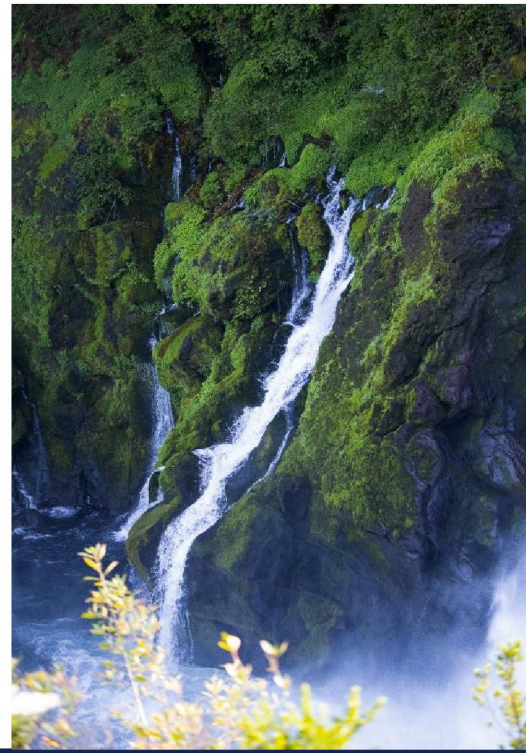
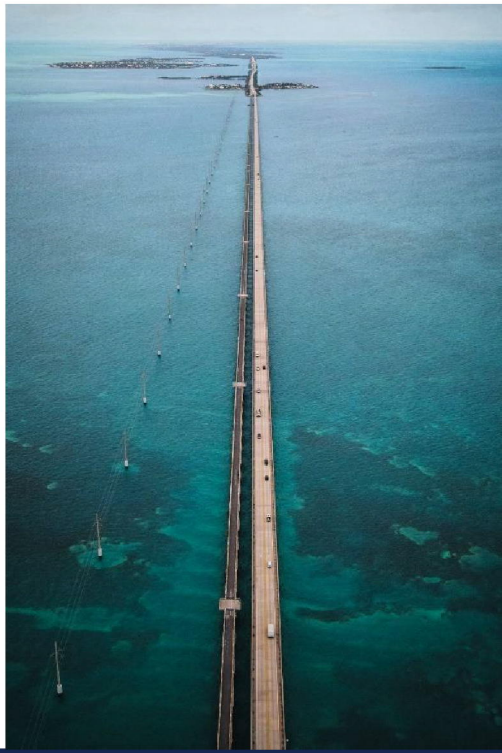




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## Flood Risk Assessment AEG6730\_RH10\_Crawley\_01

Site Address: 79 Church Lane  
Copthorne  
Mid Sussex  
RH10 3QG

UK Experts in Flood Modelling, Flood Risk  
Assessments, and Surface Water Drainage Strategies

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# Document Issue Record

Project: Flood Risk Assessment

Prepared for: Benjamin Raines

Reference: AEG6730\_RH10\_Crawley\_01

Site Location: 79 Church Lane, Copthorne, Mid Sussex, RH10 3QG

| Issue | Date       | Author        | Check | Auth. | Comments    |
|-------|------------|---------------|-------|-------|-------------|
| 1     | 16/12/2024 | Jacob Caddick | CH    | OH    | First issue |

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# Summary

| Development Description                       | Existing                                                                                                                                                             | Proposed                                                                                                                                     |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Development Type                              | Residential dwelling                                                                                                                                                 | The development is a two storey side extension and single storey rear extension to provide greater habitable space to the existing dwelling. |
| EA Vulnerability Classification               | More Vulnerable                                                                                                                                                      | More Vulnerable                                                                                                                              |
| Ground Floor Level                            | Based on 1m LiDAR, the ground elevation of the site varies between approximately 69.9m AOD and 71.1m AOD.                                                            | No change.                                                                                                                                   |
| Level of Sleeping Accommodation               | First Floor                                                                                                                                                          | First Floor                                                                                                                                  |
| Site Size                                     | 290 m²                                                                                                                                                               | No change                                                                                                                                    |
| Risk to Development                           | Summary                                                                                                                                                              | Comment                                                                                                                                      |
| EA Flood Zone                                 | Flood Zone 1                                                                                                                                                         | No flood depths are shown to impact the proposed extension up to the 0.1% AEP surface water event.                                           |
| Flood Source                                  | Pluvial                                                                                                                                                              |                                                                                                                                              |
| SFRA Available                                | Strategic Flood Risk Assessment of West Sussex (West Sussex County Council, 2010) and Mid Sussex Strategic Flood Risk Assessment (Mid Sussex District Council, 2015) |                                                                                                                                              |
| Management Measures                           | Summary                                                                                                                                                              | Comment                                                                                                                                      |
| Ground floor level above extreme flood levels | Yes                                                                                                                                                                  | Flood depths are shown not to impact the proposed extension up to the 0.1% AEP surface water event.                                          |
| Safe Access/Egress Route                      | N/A¹                                                                                                                                                                 | Access/egress will remain as existing scenario.                                                                                              |
| Flood Resilient Design                        | Yes                                                                                                                                                                  | All sources discussed in this report are considered to be low risk,                                                                          |

|                                                    |                |                                                                                                                                                                                                       |
|----------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flood Warning and Evacuation Plan</b>           |                | therefore additional mitigation is not required.<br><br>Small scale SuDS are recommended to be implemented to reduce run off to nearby surface water risk areas.                                      |
|                                                    | N/A            | Recommended that occupier monitor Met Office Weather Warnings for extreme weather events.                                                                                                             |
| <b>Offsite Impacts</b>                             | <b>Summary</b> | <b>Comment</b>                                                                                                                                                                                        |
| <b>Displacement of floodwater</b>                  | Negligible     | Development is classified as 'Minor Development' in terms of flood risk and therefore in isolation should not result in increase in flood risk elsewhere in accordance with Paragraph 051 of the PPG. |
| <b>Increase in surface run-off generation</b>      | No             | Small scale SuDS are recommended where possible in external areas to provided betterment.                                                                                                             |
| <b>Impact on hydraulic performance of channels</b> | No             | Nearest EA Main River is Copthorne Brook, c.60m north of the proposed extension and therefore the site will not impact any watercourses.                                                              |

<sup>1</sup> not required for this assessment

<sup>2</sup> data not available.

# 1. Introduction

- 1.1. Aegaea were commissioned by Benjamin Raines to undertake a Flood Risk Assessment (FRA) to facilitate a planning application for the proposed development. This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance.
- 1.2. This FRA is intended to support a full planning application and as such the level of detail included is commensurate and subject to the nature of the proposals.

## Site Overview

- 1.3. The site of the proposed development is 79 Church Lane, Copthorne, Mid Sussex, RH10 3QG (Figure 1).

