; color: grey;">environmental®</div> </div> <p>General enquiries 0845 458 5250 Fax 0845 458 5260 info@argyllenviro.com</p>
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<p>(For advice on flood insurance) British Insurance Brokers' Association 8th Floor John Stow House 8 Bevis Marks London EC3A 7JB</p>	<div style="display: flex; align-items: center;">  </div> <p>Consumer helpline 0870 950 1790</p>
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Flood Risk Screening Methodology

The FloodSolutions Commercial report is a desktop flood risk screening report, designed to enable property professionals to assess the risk of flooding at commercial sites. It examines three areas; how flood risk affects the availability of insurance for a site; how flood risk affects the potential to redevelop a site; and the overall risk of flooding at a site (taking into account any flood defences present). The report considers current Government guidance including the National Planning Policy Framework (NPPF) and the agreement between insurance companies and central Government. The report has been produced and quality-checked by qualified flood risk specialists using the data contained in this report.

Insurance Availability

Argyll provides an indication of whether the Site is likely to be insurable for flood risk at standard terms. The answer to Question 1 is based on consideration of NaFRA data supplied by the Environment Agency and surface water flooding data supplied by JBA Consulting. This data is used by insurance companies to determine the suitability of a Site for insurance, although they may access additional information which could affect their assessment.

Under the Association of British Insurers' Revised Statement of Principles on the Provision of Flooding Insurance (July 2008), the general policy of member companies is that flood insurance for domestic properties and small businesses should continue to be available for as many customers as possible until 1st July 2013, by which time a longer term solution should be implemented. The premiums charged and other terms will reflect the risk of flooding but insurance will be available:

- 1) for properties where the flood risk is not significant (generally defined as no worse than 1.33% or 1-in-75 years annual probability of flooding); and
- 2) to existing domestic property and small business customers at significant risk, providing the Environment Agency has announced plans to reduce that risk within five years, such as improving flood defences. (The commitment to offer cover will extend to the new owner of any applicable property subject to satisfactory information about the new owner).

However, for significant risk areas where no improvements in flood defences are planned, and in all cases other than domestic properties and small businesses, insurers cannot guarantee to provide cover, but will examine the risks on a case-by-case basis. The implementation of the revised Statement of Principles depends on action from the Government and is continually reviewed by insurers. In addition, the revised Statement of Principles does not apply to properties built after 1st January 2009. Different guidance applies to these (see Climate Change – Guidance on Insurance Issues for New Developments from www.abi.org.uk).

The responses to the question 'Is the Site likely to be insurable at standard terms?' assume the Site is an existing domestic property or small business and makes no allowance for previous claims arising from any type of flooding, nor for non-flood related risks such as subsidence.

Response	Meaning
Yes	The Site is likely to be considered acceptable by insurance companies at standard terms and flood insurance should not be difficult to obtain. No further action required.
No	The Site is not likely to be considered acceptable by insurance companies at standard terms, on the basis of current information. Further work may be required in order to obtain acceptable insurance terms for the flood risk. This could include a more detailed risk assessment or the use of accredited products, flood resilient materials and temporary defences to defend the property.

Development Risk

Argyll comments on whether a full or partial Flood Risk Assessment (FRA) would be required in accordance with National Planning Policy Framework (NPPF). The answer to Question 2 is indicative only and is based on the size of the Site (as supplied by the client) and the information in the data section of this report.

NPPF sets out Government policy on development and flood risk. Its aims are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas of highest risk. Where new development is exceptionally necessary, NPPF aims to make it safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall.

A separate Drainage Impact Assessment may be required in addition to an FRA to demonstrate that development of the Site will not adversely affect flood risk elsewhere.

Response	Meaning
Yes (Full)	If the Site was redeveloped, a full Flood Risk Assessment is likely to be required which should include a Drainage Impact Assessment.
Yes (Drainage)	If the Site was redeveloped, a full Flood Risk Assessment may not be required however, given the size of the Site, a Drainage Impact Assessment may be necessary.
No	If the Site was to be redeveloped, no further flood assessment is likely to be required.

Flood Risk Rating

Argyll provides an overall flood risk rating based on an assessment of the data provided within this report. It does so by asking two questions:

3. What is the overall risk of flooding, assuming flood defence fail or are absent or overtopped?

The answer to Question 3 provides a worst case scenario assuming there are either no defences in the area, that any defences in the area could fail, primarily as a result of river or coastal flooding, or are overtopped by excessive flood volumes.

