RIDA
FLOOD RISK ASSESSMENTS & DRAINAGE STRATEGIES

FLOOD RISK ASSESSMENT

87 The Greenway, Ickenham UB10 8LX

Reference: 360 FRA- 001

May-22

www.rida-reports.co.uk

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Introduction 1

Purpose of this report

1.1 RIDA Reports Ltd has been appointed to undertake a Level 1 – Screening Study Flood Risk Assessment for a development located at UB10 8LX.

Objectives

1.2 The objectives of this FRA are to demonstrate the following:

* Whether the proposed development is likely to be affected by current or future flooding.
* Whether the proposed development will increase flood risk elsewhere.
* Whether the flood risks associated with the proposed development can be satisfactorily managed.
* Whether the measures proposed to deal with the flood risk are sustainable.

Documents Consulted

1.3 To achieve these objectives the following documents have been consulted and/or referenced:

The National Planning Policy Framework (NPPF)
CIRIA C753 document The SuDS Manual, 2015
Local Flood Risk Management Strategy (LFRMS)
Level 1 Strategic Flood Risk Assessment (SFRA)
Aerial photographs and topographical survey of the site
British Geological Society Records
Local Council flood Maps
Environment Agency flood maps
The CIRIA publication 'C635 Designing for exceedance in urban drainage— Good practice'

Development Site and Location

2.1 The site is located at The Greenway, Uxbridge - Hillingdon - London. The nearest post code is UB10 8LX. Refer to appendix A for site location plan.

2.2 The current use of the site is the garden of the property. The current use vulnerability clasification of the site is Water compatible. The site is located in the River Flood Zone 2. Refer to Appendix B for more details.

Development Proposals

2.3 The proposed development includes the extension of the property. The total development area (shown in within the red line) is approximately 500 sqm. Refer to Appendix B for layout of the proposed development.

2.4 The vulnerability classification of the proposed development is More vulnerable with an estimated lifetime between 50 and 100 years.

Site Hydrology and Hydrogeology

Hydrology 2.5 The tributary of the River Pinn is located approximately 100 m away from the development.

Aquifer 2.6 The development is located within an unproductive strata. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Source Protection Zone 2.7 The site is located within the source protection zone 2. This zone is defined by a 400 day travel time from a point below the water table. This zone has a minimum radius of 250 or 500 metres around the source.

Groundwater Levels 2.8 The ground water levels for this site are unknown.

Site Geology

Bedrock 2.9 The British Geological Society records of the site show that it is located within the LONDON CLAY FORMATION - CLAY, SILT AND SAND.

Superficial Deposits 2.10 The British Geological Society records show that the superficial deposits are No results found.

National and Local Planning Policy 3

National Planning Policy Framework (NPPF)

3.1 The NPPF and its technical guidance is a set of planning policies with the key objective to contribute to the achievement of sustainable development. As part of it, they ensure that flood risk and sustainability are taken into account during the planning process. This ensures that developments are not located in flood risk areas and directs developments to lower risk areas. The NPPF applies a sequential risk-based approach to determining the suitability of land for development in flood risk areas. The NPPF also encourages developers to seek opportunities to reduce the overall level of flood risk through the layout of the development and the application of Sustainable Drainage Systems (SuDS).

The Flood and Water Management Act (2010)

3.2 The Flood and Water Management Act aims to reduce the flood risk associated with extreme weather events. It provides a robust management of flood risk for people, homes and businesses and also encourages the use of SuDS for developments. A robust SuDS strategy should take into account the recommendations given in this Flood Risk Assessment.

Strategic Flood Risk Assessment (SFRA)

3.3 Planning policy with regard to development and flood risk in the area is detailed in the Local Flood Risk Management Strategy (LFRMS) which was published in 2015. The proposed development site is located within the administrative boundary of the London Borough of Hillingdon.

3.4 The SFRA commits to direct new development to locations at lowest flood risk. The SFRA provides information on the levels and flood hazards that could result from flooding. The Environment Agency flood zone maps and the SFRA ignore the presence of existing flood defences when defining the potential extent of flooding.

3.5 This report follows the guidance given in the Local Flood Risk Management Strategy by evaluating the flood risk and providing relevant flood mitigation.

The Sequential and Exception Test 4

4.1 The flood risks were determined by identifying the sources of flooding and assessing their possible impact and likelihood to the development.

Fluvial Flood Risk Assessment

4.2 Fluvial flood risk for this extension was assessed using the Environment Agency Flood Zone Maps and the standing advice approach recommended in the NPPF guidelines. The standing advice takes into account the size of the development and the flood risk vulnerability of land uses.

Standing Advice

Step 1
Flood Zone categorisation

4.3 The proposed development falls within The Environment Agency Flood Zone 2. The Flood Zone 2 is considered to have a medium probability of flooding with a 1000 to 100 years annual probability or 0.1-1.0%AEP.

Step 2
Flood risk vulnerability

4.4 The development a minor extension in flood zone 2. A minor extension is a household or non-domestic extension with a floor space of no more than 250 square metres.

Step 3
Standing Advice

4.5 The proposed development falls within the remit of the standing advice therefore it is appropriate in this area.

Flood hazard assessment 5

5.1 The development has been assessed for all potential flood risks such as river and tidal flood risk, surface water flooding, flooding from groundwater, reservoir flood risk and drainage systems.

Historic Flooding

5.2 The site does not benefit from flood defences. The Environment Agency records show that the area around the site has not been flooded in the past.

Flooding from river and sea

5.3 The proposed development falls within The Environment Agency Flood Zone 2. The Flood Zone 2 is considered to have a medium probability of flooding with a 1000 to 100 years annual probability or 0.1-1.0%AEP.

5.4 The climate change allowances are as per the vulnerability of the development , the design life of the building , and the flood zone classification. The climate change allowance for this development is 17%. As the levels are not available it has been assumed a depth of 600mm for climate change allowance.

5.5 The levels for this site has been requested from the Environment Agency.

5.6 It has been assumed that the water depth for this site is above the existing ground level.

5.7 The assumed flood depth for this site is 0.3m. This depth of water will be used for the purpose of this assessment.

Surface water (overland flows) flood risk

5.8 The Environment Agency maps show that the flood risk from surface water is low. A residual risk of localised shallow ponding remains likely. The Environment Agency surface water flood risk maps are defined through application of a specific procedure based on digital terrain models and assumptions regarding losses to infiltration and/or urban drainage. The surface water flood maps is defined by the Environment Agency as follows.

5.9 *"The nationally produced surface water flood mapping only indicates where surface water flooding could occur as a result of local rainfall. It does not fully represent flooding that occurs from:*

- Ordinary watercourses
- Drainage systems or public sewers caused by catchment-wide rainfall events
- Rivers
- Groundwater

Due to the modelling techniques used, the mapping picks out depressions in the ground surface and simulates some flow along natural drainage channels, rivers, low areas in floodplains, and flow paths between buildings. Although the maps appear to show flooding from ordinary watercourses, they should not be taken as definitive mapping of flood risk from these as the conveyance effect of ordinary watercourses or drainage channels is not explicitly modelled. Also, structures (such as bridges, culverts and weirs) and flood risk management infrastructure (such as defences) are not represented.

The nationally produced surface water flood mapping does not take account of the effect of pumping stations in catchments with pumped drainage. No allowance is made for tide locking, high tidal or fluvial levels where sewers cannot discharge in to rivers or the sea."

5.10 The strategic flood risk for the London Borough of Hillingdon confirms that the flood risk for the site is Low.

5.11 On the basis of Environment Agency and the Strategic flood risk assessment's surface water mapping, together with the presence of surface water drainage systems at the site and surrounding area it is concluded that the site is at Low risk of flooding from surface water sources. The depth of water is potentially below 300mm. For the purpose of this assessment a depth of water of 0.15m has been taken as the most relevant depth to the site.

Flooding from drainage systems in adjacent areas

5.12 The area around the development is shown a having a high level of sewer incident within the flood maps of the Strategic Flood Risk Assessment. See appendix C for details.

Reservoirs Risks

5.13 The Reservoir Flood Map (RFM) produced by the Environment Agency do not show the risk to individual properties of dam breach flooding. The maps do not indicate or relate to any particular probability of dam breach flooding. The maps were prepared for emergency planning purposes and can be used to help reservoir owners produce on-site plans and the Local Resilience Forum produce off-site plans, and to prioritise areas for evacuation/early warning in the event of a potential dam failure. The RFM shows that the development could be outside of the possible dam breach flooding path. See Appendix C.

Groundwater flood risk

5.14 The British Geological Survey's flood risk susceptibility maps show that the development has limited susceptibility to ground water flooding. The risk from groundwater flood to the site is considered very low. Refer to appendix C for record drawings.

Critical Drainage Areas

5.15 The development does not fall within a critical drainage area.

6.1 The Flood hazard assessment has demonstrated that the site is:

- In Flood Zone 2
- At Low risk of surface flooding
- At very low risk of groundwater flooding
- Outside of a critical drainage area
- Potentially within an area of sewer flooding

6.2 Under the NPPF it is necessary to demonstrate that, for any new development on the site, it is possible to provide an adequate level of flood protection for personnel working or living at the development.

Flood Protection

6.3 Where possible, flood protection for this development is typically provided by establishing the development's floor levels 300mm above the 1:100 year flood level, including allowance for climate change.