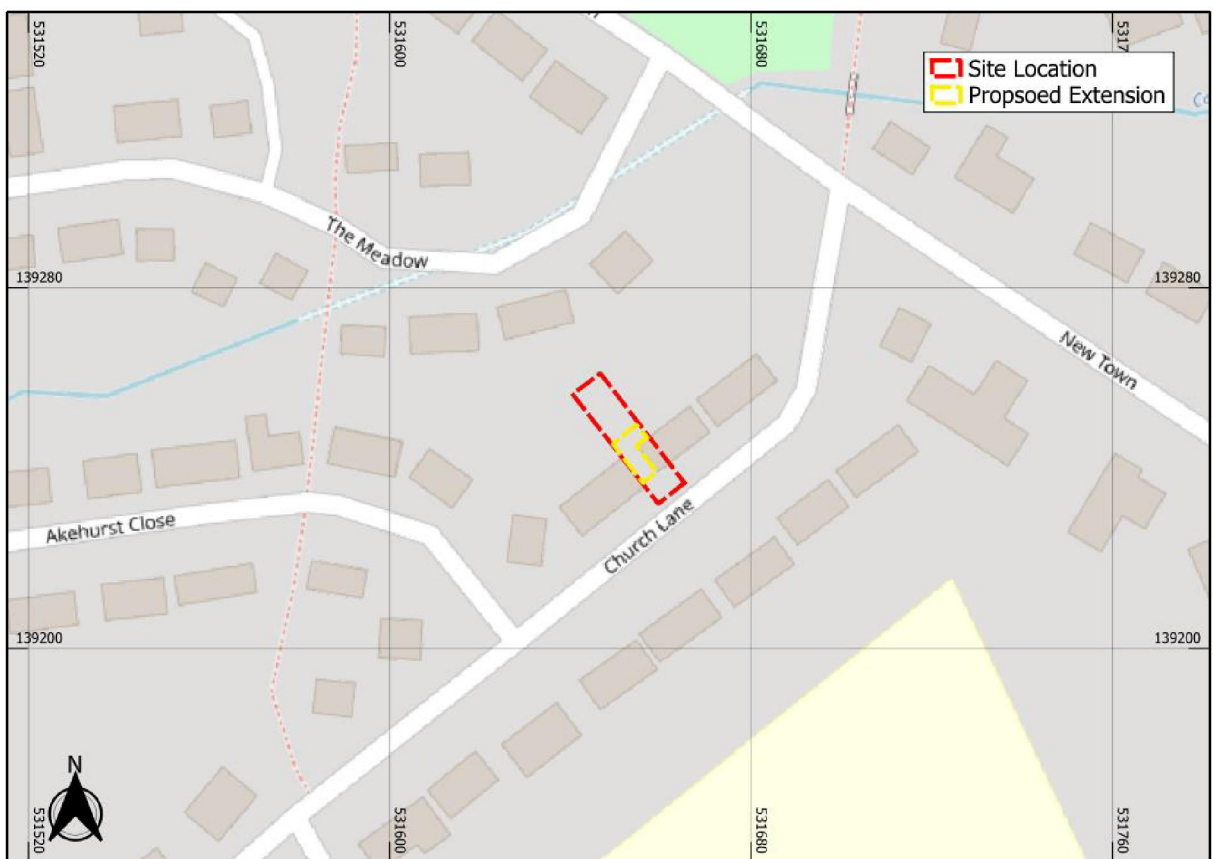


Figure 1: Site Location (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors)

- 1.4. The existing site is a residential dwelling with associated amenity areas surrounding the property to the north and south.
- 1.5. The development is a two-storey side extension and single storey rear extension to provide greater habitable space to the existing dwelling. Design proposals are included with Appendix A.
- 1.6. In the absence of a topographical survey, Environment Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model has been used to review the topography of the site. The LiDAR data shows the ground elevation of the site varies between approximately 69.9m AOD (metres Above Ordnance Datum) and 71.1m AOD (Figure 2). Analysis of topographic levels indicates that the site generally slopes with a fall to the north-west.
- 1.7. The proposed extension is shown to be at an elevation between 70.3m AOD and 70.6m AOD.

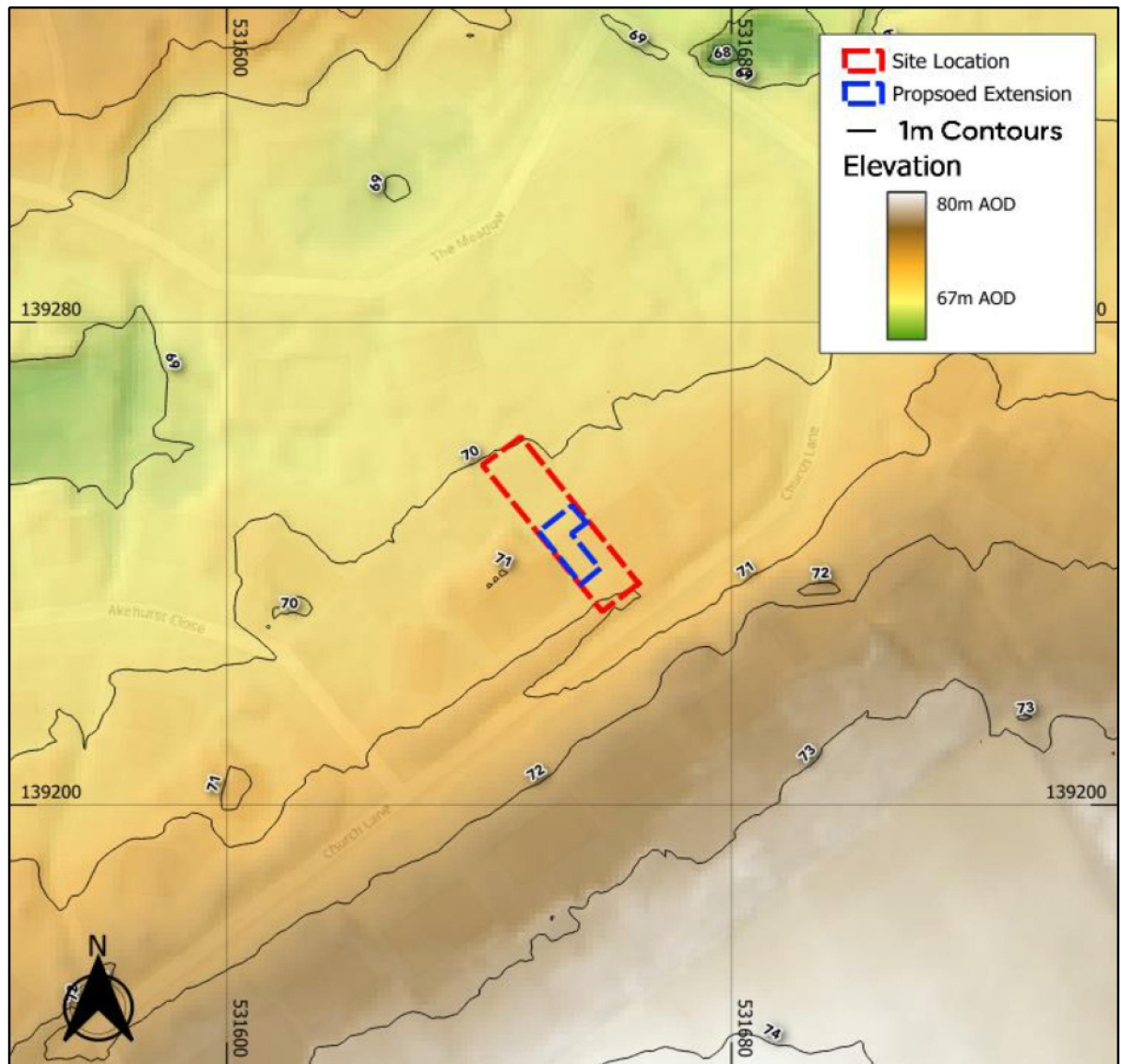


Figure 2: Site Topography (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

- 1.8. Mid Sussex District Council is the Local Planning Authority (LPA) for the site and West Sussex County Council is the designated Lead Local Flood Authority (LLFA). The site sits within the Environment Agency's Solent and South Downs region.

## Planning Policy and Guidance

1.9. UK government planning guidance states<sup>1</sup> that an FRA is required for developments which are:

- *in flood zone 2 or 3 including minor development and change of use*
- *more than 1 hectare (ha) in flood zone 1*
- *less than 1 ha in flood zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs)*
- *in an area within flood zone 1 which has critical drainage problems as notified by the Environment Agency*

1.10. The site is partially within the modelled 0.1% AEP surface water flood extent, thus triggering the need for an FRA under Policy DP41 of the Mid Sussex District Plan 2014-2031. As such, an FRA is required to support the planning application for the proposed development in accordance with the NPPF and MSDC requirements.

1.11. The objective of this FRA is to demonstrate that the proposals are acceptable in terms of flood risk. This report summarises the findings of the study and specifically addresses the following issues in the context of the current legislative regime:

- Fluvial/tidal flood risk
- Surface water flood risk
- Risk of flooding from other sources

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<sup>1</sup> <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications#when-you-need-an-assessment>

## 2. Planning Policy

- 2.1. Inappropriate development in a flood risk area could pose significant risk in terms of personal safety and damage to property for the occupiers of the development or for people elsewhere. The approach taken in the assessment of flood risk at the planning stage is set out in national, regional, and local planning policy and associated guidance. This section summarises the key policies and guidance relevant to the proposed development.