4. Are there existing flood defences which might benefit the Site?

The answer to Question 4 is based on the presence of any flood defences registered by the Environment Agency within 250m of the Site. It should be noted that a residual risk of flooding may be present if such defences failed. Flood defences do not generally protect the Site against groundwater and surface water flooding.

If defences are present within 250m, a further question is asked:

5. What is the risk of flooding when these defences are operational?

This assesses the risk from flooding, assuming these defences work as intended and neither fail nor are overtopped.

Questions 3 and 5 are answered by one of six standard responses:

Response	Meaning
Negligible	The overall flood risk rating for the Site is assessed to be 'Negligible'. Existing datasets do not indicate any risk at the Site itself, or any feature within the locality of the Site, which would be expected to pose a threat of flooding. It is not considered that any further investigations are necessary in regard to flood risk.
Low	The overall flood risk rating for the Site is assessed to be 'Low'. Although large sites (over 1 ha) would require a Drainage Impact Assessment to accompany any planning application, it is not considered necessary to undertake any other further investigations into the flood risk to the Site.
Low to Moderate	The overall flood risk rating for the Site is assessed to be 'Low to Moderate'. The presence of such features as flood defences, flood storage areas and watercourses within the locality of the Site suggests that there may be a risk of flooding to the Site itself. Further investigations could be undertaken to further assess this risk.
Moderate	The overall flood risk rating for the Site is assessed to be 'Moderate'. Information from existing datasets suggests that there are certain features which may present a risk to the Site and its occupants. Further assessment would normally be suggested as a prudent measure to clarify the risk of flooding at the Site.
Moderate to High	The overall flood risk rating for Site is assessed to be 'Moderate to High'. Information from existing datasets suggests that there are certain features which may present a significant risk to the Site and its occupants. Further assessment is usually recommended in order to clarify the risk of flooding at the Site.
High	The overall flood risk rating for Site is assessed to be 'High', with a consequent risk to life and property. This means that existing datasets reveal significant flood risk issues which need to be addressed. Further assessment is usually recommended in order to clarify the risk of flooding at the Site.

Flood Analysis

The flood risk gauges provide a more detailed analysis of the risk from each of the four main types of flooding – river, coastal, groundwater and surface water. In addition, a fifth gauge provides an analysis of other factors (i.e. historic flood events, geological deposits which are indicative of past flooding, proximity to surface water features and elevation above sea level) that may affect the overall flood risk. For surface water flooding, only the risk rating generated from the 1:200 year rainfall event data is included in the overall risk assessment. The data on 1:75 year

and 1:1,000 year rainfall events is provided for information only. For further information on each of these types of flooding, please refer to the Argyll FloodSolutions User Guide.

This analysis takes into account any existing flood defences that are intended to protect the Site and assumes that these work as designed. The analysis also takes into account the other information contained in those data sections of the report which are relevant to that particular type of flooding. The assessment of the risk as shown in the flood gauge should therefore take priority over the information in the individual data sections of the report.

Limitations of the Report

The FloodSolutions Commercial report has been designed to satisfy basic flood-related environmental due-diligence enquiries for commercial properties. It is a desktop review of information provided by the client and from selected private and public databases. It does not include a site investigation, nor are specific information requests made of the regulatory authorities for any relevant information (other than local water and sewerage providers). Therefore, Argyll cannot guarantee that all issues of concern will be identified by this report, or that the data and information supplied to it by third parties is accurate and complete.

This report includes an assessment of surface water flooding which examines the risk of the general drainage network overflowing during periods of extreme rainfall. This report does not make a detailed site-specific assessment of the suitability of the existing drainage on the Site. If this is required, then a site survey should be considered. The assessment of pluvial flooding does not take into account particular local or temporary factors that may cause surface water flooding such as the blockage or failure of structures on or within watercourses, drains, foul sewers, water mains, canals and other water infrastructure; and any history of drains flooding at the Site or in the locality. Surface water flooding can occur before surface water reaches the general drainage network, for example on hills and inclines.

Environment Agency data does not include flood risk from very small catchments as models of such small scale catchments are not considered to be reliable for UK-wide flood risk assessments. The potential impact of climate change on flood risk to the Site would require further study.

When answering any questions within this report, current applicable legislation is taken into account.

The data used in this report may have inherent limitations and qualifications. Further details are set out in the FloodSolutions User Guide which is available free of charge from our website www.argyllenvironmental.com , or by calling one of our technical team on 0845 458 5250.

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