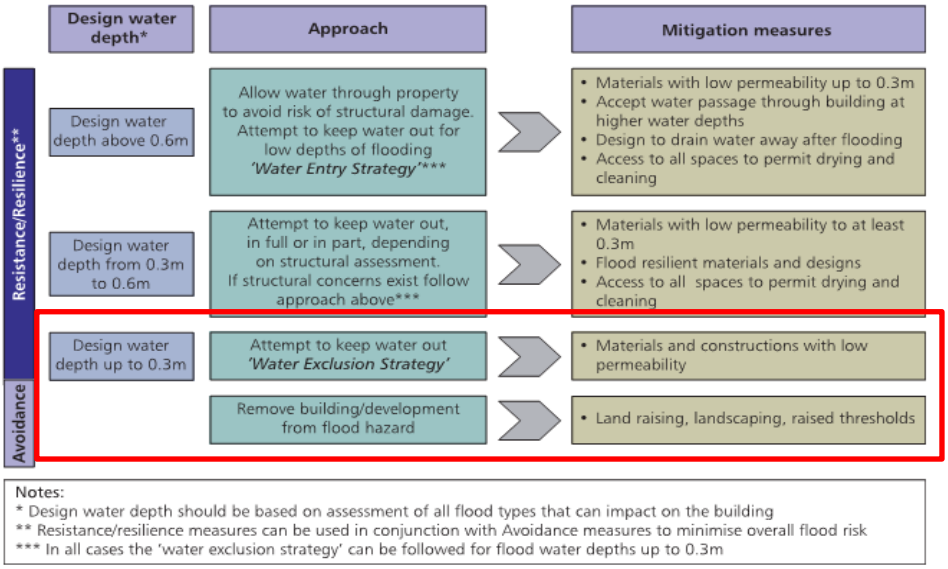
6.4 The flood levels have been requested from the Environment Agency. This assessment has been made on an assumed depth of water.

6.5 Since the design water depth is unknown. It has been assumed that it is 0.3m above the level of the external ground level of the building. The water entry strategy approach has been used with a water exclusion strategy for up to 300mm depth flows.

6.6 As a depth of flood level has been assumed. The following flood protection interventions should be provided.

6.7 The flood resilience strategy for the development has been based on the CLG 2007 Improving the Flood Performance of New Buildings. See figure below. The strategy is based on the water level within the proximity to the building.

Rationale for flood resilient and/or resistant design strategies.



6.8 The design water depth for this site is 0.3m. The development should utilise building materials that are suitable for a 'water exclusion strategy'. Materials classified as "Good" (highlighted in red) in the Figure below shall be used for construction upto the water depth.

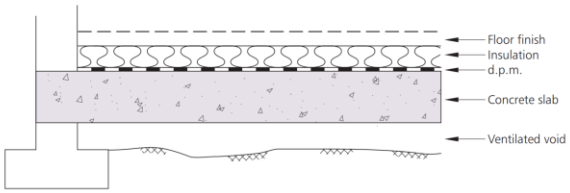
Figure 2: Flood resilience characteristics of building materials (based on laboratory testing)

Material	Resilience characteristics*		
	Water penetration	Drying ability	Retention of pre-flood dimensions, integrity
Bricks			
Engineering bricks (Classes A and B)	Good	Good	Good
Facing bricks (pressed)	Medium	Medium	Good
Facing bricks (handmade)	Poor	Poor	Poor
Blocks			
Concrete (3.5N, 7N)	Poor	Medium	Good
Aircrete	Medium	Poor	Good
Timber board			
OSB2, 11mm thick	Medium	Poor	Poor
OSB3, 18mm thick	Medium	Poor	Poor
Gypsum plasterboard			
Gypsum Plasterboard, 9mm thick	Poor	Not assessed	Poor
Mortars			
Below d.p.c. 1:3(cement:sand)	Good	Good	Good
Above d.p.c. 1:6(cement:sand)	Good	Good	Good

* Resilience characteristics are related to the testing carried out and exclude aspects such as ability to withstand freeze/thaw cycles, cleanability and mould growth

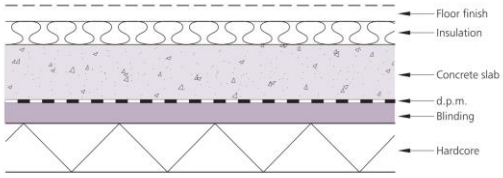
6.9 Foundations: Suspended concrete floor slabs at least 150mm thick is the preferred option. Suspended slabs can also be used. There should be a minimum space of 150mm ventilated void between the ground level and the bottom of the floor slab. Damp proof membranes should be included in the design. Floor insulation should be of the closed-cell type. Under floor services using ferrous materials should be avoided. Ceramic/concrete-based floor tiles, sitting on a bed of sand, cement render and water resistant grout can be used. See figures below.

Suspended Concrete Slab detail



- Reinforced concrete slab at least 150mm thick and complying with structural requirements for uplift forces
- Damp proof membrane of polythene at least 1200 gauge
- Insulation as rigid closed-cell material
- Ceramic tiles or stone floor finishes and including skirting boards.

Ground bearing Concrete Slab detail

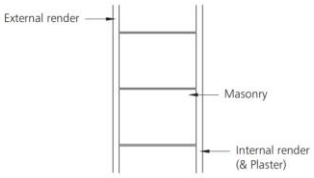


- Hardcore bed at least 100mm thick of well compacted inert material, blinded with fine inert material to provide a smooth base
- Damp proof membrane of polythene at least 1200 gauge
- Concrete slab at least 150mm thick
- Insulation as rigid closed-cell material
- Ceramic tiles or stone floor finishes and skirting boards.

6.10 Concrete blocks used in foundations should be sealed with an impermeable material or encased in concrete to prevent water movement from the ground to the wall construction.

6.11 External Walls: Good quality facing bricks or external renders with water repellent properties can be used for the external face. See below examples of external walls that can be used.

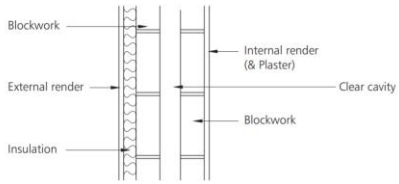
Solid External Wall



- External cement based render, preferably with lime content. Composition depends on masonry. The following mixes have good resilient properties:
  - 1 cement : 6 sand on bricks;
  - 1 cement : 4 sand: ½ lime on concrete blockwork or bricks;
  - 1 cement : 6 sand: 1 lime on Aircrete blocks.
- Masonry with minimum thickness of 300mm (thin mortar joint construction using Aircrete blocks is effective as demonstrated in laboratory tests) or alternatively reinforced concrete wall
- Internal cement-based render, preferably with lime content. Composition depends on masonry; the following mix is effective for flood resilience:
  - 1 cement : 6 sand: 1 lime on Aircrete.

  Apply external and internal renders, following good practice guidance, ensuring minimum total thickness of 20mm and at least two coats.
- Use external insulation in preference to internal insulation.

Cavity External Walls – Clear cavity

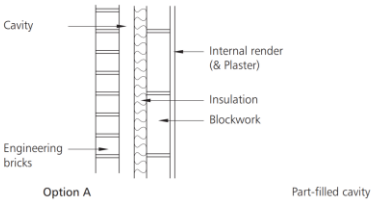


Clear cavity

- External cement based render, preferably with lime content. Composition depends on masonry; the following mixes are effective for flood resilience:
  - 1 cement: 4 sand: ½ lime on concrete blockwork (or bricks);
  - 1 cement: 6 sand: 1 lime on Aircrete.

  Apply render following good practice guidance, ensuring minimum total thickness of 20mm and two coats.
- Internal cement based render, preferably with lime content. Composition depends on masonry. The following mix works well:
  - 1 cement: 6 sand: 1 lime on Aircrete.
- Stainless steel wall ties should be used to minimise corrosion and consequent staining.

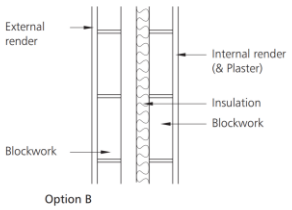
Cavity External Walls- Part fill Option A



Part-filled cavity – Option A

- External face consisting of engineering bricks up to required level for flood protection (up to 0.6m maximum above floor level plus one course). Other external facing materials can be used above this level, but ensure interface is watertight.
- Rigid insulation.
- Internal face consisting of blocks.
- Internal cement based render, preferably with lime content. Composition depends on masonry; the following mix is effective:
  - 1 cement : 6 sand: 1 lime on Aircrete.
- Ensure stainless steel wall ties are used to minimise corrosion and consequent staining.
- Sacrificial plasterboard can be used, but it needs to be removed between ground floor and flood level. The board should be fitted horizontally to make removal easier. In some cases a dado rail can be used to cover the joints.

Cavity External Walls- Part fill Option B



Part-filled cavity – Option B

- External cement based render, preferably with lime content. Composition depends on masonry; the following mixes are effective:
  - 1 cement : 4 sand: ½ lime on concrete blockwork
  - 1 cement : 6 sand: 1 lime on Aircrete.
- External face consisting of blocks.
- Rigid insulation.
- Internal face consisting of blocks.
- Internal cement based render, preferably with lime content. Composition depends on masonry; the following mix is effective for flood resilience:
  - 1 cement : 6 sand: 1 lime on Aircrete.
- Ensure stainless steel wall ties are used to minimise corrosion and consequent staining.

6.12 Services and fittings (communications wiring, hearing systems, electrical services, water, electricity and gas meters) should be placed at above the flood level. Where possible, all service entries should be sealed (e.g. with expanding foam or similar closed cell material). Closed cell insulation should be used for pipes which are below the predicted flood levels. Sealed PVC external framed doors should be used. Should wooden doors be used then a good fit and sealed to the frames must be obtained. Hollow core timber internal doors should not be used unless sufficient flood warning is given, butt hinges, can be used to allow internal doors to be easily removed and stored.

6.13 Fittings should be designed to be replaced after a flood, it is advisable to specify durable fittings that are not appreciably affected by water and can be easily cleaned (e.g. use of plastic materials or stainless steel). The cost of these units may need to be balanced against the predicted frequency of flooding. Avoid wood fibre based carcases and use easily removable solid wood doors and drawers.

6.14 The site is within an area of sewer flooding. The following recommendation should be followed:

- All new connections to the sewer network should have non-return valves.