### National Planning Policy Framework (NPPF)

- 2.2. The National Planning Policy Framework<sup>2</sup> (NPPF) (MHCLG, 2024) which includes UK Government policy on development and flood risk states:

*170. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*

*176. Applications for some minor development and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 63.*

*181. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*

- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*

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<sup>2</sup> <https://www.gov.uk/guidance/national-planning-policy-framework>, last updated Dec 2024

- b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
- d) any residual risk can be safely managed; and*
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*

2.3. Paragraph 051 of the Flood Risk and Coastal Change Planning Practice Guidance (PPG) states:

*Minor development means:*

- minor non-residential extensions (industrial/commercial/leisure etc): extensions with a floorspace not in excess of 250 square metres.*
- alterations: development that does not increase the size of buildings, e.g. alterations to external appearance.*
- householder development: for example, sheds, garages, games rooms etc within the curtilage of the existing dwelling, **in addition to physical extensions to the existing dwelling itself.** This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling (eg subdivision of houses into flats) or any other development with a purpose not incidental to the enjoyment of the dwelling.*

2.4. As such, the proposal would be considered a Minor Development under the PPG.

2.5. Footnote 63 of the NPPF states:

*A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.*

2.6. Flood Zones in England are defined as follows:

Table 1: Flood Zone Definitions

| Flood Zone                        | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Zone 1 Low Probability            | Land having less than 1 in 1,000 annual probability of river or sea flooding (all land outside Zones 2 and 3).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Zone 2 Medium Probability         | Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Zone 3a High Probability          | Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Zone 3b The Functional Floodplain | <p>This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:</p> <p>land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or</p> <p>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).</p> <p>Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)</p> |

- 2.7. An FRA should be appropriate to the scale, nature, and location of the development. It should identify and assess the risk from all sources of flooding to and from the development and demonstrate how any flood risks will be managed over the lifetime of the development.
- 2.8. An assessment of hydrological impacts should be undertaken, including to surface water runoff and impacts to drainage networks in order to demonstrate how flood risk to others will be managed following development and taking climate change into account.

## Mid Sussex District Council Local Plan

- 2.9. The Local Plan prepared by the Local Planning Authority, Mid Sussex District Council, sets out the policies for development in the local area.
- 2.10. The Mid Sussex District Plan 2014 – 2031<sup>4</sup> prepared by the Local Planning Authority, Mid Sussex District Council, sets out the policies for development in the local area:

### Policy DP41 Flood Risk and Drainage

*Strategic Objectives: 1) To promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change; and 2) To support sustainable communities which are safe, healthy and inclusive.*

*Evidence Base: Gatwick Sub Region Water Cycle Study; Strategic Flood Risk Assessment; Water. People. Places SuDS guidance.*

*Proposals for development will need to follow a sequential risk-based approach, ensure development is safe across its lifetime and not increase the risk of flooding elsewhere. The District Council's Strategic Flood Risk Assessment (SFRA) should be used to identify areas at present and future flood risk from a range of sources including fluvial (rivers and streams), surface water (pluvial), groundwater, infrastructure and reservoirs.*

*Particular attention will be paid to those areas of the District that have experienced flooding in the past and proposals for development should seek to reduce the risk of flooding by achieving a reduction from existing run-off rates.*

## Sequential and Exception Tests

- 2.11. The Sequential and Exception Tests are applied in specific cases defined by UK Government policy. Their purpose is to drive development to areas of low flood risk and to support developments which improve flood risk for developments in areas at risk of flooding.

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<sup>4</sup> <https://www.midsussex.gov.uk/planning-building/local-plan-2004/>

- 2.12. Under the NPPF all new planning applications should undergo a Sequential Test accordance with Paragraph 181 and footnotes 63. This test should be implemented by local planning authorities with a view to location particularly vulnerable new developments outside of the floodplain.
- 2.13. However, paragraph 176 of the NPPF states:

*"176. Applications for some **minor development** and changes of use<sup>62</sup> should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 63."*

*Footnote 62: This includes householder development, small non-residential extensions (with a footprint of less than 250m<sup>2</sup>) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.*

*Footnote 63: A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.*

- 2.14. As such, a site-specific Sequential Test and Exception Test for the proposed developments is not considered necessary in line with the NPPF given that the proposal is for a minor development.

## 3. Document Review

### Documents and Online Mapping

- 3.1. Local Governments and Lead Local Flood Authorities provide documents which contain data and policies on flood risk and new development in their areas. These documents are introduced and briefly summarised below. For the purposes of this FRA, these documents have been reviewed for relevant information and any relevant data is discussed within the appropriate sub heading of this report.
- 3.2. The following sources of information have been reviewed for this assessment:
- Flood Map for Planning on the Environment Agency website<sup>5</sup>
  - Long Term Flood Risk Information on the Environment Agency website<sup>6</sup>
  - National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2023)
  - Planning Practice Guidance - Flood Risk and Coastal Change (Department for Levelling Up, Housing and Communities, 2022)
  - Geoindex Onshore<sup>7</sup> (British Geological Survey, 2023)
  - Mid Sussex District Plan 2014-2031<sup>9</sup> (Mid Sussex District Council, 2018)
  - West Sussex Preliminary Flood Risk Assessment<sup>10</sup> (West Sussex County Council, 2011)
  - Mid Sussex Strategic Flood Risk Assessment<sup>11</sup> (Mid Sussex District Council, 2015)
  - Strategic Flood Risk Assessment of West Sussex<sup>12</sup> (West Sussex County Council, 2010)

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<sup>5</sup> <https://flood-map-for-planning.service.gov.uk/>

<sup>6</sup> <https://www.gov.uk/check-long-term-flood-risk>

<sup>7</sup> <https://www.epsom-ewell.gov.uk/sites/default/files/documents/residents/planning/planning-policy/Core%20Strategy%202007.pdf>

<sup>9</sup> <https://www.midsussex.gov.uk/media/3406/mid-sussex-district-plan.pdf>

<sup>10</sup> [https://www.westsussex.gov.uk/media/1626/west\\_sussex\\_pfra.pdf](https://www.westsussex.gov.uk/media/1626/west_sussex_pfra.pdf)

<sup>11</sup> <https://www.midsussex.gov.uk/media/j3gm5qbl/env10-strategic-flood-risk-assessment-level-1-2015.pdf>

<sup>12</sup> [http://www2.westsussex.gov.uk/mlp/eb017\\_vol\\_ii.pdf](http://www2.westsussex.gov.uk/mlp/eb017_vol_ii.pdf)

- West Sussex Local Flood Risk Management Strategy (2013-2018)<sup>13</sup> (West Sussex County Council, 2014)

### **Preliminary Flood Risk Assessment (PFRA)**

- 3.3. The PFRA, published in 2011, is a high-level appraisal of flood risk across Lead Local Flood Authority West Sussex County Council. The flood risk from all sources, including fluvial, surface water, groundwater, and surcharged sewers is evaluated. It is the basis upon which the Local Flood Risk Management Strategy is produced.
- 3.4. The PFRA summarises historical flood incidents in West Sussex County Council. The site is not recorded as having been affected by any flood event.

### **Strategic Flood Risk Assessment (SFRA)**

- 3.5. The SFRA, published in 2010, provides the evidence base for the Local Planning Authority Mid Sussex District Council Local Plan and guidance for consideration when determining planning applications. The SFRA seeks to place new development into areas of lower flood risk taking into account current flood risk, future flood risk, and the effect a proposed development would have on the risk of flooding.
- 3.6. The SFRA mapping provided by Mid Sussex District Council has been used throughout production of this report as a source of information, particularly pertaining to historical flood incidents.

### **Local Flood Risk Management Strategy (LFRMS)**

- 3.7. The Local Flood Risk Management Strategy sets out roles and responsibilities for flood risk management, assesses the risk of flooding in the area, where funding can be found to manage flood risk, and the policies, objectives, and actions of the Lead Local Flood Authority.
- 3.8. The West Sussex County Council LFRMS is used within this report to identify any flood management infrastructure and historical incidences of flooding.

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<sup>13</sup> <https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/flooding/flood-risk-management/local-flood-risk-management-strategy/>

## 4. Sources of Flood Risk

### Fluvial

- 4.1. Flooding from watercourses arises when flows exceed the capacity of the channel, or where a restrictive structure is encountered, resulting in water overtopping the banks into the floodplain.

#### **Main Rivers and Ordinary Watercourses**

- 4.2. The nearest EA main river is the Copthorne Brook located c.40m north of the northern site boundary and c.60m north of the proposed extension.
- 4.3. Copthorne Brook is shown to be culverted for a 100m straight directly north of the site under The Meadow road.
- 4.4. There is no other mapped ordinary watercourse within the vicinity of the site.

#### **EA Flood Map for Planning**

- 4.5. The site and proposed extension are located in Flood Zone 1 (Figure 3). Flood Zone 1 denotes a risk of flooding from fluvial and tidal sources less than 1 in 1,000 (0.1%) probability.

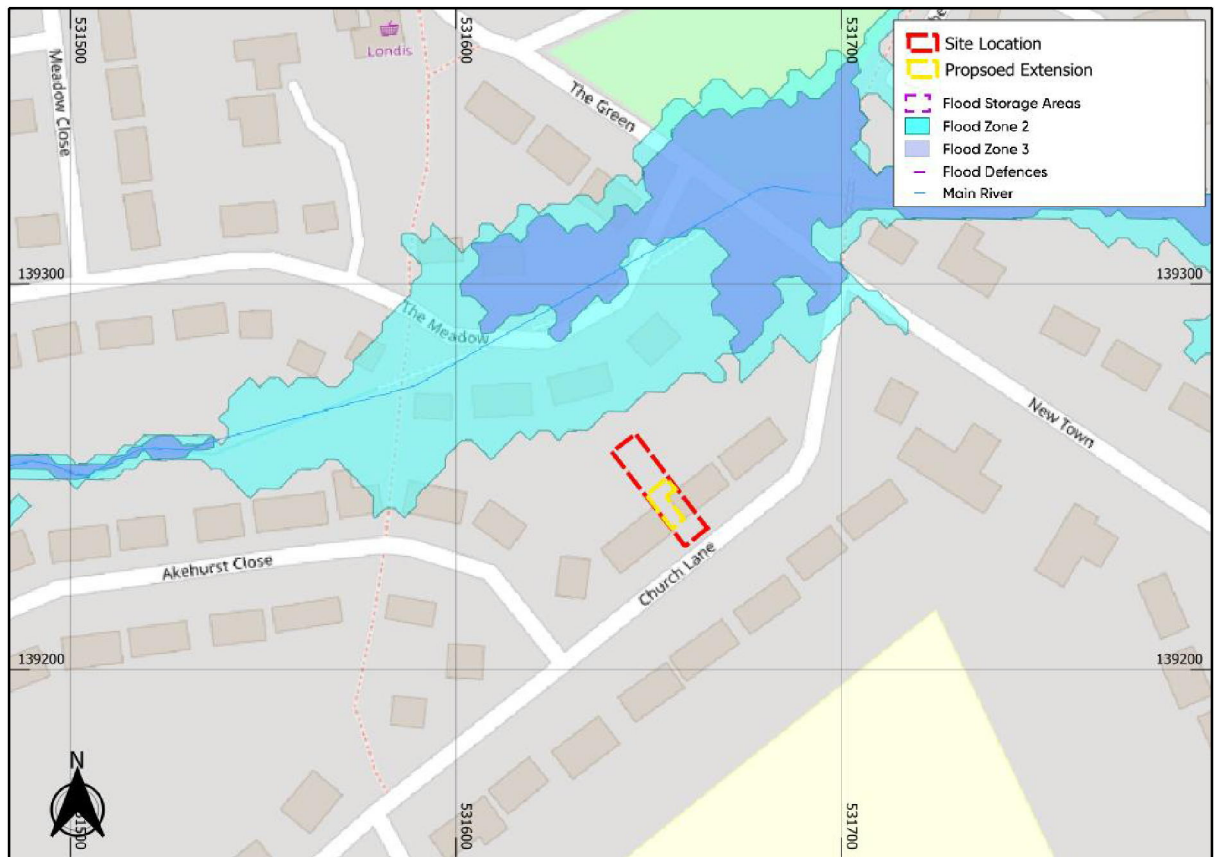


Figure 3: EA Flood Map for Planning (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

## Historical Fluvial Flooding

- 4.6. According to the EA's Historical Fluvial and Tidal Flood Mapping, there is no recorded flood events on or in the vicinity of the site (Figure 4).

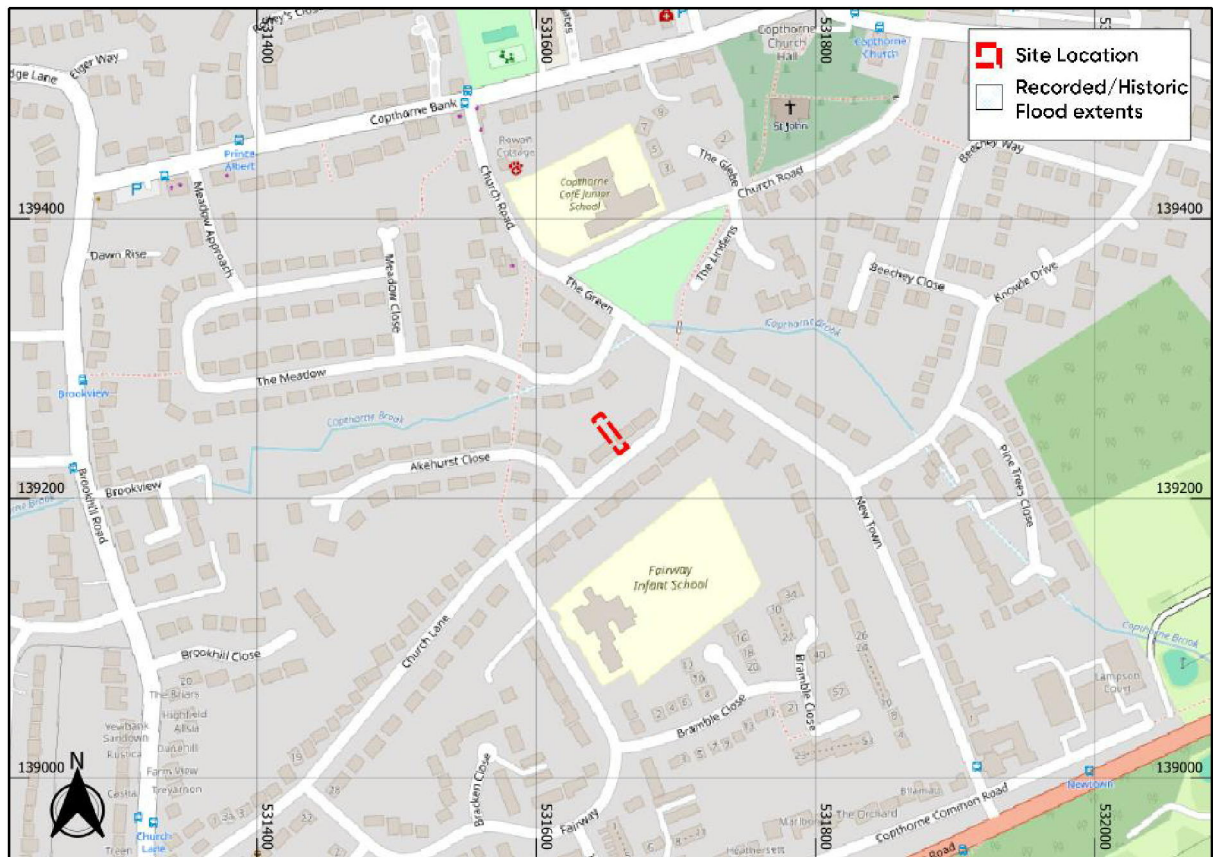


Figure 4: EA Historic Flood Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

- 4.7. Based on the site and proposed development being located within Flood Zone 1, it is considered that both are at a low risk of fluvial flooding.

## Tidal

- 4.8. Tidal flooding occurs when a high tide and high winds combine to elevate sea levels. An area behind coastal flood defences can still flood if waves overtop the defences or break through them. Tidal flooding can also occur a long way from the coast by raising river levels. Water may overtop the river bank or river defences when tide levels are high.
- 4.9. The site is a significant distance from any tidal source and above the anticipated extreme tidal levels, even when considering the impacts of climate change.
- 4.10. The risk of flooding from tidal sources is considered to be low.

## Canals

- 4.11. The Canal and River Trust (CRT) generally maintains canal levels using reservoirs, feeders, and boreholes and manages water levels by transferring it within the canal system.
- 4.12. There is no CRT maintained canals detected within 1km of the site<sup>14</sup>.
- 4.13. The risk of flooding to this site from canals is considered to be low.