7.1 The NPPF specifically stipulates that consideration should be given to potential off-site flood impacts of any proposed development. These off-site impacts are in relation to:

- Surface water management

- Flood flow conveyance, storage and climate change

Surface Water Management

7.2 The surface water run-off will be disposed using SuDS techniques. The aim is to provide a sustainable design that accommodates the proposed attenuation volume and replicated the existing drainage regime using the SuDS hierarchy is shown in the figure below.

7.3 The SuDS techniques highlighted in red below could be used on site. This assessment is based on the ground conditions and the potential discharge points available.

The SuDS Hierarchy (Source:EA Thames region, SuDS a practical guide)

Most Sustainable	*SUDS technique*	*Flood Reduction*	*Pollution Reduction*	*Landscape & Wildlife Benefit*
	Living roofs	✓	✓	✓
	Basins and ponds - Constructed wetlands - Balancing ponds - Detention basins - Retention ponds	✓	✓	✓
	Filter strips and swales	✓	✓	✓
	Infiltration devices - soakaways - infiltration trenches and basins	✓	✓	✓
	Permeable surfaces and filter drains - gravelled areas - solid paving blocks - porous paviors	✓	✓	
Least Sustainable	**Tanked systems** - over-sized pipes/tanks - storms cells	✓		

7.4 With no increase in the rate of surface water discharge from the site, compared to the site in its current configuration, the proposed development would have no adverse impact on surface water flood risk at the site or surrounding area. The SuDS should be designed at detailed project stage.

Flood Flow conveyance and storage

7.5 Due to the size of the development and its location on the flood zone, flood compensation for this development is not required.

Residual Risk 8

8.1 This flood risk assessment has identified the potential flooding mechanisms that could affect the site. This assessment has concluded that the development site requires additional flood risk mitigation strategies so all the flood risk can addressed.

Site access and public safety

8.2 This assessment has demonstrated that the proposed development will have no adverse impact on flood risk in the area surrounding the site. Available evidence indicates that the development would result in no change in surface water generation. There is therefore no basis to indicate that, with respect to flood risk, the proposed development would have adverse impact on public safety.

8.3 It will be necessary to ensure that all building users are fully informed of procedures to be implemented during threat of imminent flooding.

Flood Warning and evacuation

8.4 The site is located outside of an area that is covered by the Environment Agency Flood Alert service. It is recommended that a site specific evacuation plan is provided.

8.6 The Flood Management and Evacuation Plan should be tailored to the site use and be in place prior to occupation of the site. The below paragraphs give basic information on evacuation and Table below shows the actions that will be taken for each flood warning.

8.7 Action to be taken in the event of Alarm being Raised or Flood Warning Received:

a. Raise the alarm and evacuate the site following the established Fire Drill procedures. The main assembly as per the main house fire drill assembly point.

b. Contact Emergency Fire Services (999) if necessary and/or Environment Agency Floodline: (0845 988 1188) if event was not expected.

c. If safe to do so, locate and turn off key services e.g. water, gas & electricity.

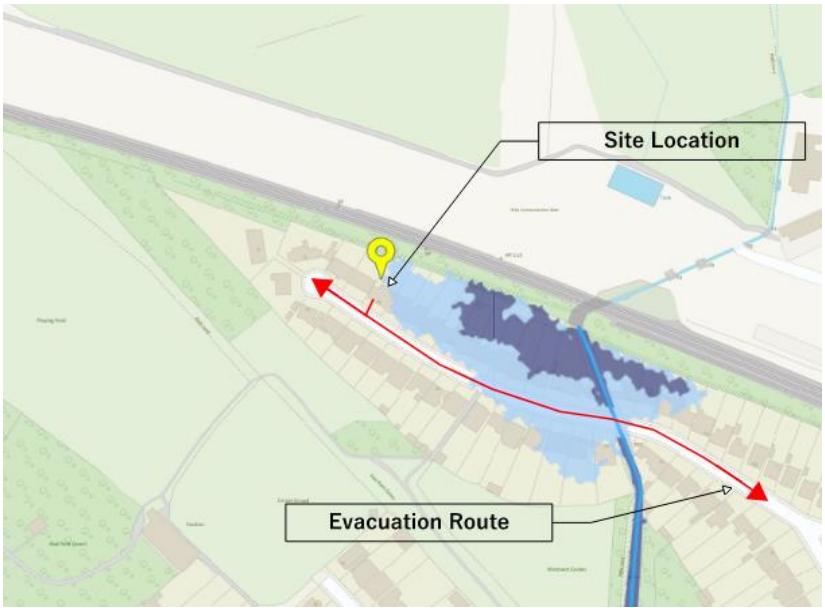
d. Follow the routes below to evacuate the site completely.

Actions that will be taken for each flood warning

Warning	Message	Timing	Action
 FLOOD ALERT	Flooding is possible. Be prepared.	2 hours to 2 days in advance of flooding.	- Be prepared for flooding. - Prepare a flood kit.
 FLOOD WARNING	Flooding is expected. Immediate action required.	Half an hour to 1 day in advance of flooding.	- Act now to protect your property. - Block doors with flood boards or sandbags and cover airbricks and other ventilation holes. - Move pets and valuables to a safe place. - Keep a flood kit ready. - Move any critical equipment and information to a safe location
 SEVERE FLOOD WARNING	Severe flooding. Danger to life.	When flooding poses a significant threat to life and different actions are required.	- Be ready should you need to evacuate from the property. - Co-operate with the emergency services and call 999 if you are in immediate danger.
Warning Removed	No further flooding is currently expected for your area.	Issued when a flood warning is no longer in force.	- Flood water may still be around and could be contaminated. - If you've been flooded, ring your buildings and contents insurance company as soon as possible.

8.8 Safe egress is achievable by following The Greenway, which is shown to be beyond the extent of flooding. See figure below for details.

Evacuation Route



Conclusions 9

9.1 It is concluded that subject to the proposed mitigation measures, the site can be developed in accordance with the provisions of the NPPF and the requirements of the Environment Agency and the local planning authority.

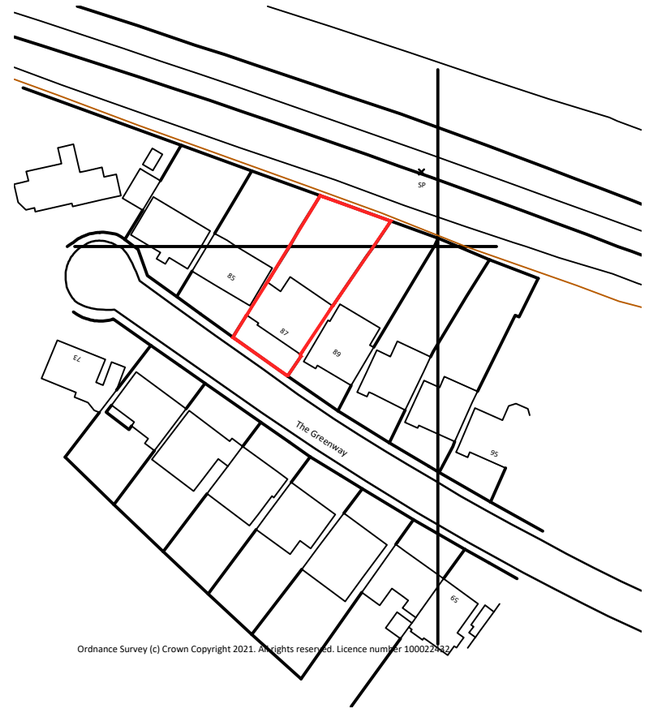
9.2 It is proposed that a formal Flood Warning and Emergency Response Plan is developed for the proposed development to communicate flood emergency response procedures to all the occupants of the site.

9.3 This report demonstrates that the proposal will be safe, in terms of flood risk, for its design life and will not increase the flood risk elsewhere.

Appendix A

ALL DIMENSIONS TO BE CHECKED ON SITE. ANY DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT FOR VERIFICATION PRIOR TO COMMENCEMENT OF THE EFFECTED WORKS. IF IN DOUBT ASK. THIS DRAWING IS COPYRIGHT.

Rev No	Date	Revision note
P1	10.08.2021	Preliminary issue.



SCALE - METRES
0 10 20 30 40

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JOB TITLE
87 THE GREENWAY
ICKENHAM UB10 8LX

DRG TITLE
Site Location Plan and Block Plan

SCALE	DATE
1:200, 1250 @ A3	Apr '21

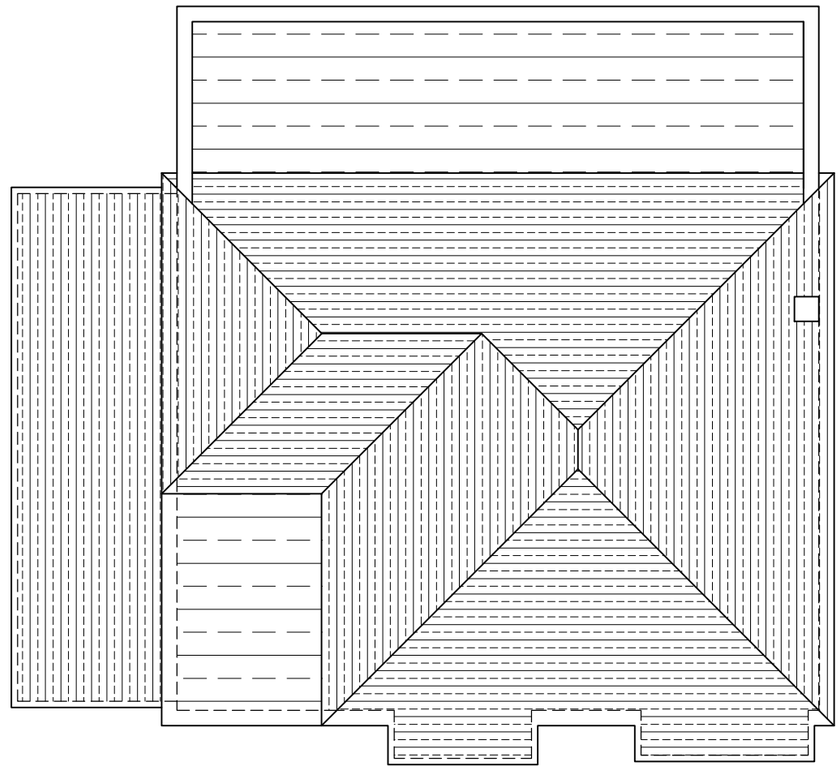
JOB NO.	DRG NO.	REV
11157	101	P1

Appendix B

ALL DIMENSIONS TO BE CHECKED ON SITE. ANY DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT FOR VERIFICATION PRIOR TO COMMENCEMENT OF THE EFFECTED WORKS. IF IN DOUBT ASK. THIS DRAWING IS COPYRIGHT.