## Pluvial

- 4.14. Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

### EA RoFSW Data Analysis

- 4.15. Annual surface water flood risk is labelled by the EA as:
  - 'High Risk'; >3.3% AEP (annual probability greater than 1 in 30).
  - 'Medium Risk'; 1.1% to 3.3% AEP (annual probability between 1 in 100 and 1 in 30).
  - 'Low Risk'; 0.1% to 1% AEP (annual probability between 1 in 1000 and 1 in 100).
  - 'Very Low Risk'; <0.1% AEP (annual probability less than 1 in 1000).
- 4.16. Examination of the EA's Flood Risk from Surface Water mapping shows the majority of the site is shown to be located within the 'Very Low' risk area, except the northern boundary of the site which is located within the 'Low' risk area (Figure 5).

---

<sup>14</sup> <https://canalrivertrust.org.uk/canals-and-rivers>

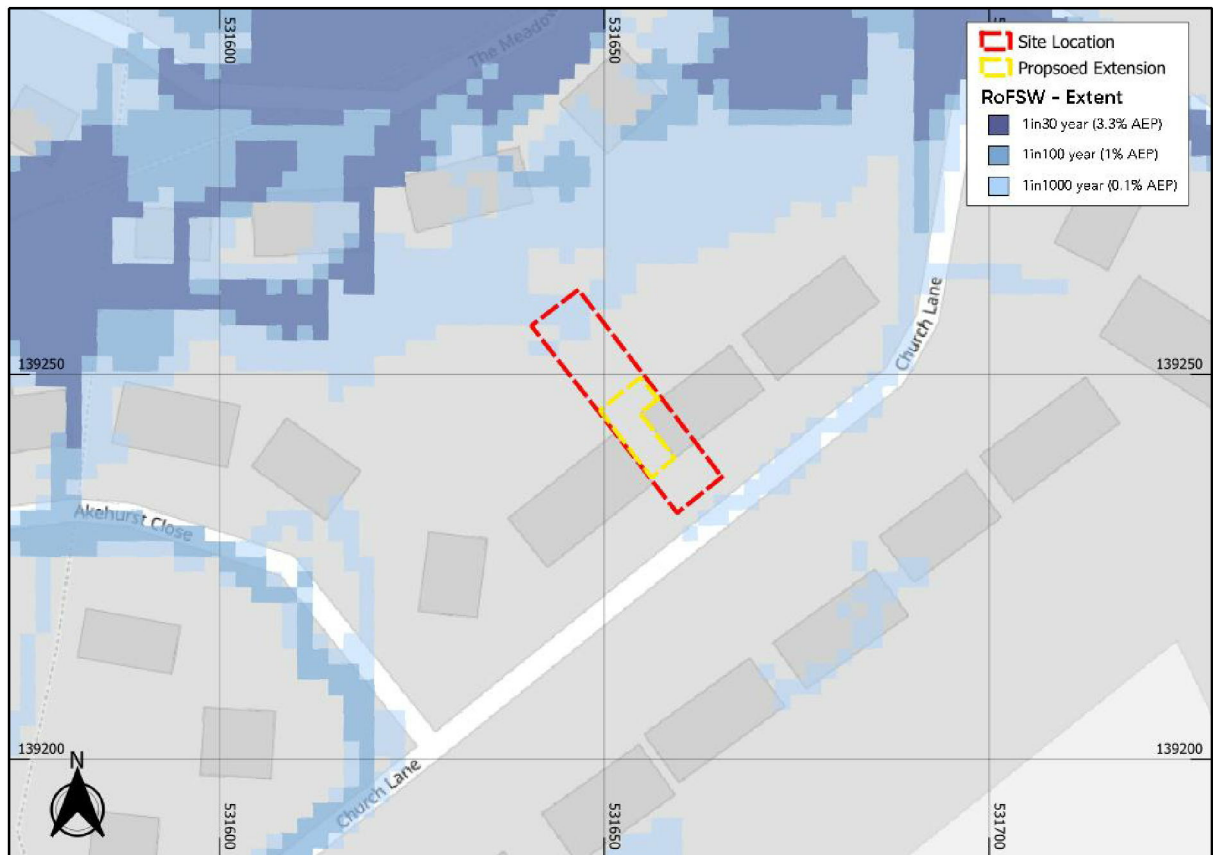


Figure 5: EA Surface Water Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

- 4.17. Given the site is not located within an area of 'high' or 'medium' surface water flood risk areas, no flood depths have been recorded on site during the modelled 1 in 30 year (3.3% AEP) scenario or in the 1 in 100 (1% AEP) scenarios, respectively.
- 4.18. Flood depths during the modelled 1 in 1000 year surface are generally below 150mm, with a small area experiencing 300mm along the northern boundary of the site (Figure 6). The extension is shown to be located outside the flood depths for the modelled 1 in 1000 year event, along with the rest of the site.

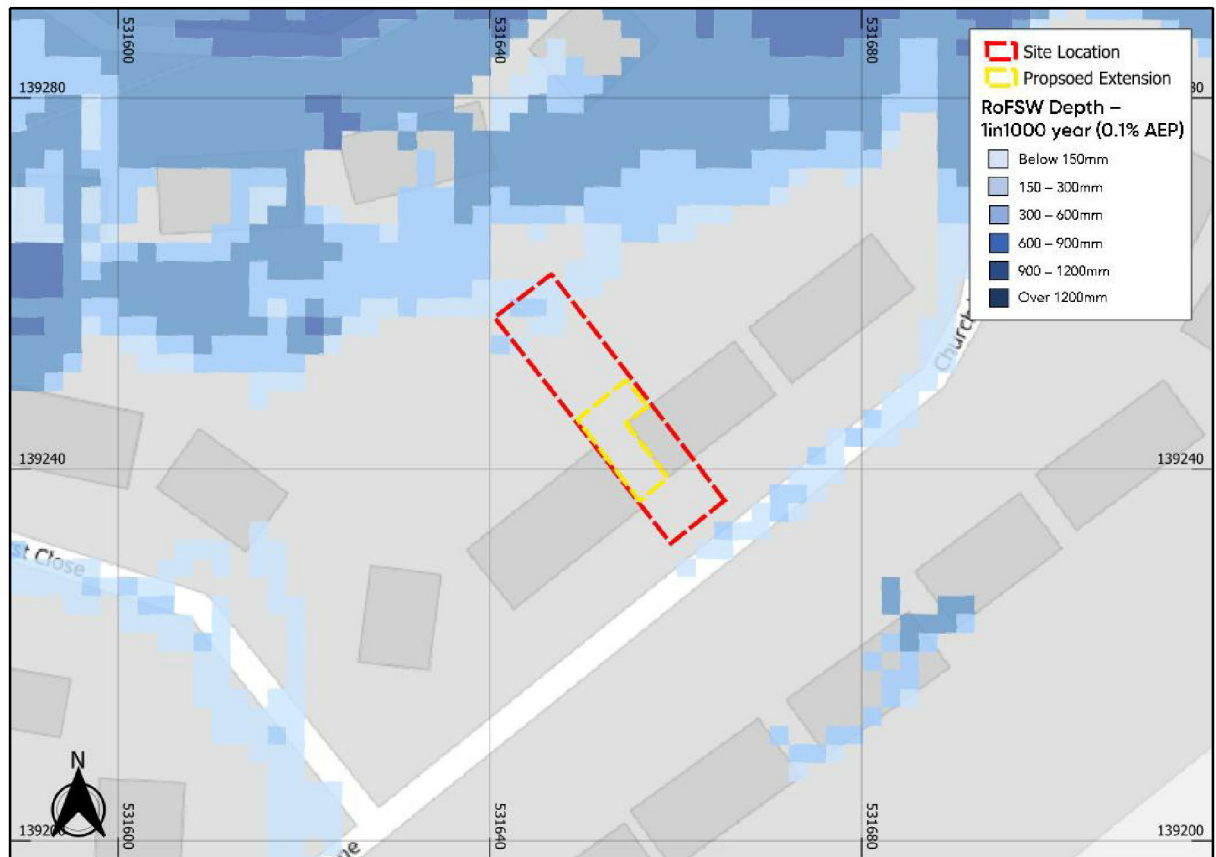


Figure 6: 1 in 1000 year RoFSW flood depths (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

- 4.19. The West Sussex SFRA (2010) provides mapping of historical surface water flood incident records kept by the local authority (Figure 7). No historical surface water incidents have been recorded within the Copthorne area.