Rev No	Date	Revision note
P1	10.08.2021	PRELIMINARY ISSUE

GROUND FLOOR PLAN



ROOF PLAN

SCALE - METRES

0 1 2 3 4 5 6

0 5 10 15 20

SCALE - FEET

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JOB TITLE

87 THE GREENWAY
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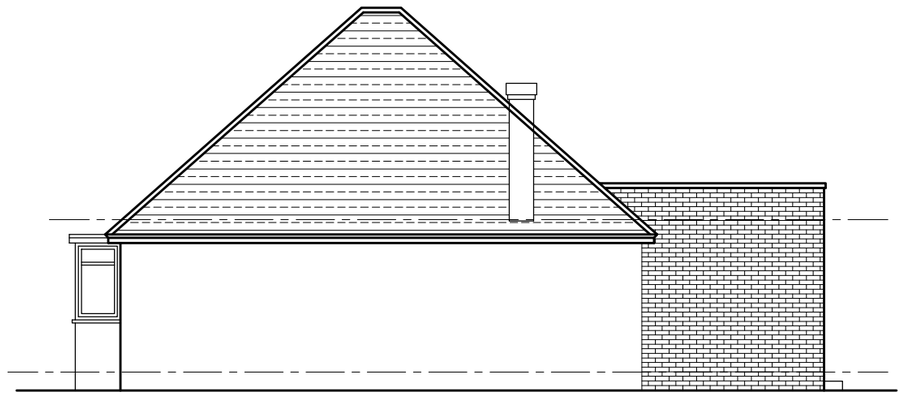
DRG TITLE

EXISTING PLANS

SCALE		DATE
1:100 @ A3		JUNE '21
JOB NO.	DRG NO.	REV
11157	102	PI

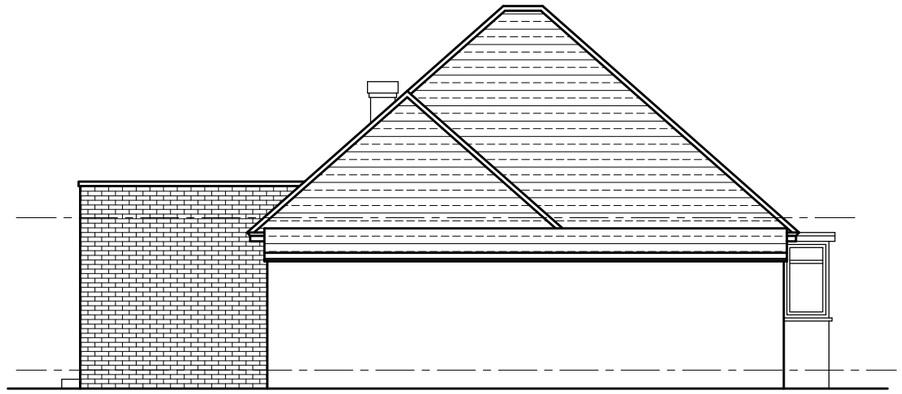
Rev No	Date	Revision note
P1	10.08.2021	PRELIMINARY ISSUE

FRONT ELEVATION



SIDE ELEVATION
FACING No 89

REAR ELEVATION



SIDE ELEVATION
FACING No 85

SCALE - METRES

0 1 2 3 4 5 6

0 5 10 15 20

SCALE - FEET

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JOB TITLE

87 THE GREENWAY
ICKENHAM UB10 8LX

DRG TITLE

EXISTING ELEVATIONS

SCALE	DATE
1:100 @ A3	JUNE '21

JOB NO.	DRG NO.	REV
11157	103	PI

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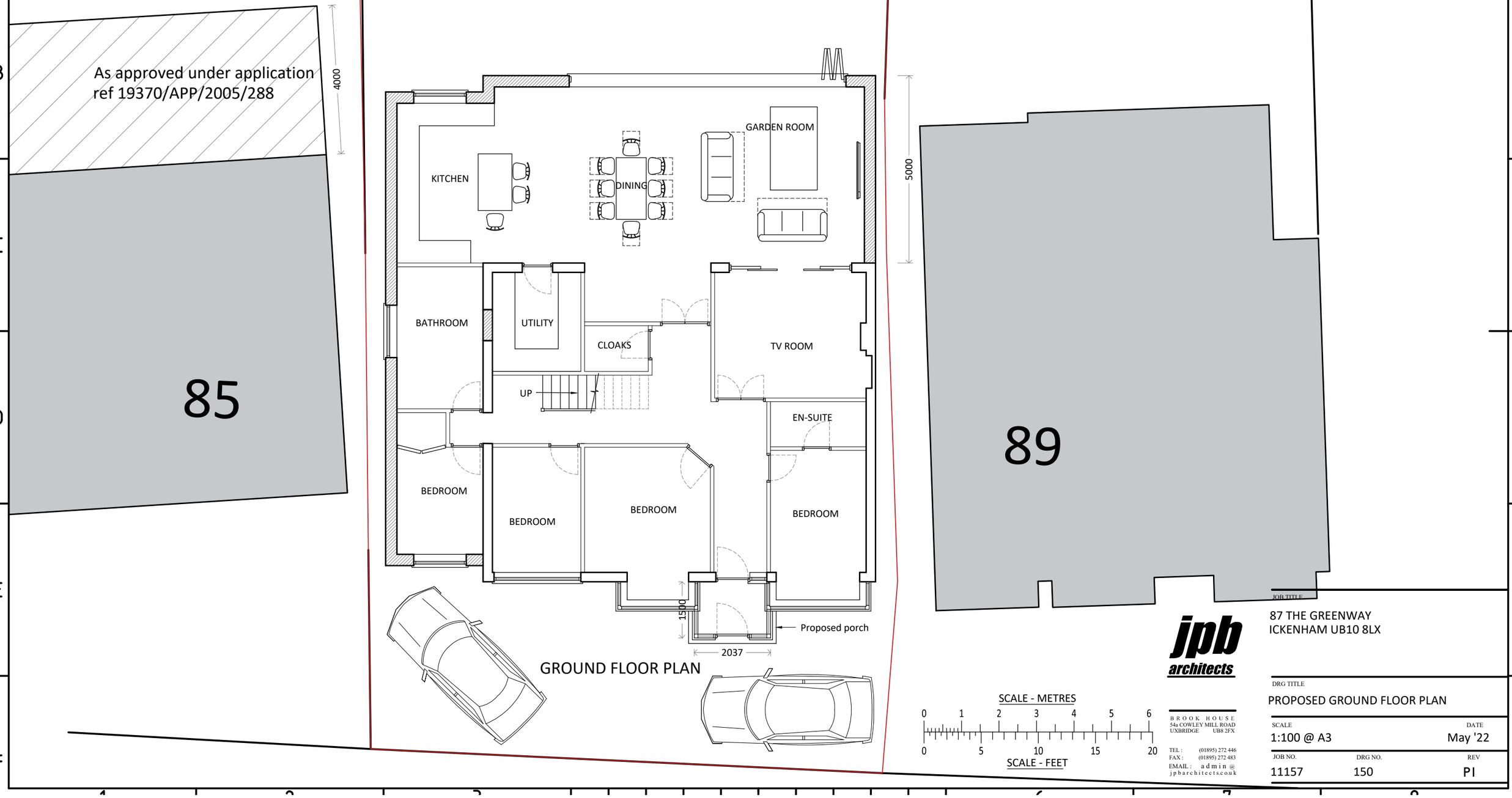
Rev No	Date	Revision note
P1	13th May '22	Preliminary Issue



SCALE - METRES

0 1 2 3 4 5 6

0 5 10 15 20

SCALE - FEET

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JOB TITLE

87 THE GREENWAY
ICKENHAM UB10 8LX

DRG TITLE

PROPOSED GROUND FLOOR PLAN

SCALE	DATE
1:100 @ A3	May '22

JOB NO.	DRG NO.	REV
11157	150	PI

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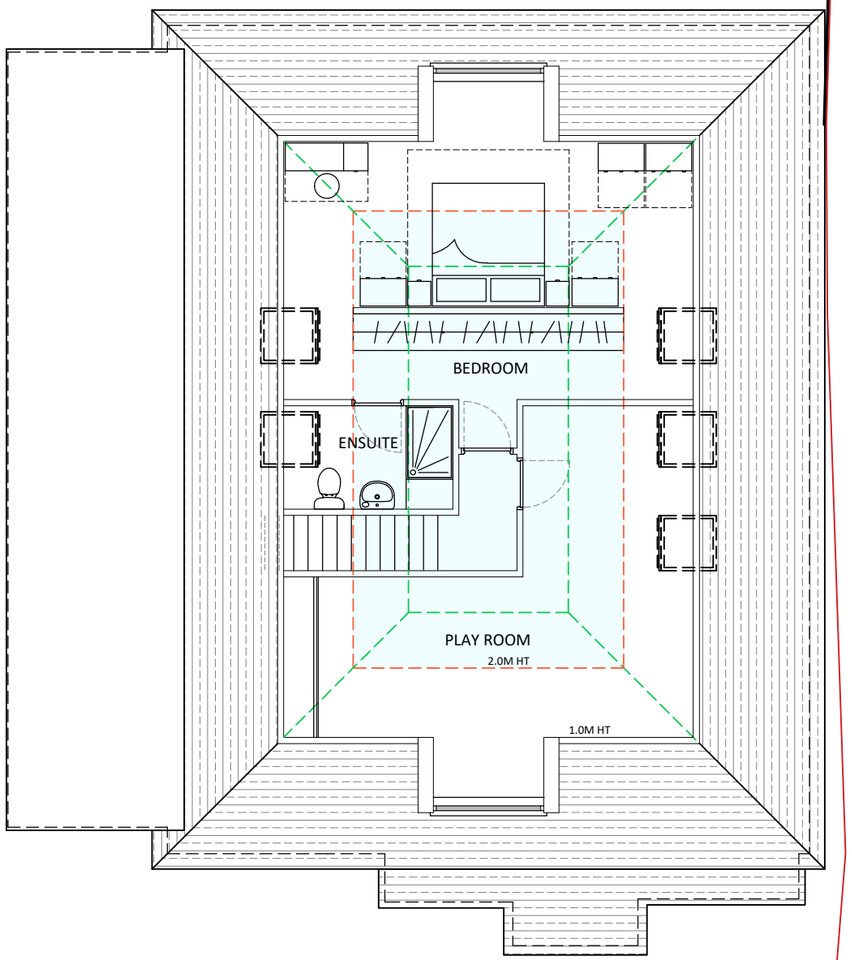
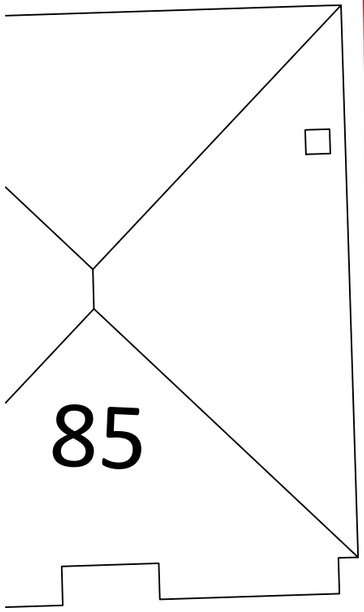
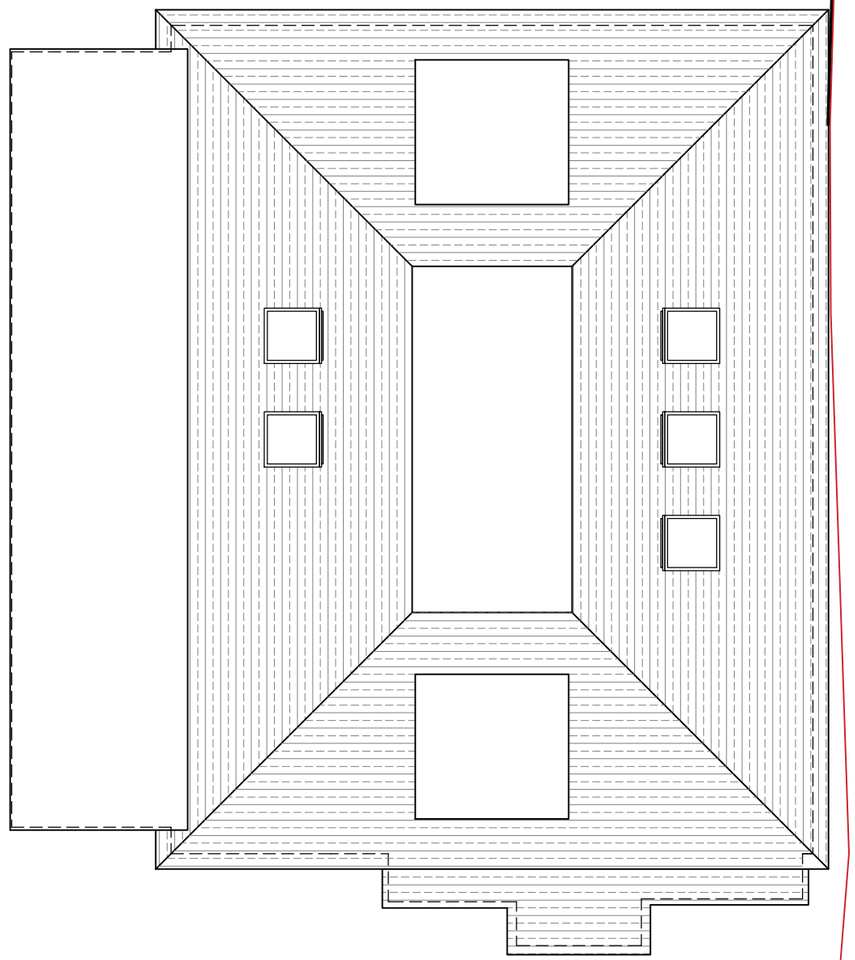
Rev No	Date	Revision note
P1	13th May '22	Preliminary Issue



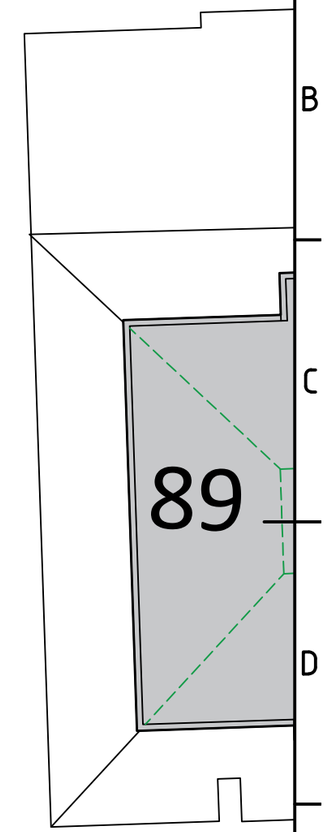
LOFT PLAN

DENOTES 2.0M HEIGHT





ROOF PLAN



SCALE - METRES

0 1 2 3 4 5 6

0 5 10 15 20

SCALE - FEET

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JOB TITLE

87 THE GREENWAY
ICKENHAM UB10 8LX

DRG TITLE

PROPOSED LOFT AND ROOF PLANS

SCALE		DATE
1:100 @ A3		May '22
JOB NO.	DRG NO.	REV
11157	151	PI

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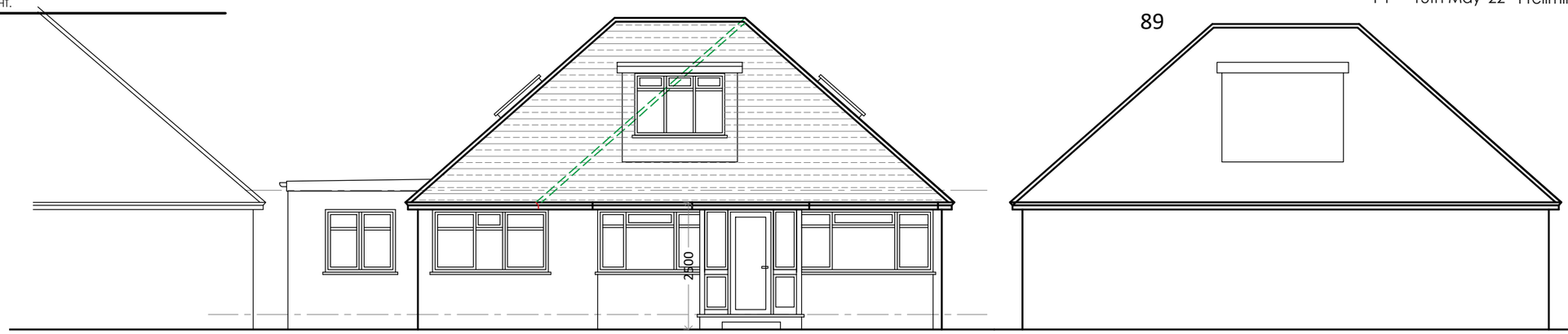
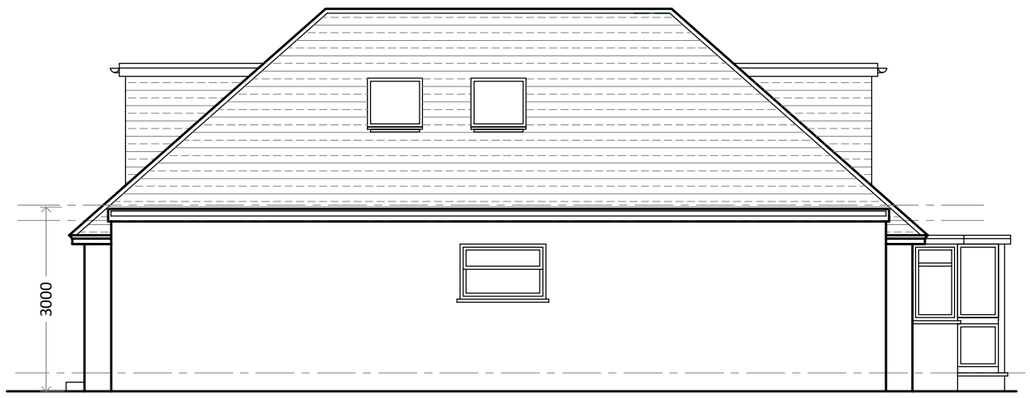
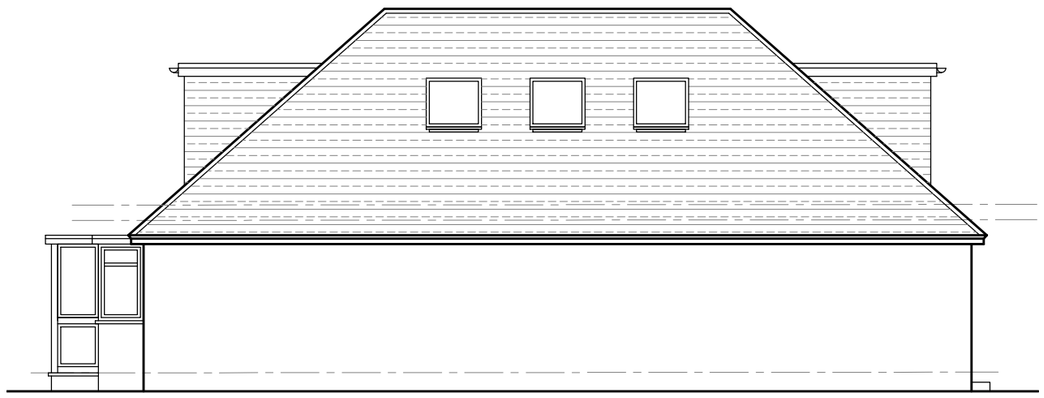
Rev No	Date	Revision note
P1	13th May '22	Preliminary Issue