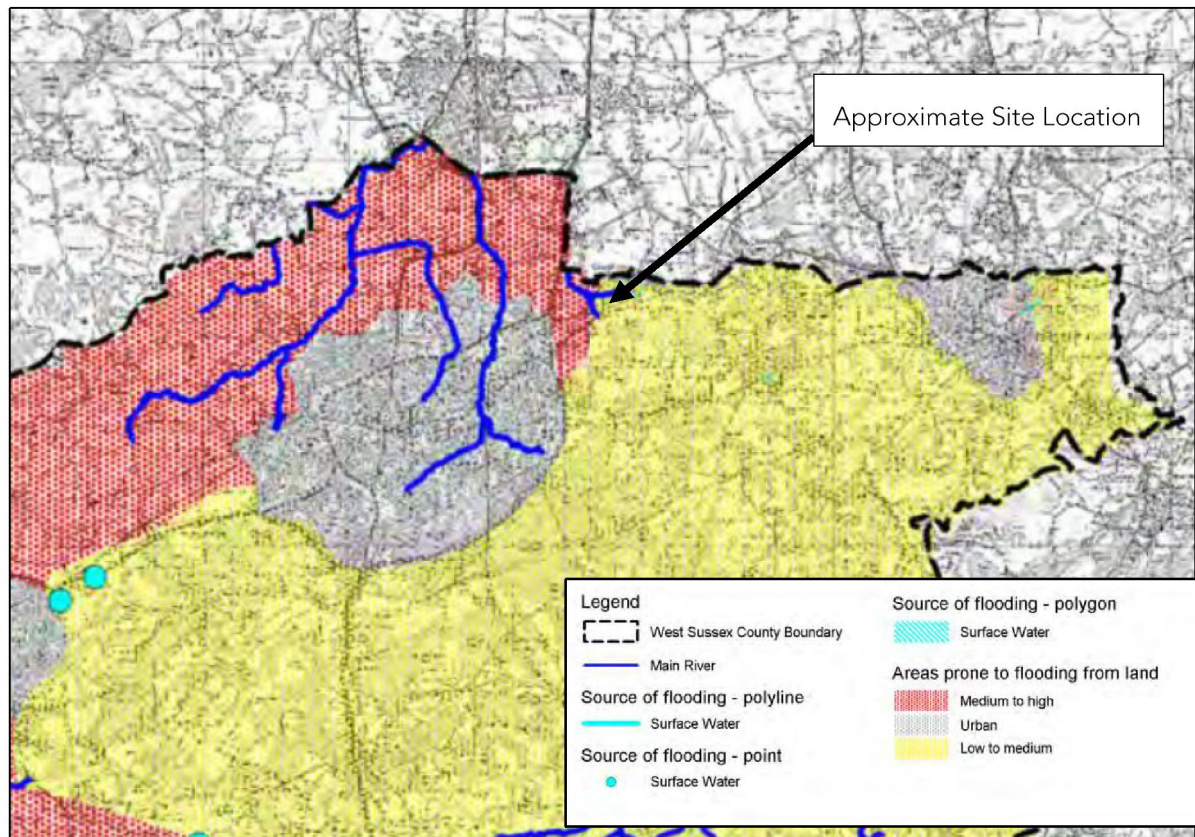


Figure 7: SFRA Mapping, Areas Prone to Flooding from land. Extract from West Sussex SFRA (2010)

- 4.20. In summary, the risk from surface water flooding posed to the site and extension is considered to be low.

## Reservoirs

- 4.21. Large waterbodies or reservoirs that have walls built above the surrounding ground level pose a risk of flooding. Walls could fail due to old age, accident, or because excess flood water has been added to the reservoir. Although a breach is unlikely the consequences would be significant, leading to rapid inundation of the downstream floodplain.
- 4.22. According to the EA's Flood Risk from Reservoirs mapping the site is outside flood extents in the event of reservoir flooding (Figure 8).

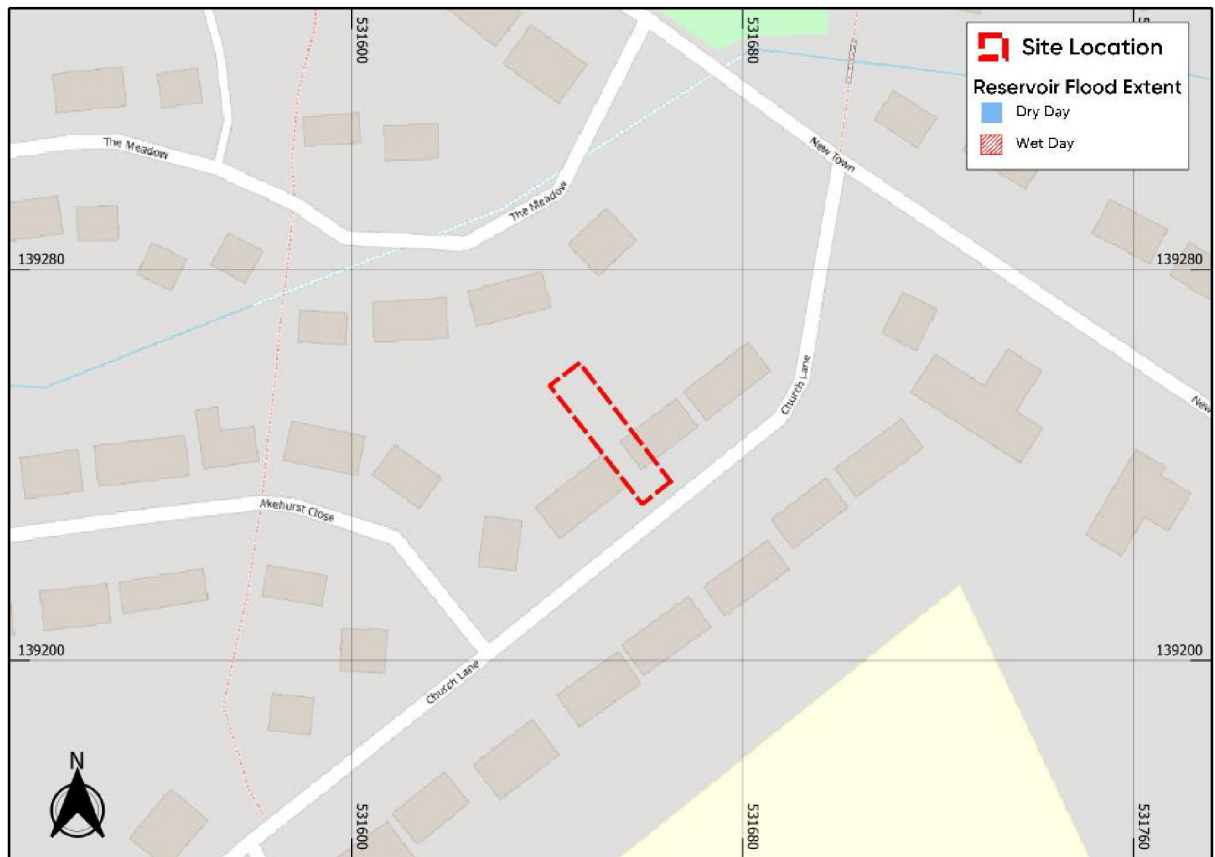


Figure 8: EA Reservoir Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). ©<https://www.openstreetmap.org> and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.23. The site is considered to be at a low risk of flooding as a result of reservoir failure.

## Groundwater

- 4.24. Groundwater flooding occurs in areas where underlying geology is permeable and water can rise within the strata sufficiently to breach the surface.
- 4.25. The British Geological Survey's (BGS) mapping shows no superficial deposits underlying the site. The bedrock underlying the site is Upper Tunbridge Wells Sand comprised of sandstone and siltstone, interbedded.
- 4.26. No Historical BGS boreholes were recorded within the vicinity of the site (300m radius).
- 4.27. The SFRA presents the Areas Prone to Groundwater Flooding mapping (Figure 9), which assesses the risk of groundwater flooding. The site is within an area cell which is described as a 'Medium' potential for ground water flooding.