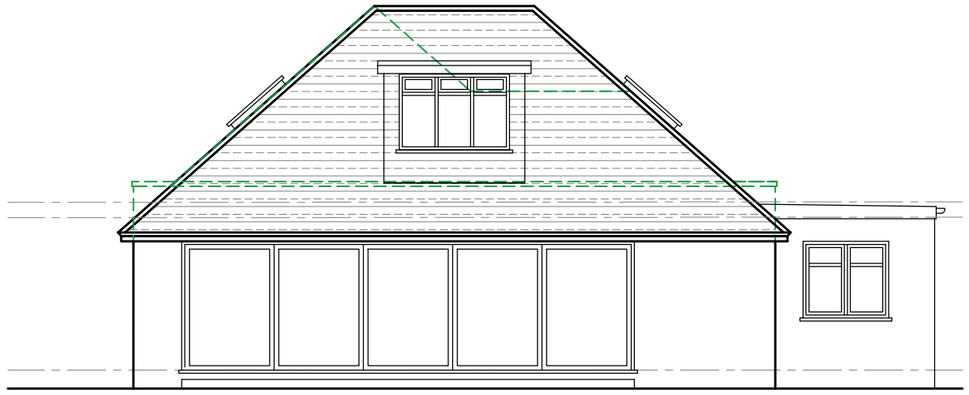
PROPOSED FRONT ELEVATION



SIDE ELEVATION
FACING No 85



SIDE ELEVATION
FACING No 89



REAR ELEVATION

SCALE - METRES
0 1 2 3 4 5 6
0 5 10 15 20
SCALE - FEET

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JOB TITLE
87 THE GREENWAY
ICKENHAM UB10 8LX

DRG TITLE
PROPOSED ELEVATIONS

SCALE	DATE
1:100 @ A3	May '22

JOB NO.	DRG NO.	REV
11157	155	PI

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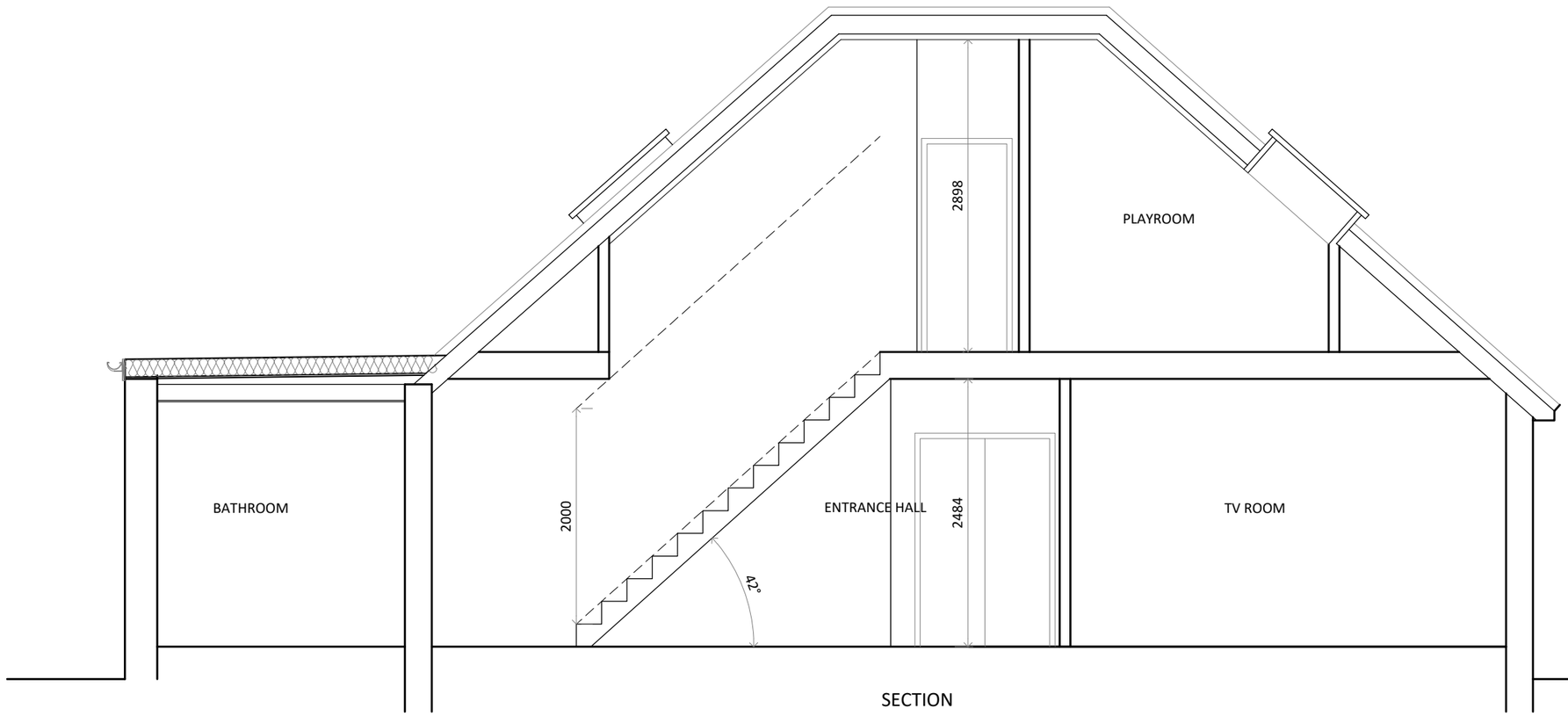
Rev No	Date	Revision note
P1	13th May '22	Preliminary Issue



SECTION

SCALE - METRES

0 0.5 1 1.5 2 2.5 3

0 1 2 3 4 5 6 7 8 9 10

SCALE - FEET

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JOB TITLE

87 THE GREENWAY
ICKENHAM UB10 8LX

DRG TITLE

PROPOSED SECTION

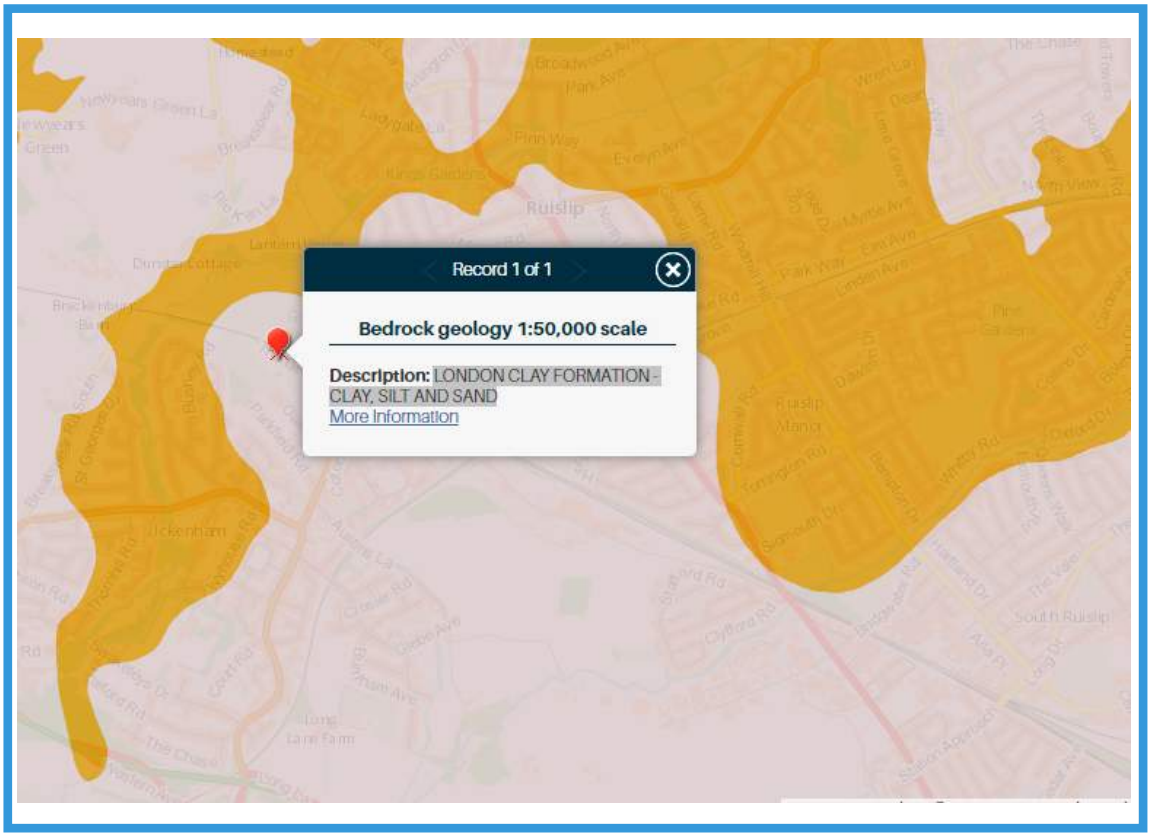
SCALE		DATE
1:50 @ A3		May '22
JOB NO.	DRG NO.	REV
11157	160	PI