- 4.28. However, no historical events have been recorded within the area of Cophthorne. Furthermore, The SFRA (2010) states:

*Only a limited number of historical flood records, where the cause had been documented as groundwater flooding, were obtained.*

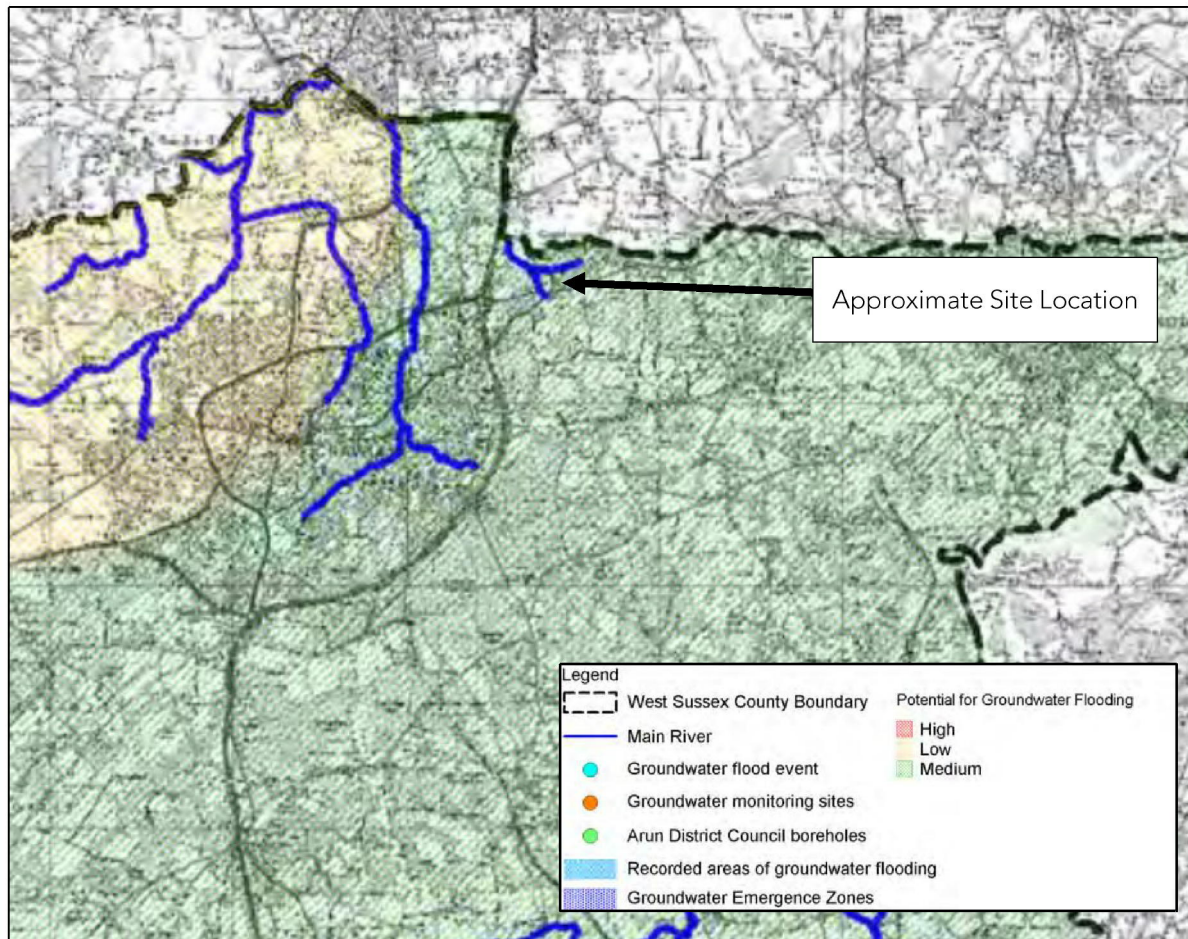


Figure 9: SFRA Mapping, Areas Prone to Groundwater. Extract from West Sussex SFRA (2010)

- 4.29. The development does not include any subterranean elements. As such, the risk from groundwater to the proposed development is considered to be low.

## Sewers

- 4.30. Foul or surface water sewers can be a cause of flooding if the drainage network becomes overwhelmed, either by blockage or due to local development beyond the designed capabilities of the drainage system.

4.31. The West Sussex SFRA provides mapping of historical sewer flood incident records kept by the local authority showing no flood incidents have been recorded with the area of Cophorne (Figure 10).

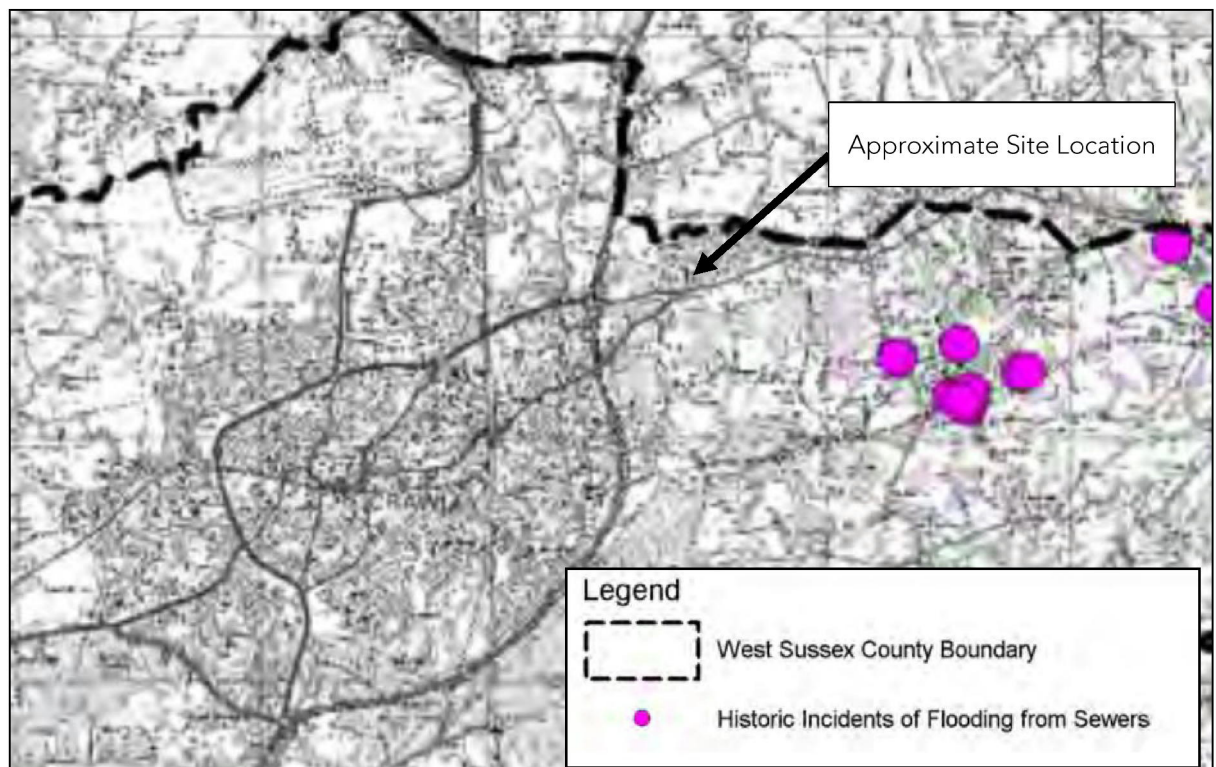


Figure 10: SFRA Mapping, Areas Prone to Flooding from Sewers. Extract from West Sussex SFRA (2010)

4.32. The development is therefore considered to be at low risk of flooding from sewers.

## 5. Flood Risk Mitigation

### Pluvial, Fluvial, Tidal, Sewers, Groundwater, Reservoirs, and Canals

- 5.1. No flood depths are shown to impact the proposed extension up to the 0.1% AEP event. Therefore, the development is considered to be at a low risk of pluvial flooding.
- 5.2. Flood risks from pluvial, fluvial, tidal, sewers, groundwater, reservoirs, and canals are considered to be low, therefore additional mitigation is not a requirement.
- 5.3. However, it is recommended that small scale SuDS are implemented to reduce run off to nearby surface water risk areas. Such as rainwater planters and water butts at the base of downpipes. All SuDS features should be used where possible in external areas to provide betterment in terms of runoff rates and provide storage of rainwater in day-to-day rainfall events.