Appendix C

SITE GEOLOGY

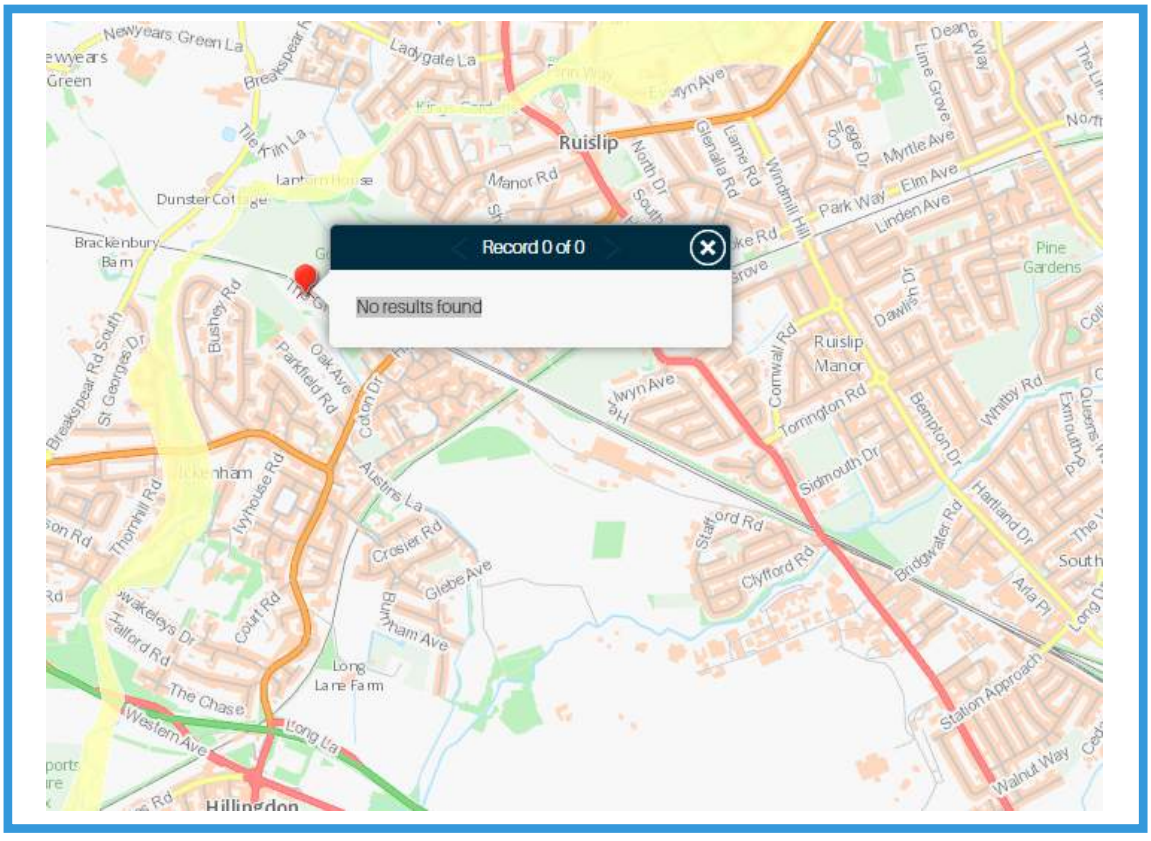
GEOINDEX ONSHORE

GEOLOGY - BEDROCK - LONDON CLAY FORMATION - CLAY, SILT AND SAND



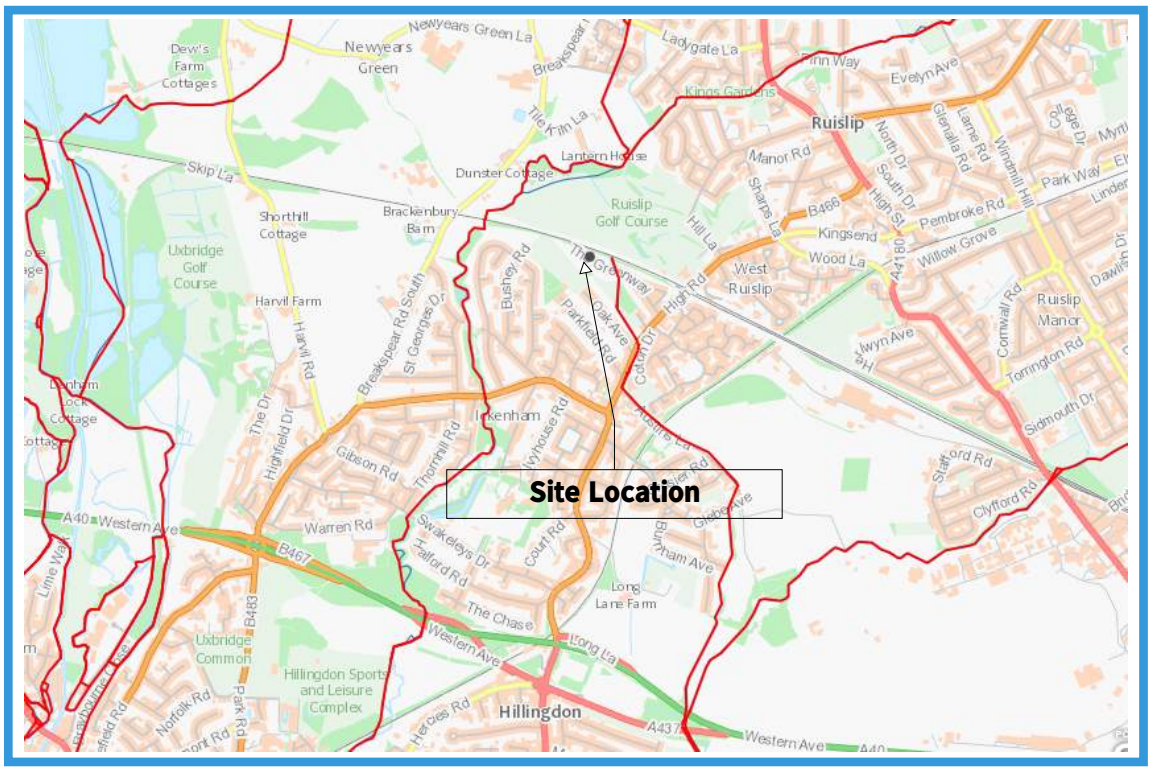
GEOINDEX ONSHORE

GEOLOGY - SUPERFICIAL DEPOSITS - No results found



SITE HYDROGEOLOGY

Environment Agency Main River Map



when river levels are normal when there is also flooding from rivers

SITE SURFACE WATER FLOOD RISK

Flood risk from surface water

Extent of flooding

Low risk means that each year this area has a chance of flooding of between 0.1% and 1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Over 900mm 300 to 900mm Below 300mm

MAGIC RESULTS

Site Check Results

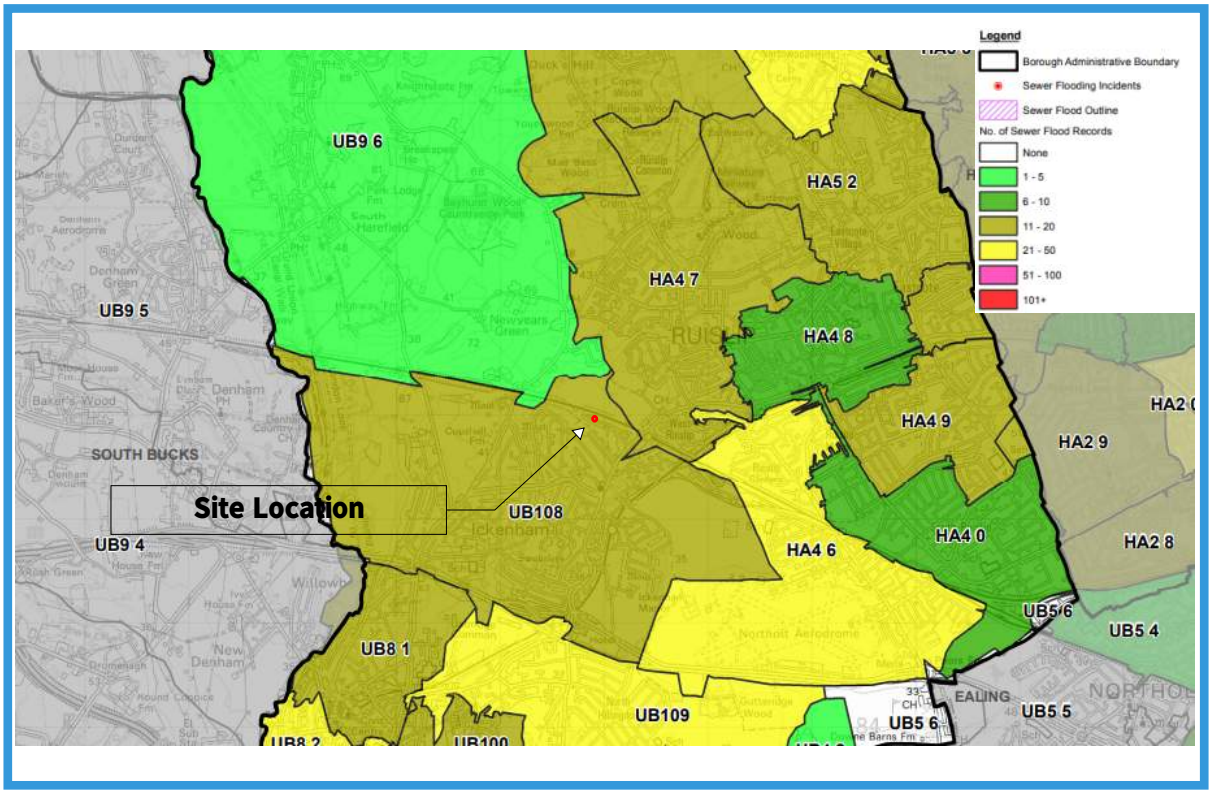
Site Check Report Report generated on Tue May 03 2022
You selected the location: Centroid Grid Ref: TQ07878698
The following features have been found in your search area:

Source Protection Zones merged (England)	
Zone	3
Zone	2
Zone	1
Aquifer Designation Map (Bedrock) (England)	
Typology	Unproductive
Aquifer Designation Map (Superficial Drift) (England)	

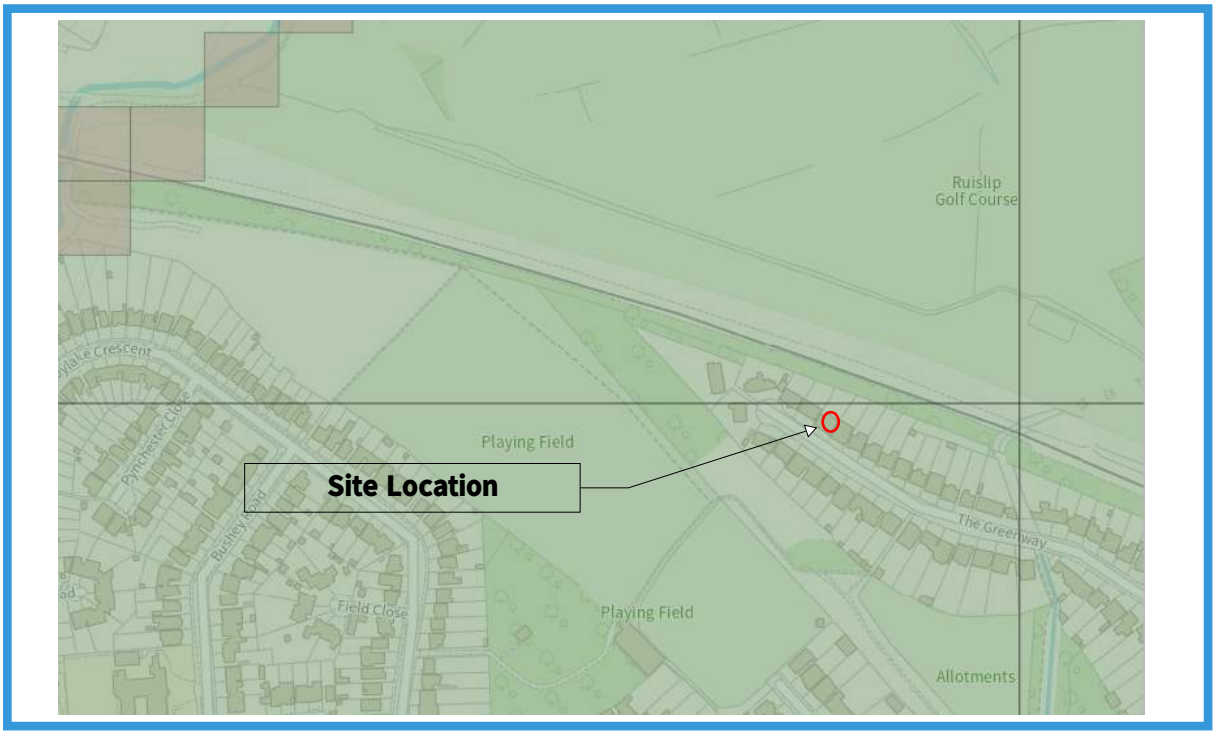
No Features found

OK Cancel Export to CSV Print

SITE SEWER FLOODING



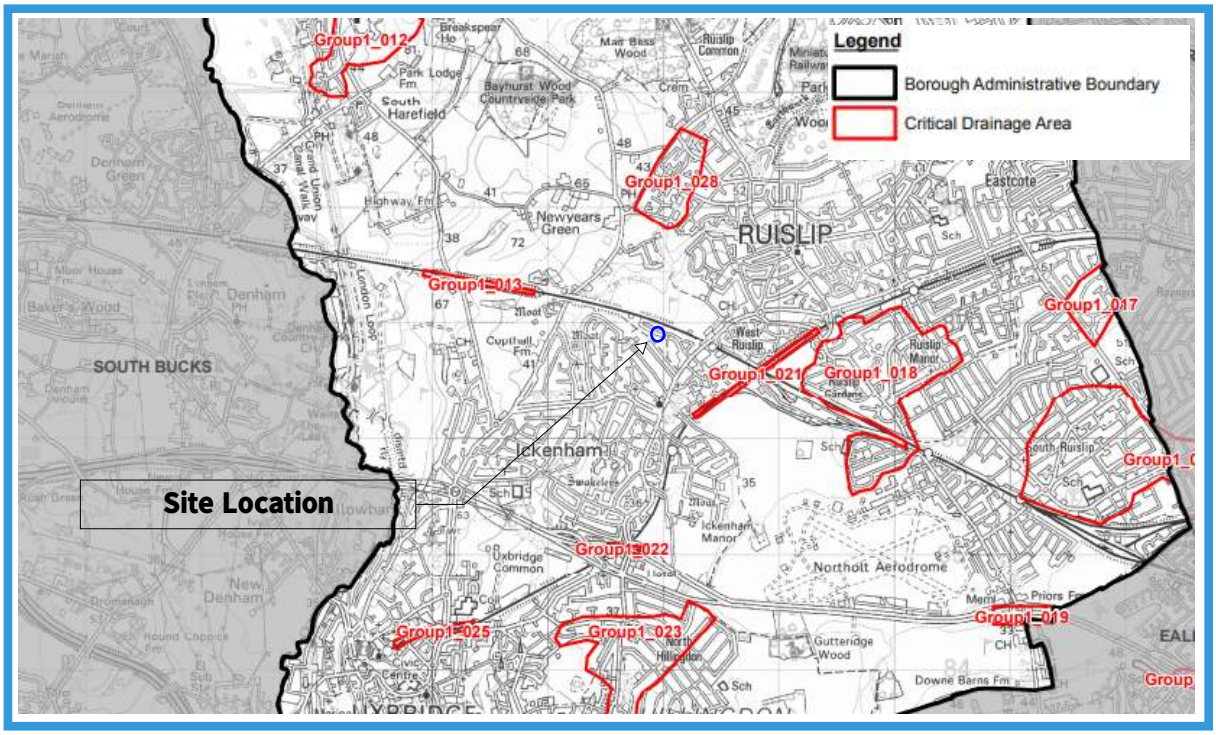
GROUND WATER FLOOD RISK



FLOOD WARNING AREA

Flood Warning areas

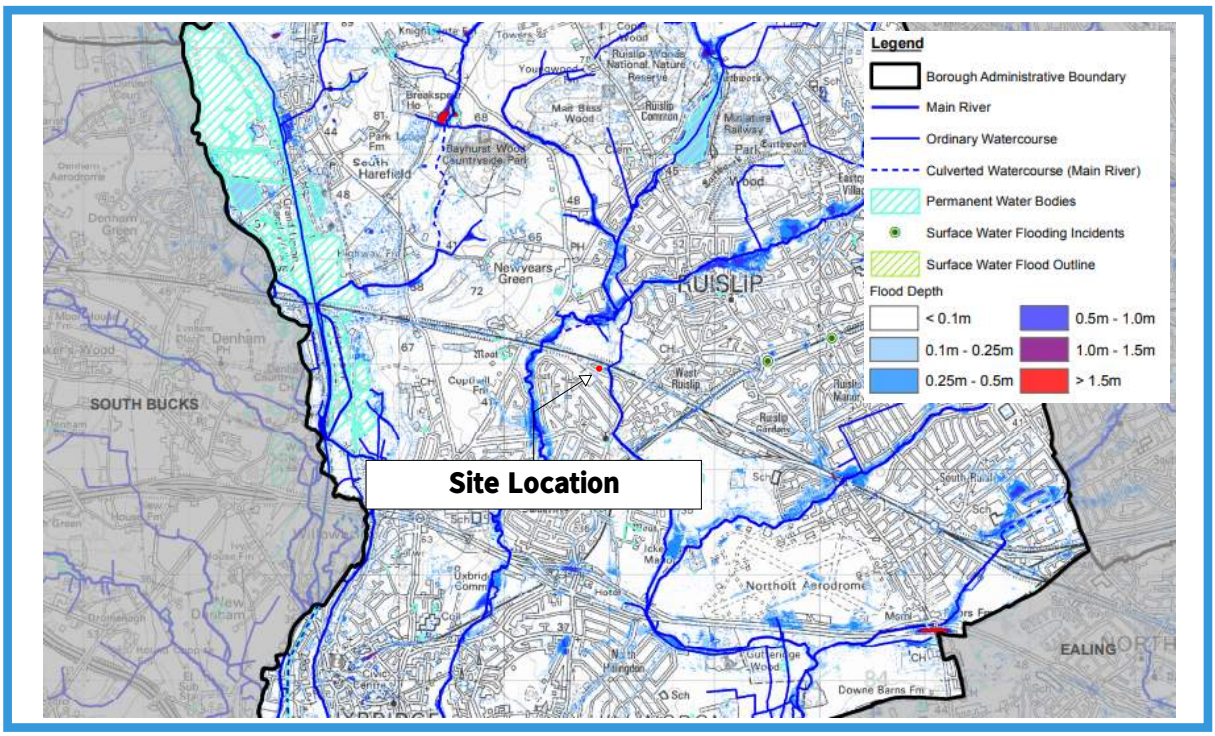
CRITICAL DRAINAGE AREA



HISTORIC FLOOD MAP

Historic Flood Outline

SURFACE WATER FLOODING



Flood map for planning

Your reference	Location (easting/northing)	Created
UB10 8LX	**507870/186996**	**3 May 2022 17:32**

Your selected location is in flood zone 2, an area with a medium probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

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

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

Environment Agency

Flood map for planning

Your reference
UB10 8LX

Location (easting/northing)
507870/186996

Scale
1:2500

Created
3 May 2022 17:32

- Selected point
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m