### Increase to Flood Risk Elsewhere

- 5.4. The development is a two storey side extension and single storey rear extension to provide greater habitable space to the existing dwelling. As such, the proposal constitutes a 'Minor Development' under the NPPF.
- 5.5. Paragraph 051 of the Flood Risk and Coastal Change Planning Practice Guidance (PPG) states:

*Minor developments are unlikely to raise significant flood issues unless:*

- *they would have an adverse effect on a watercourse, floodplain or its flood defences;*
- *they would impede access to flood defence and management facilities, or;*
- *where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows.*

- 5.6. As such, the proposed development in isolation should have a negligible impact on flood risk elsewhere.

## Flood Warnings

- 5.7. The site is not in an area where the EA provide specific flood alerts and warnings. The occupant of the dwelling should monitor Met Office Weather Warnings to be prepared for extreme weather events.
- 5.8. Flood warnings/alerts can be enforced at any time of the day or night. Signing up for this service provides site owners some notice before a flood event. The amount of time afforded before a flood occurs depends on the site-specific location (e.g. proximity to the source of flooding, topography of the surrounding area) and the flood mechanism (e.g. bank over topping versus a breach event). Flood alerts and warnings provide occupants with time to take necessary action, e.g. communication of the risk of flooding to occupants, evacuation of offsite or to a safe level, removal of valuable items out of reach of flooding and the mounting of site-specific flood defences.
- 5.9. To further reduce risk, the Met Office issues weather warnings up to 5 days in advance, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. It is also possible to stay up to date with weather warnings through the Met Office app (available on both android and apple), social media (X/twitter, Facebook) or email alerts.

## 6. Conclusions

- 6.1. This FRA has been undertaken with reference to the requirements of NPPF and Planning Practice Guidance with respect to the development at 79 Church Lane, Copthorne, Mid Sussex, RH10 3QG. It has been written to support a planning application and prepared with due consideration to the nature of the proposed development to provide the appropriate level of detail.
- 6.2. An assessment of the risk of flooding from all sources has been undertaken and is summarised in the table below:

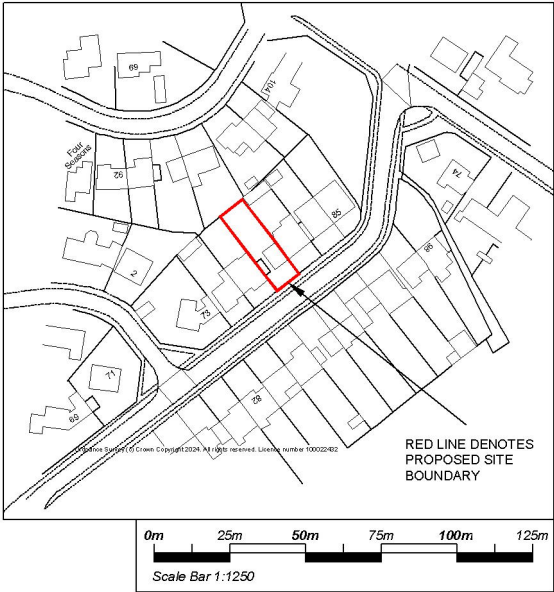
| Source of Flooding                                                | Flood Risk Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pluvial                                                           | <p>Examination of the EA's Flood Risk from Surface Water mapping shows the majority of the site is shown to be located within the 'Very Low' risk area, except the northern boundary of the site which is located within the 'Low' risk area</p> <p>Flood depths during the modelled 1 in 1000 year surface water event are estimated to be between 150mm and 300mm impacting the northern boundary of the site. The extension is shown to not be impacted in the modelled 1 in 1000 year event.</p> <p>Therefore, the development is considered to be at a low risk of pluvial flooding.</p> |
| Tidal<br>Fluvial<br>Reservoirs<br>Groundwater<br>Sewers<br>Canals | <p>The site is considered to be at low risk from other sources.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

- 6.3. The FRA supports the planning application and demonstrates that there is an acceptable level of flood risk to the site. Small scale SuDS are recommended to provide a betterment on flood water displacement but will not change flood risk. The development does not increase flood risk off site or to the wider area.
- 6.4. This Flood Risk Assessment should be submitted as part of the planning application to satisfy the requirements under NPPF.

# Appendix A - Development Proposals



SITE BLOCK PLAN (1:500)



SITE LOCATION PLAN (1:1250)

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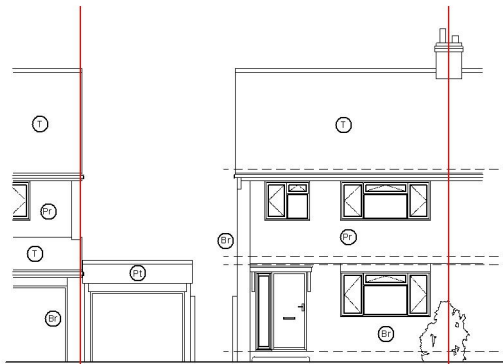
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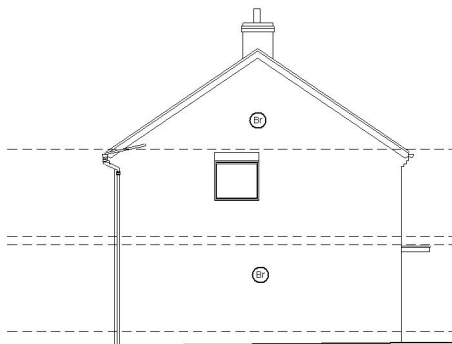
CLIENT  
MR B RAINES

PROJECT  
TWO STOREY SIDE AND SINGLE STOREY REAR  
EXTENSION.

|               |                                                              |             |
|---------------|--------------------------------------------------------------|-------------|
| P1            | ISSUED FOR PLANNING APPROVAL                                 | 08.11.2024  |
| REV           | DESCRIPTION                                                  | DATE        |
| DRAWING       | SITE LOCATION & BLOCK PLAN                                   |             |
|               | 79, CHURCH LANE, CROTHORNE, CRAWLEY,<br>WEST SUSSEX RH10 3QG |             |
| SCALE @ A3    | DATE                                                         | DRG No      |
| 1:500, 1:1250 | NOV 2024                                                     | DE1291 / 01 |
|               |                                                              | REVISION    |
|               |                                                              | P1          |



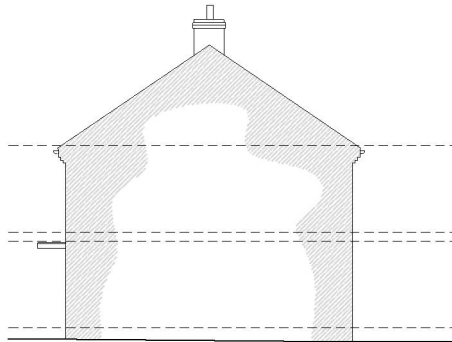
EXISTING FRONT ELEVATION  
SCALE 1:100



EXISTING SIDE ELEVATION  
SCALE 1:100

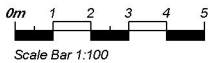


EXISTING REAR ELEVATION  
SCALE 1:100



EXISTING SIDE ELEVATION  
SCALE 1:100

| MATERIALS KEY: |                                            |
|----------------|--------------------------------------------|
| 1              | Concrete interlocking tile roof.           |
| 2              | Plain clay tile roof.                      |
| 3              | Flat Roof.                                 |
| 4              | Zinc Seam Roof.                            |
| 5              | Shingle Roof.                              |
| 6              | Slate Tile Roof.                           |
| 7              | Facing Brickwork.                          |
| 8              | Tile hanging.                              |
| 9              | Render Finish.                             |
| 10             | Timber Cladding.                           |
| 11             | PVC Cladding.                              |
| 12             | Stone Finish.                              |
| 13             | Pebble Dash Render.                        |
| 14             | uPVC sealed double glazed casement units.  |
| 15             | Sealed double glazed sliding sash all bar. |
| 16             | Obscure glazed.                            |
| 17             | Bi-Fold doors - PC Aluminium.              |
| 18             | Patio Doors.                               |
| 19             | Velux window.                              |



Scale Bar 1:100

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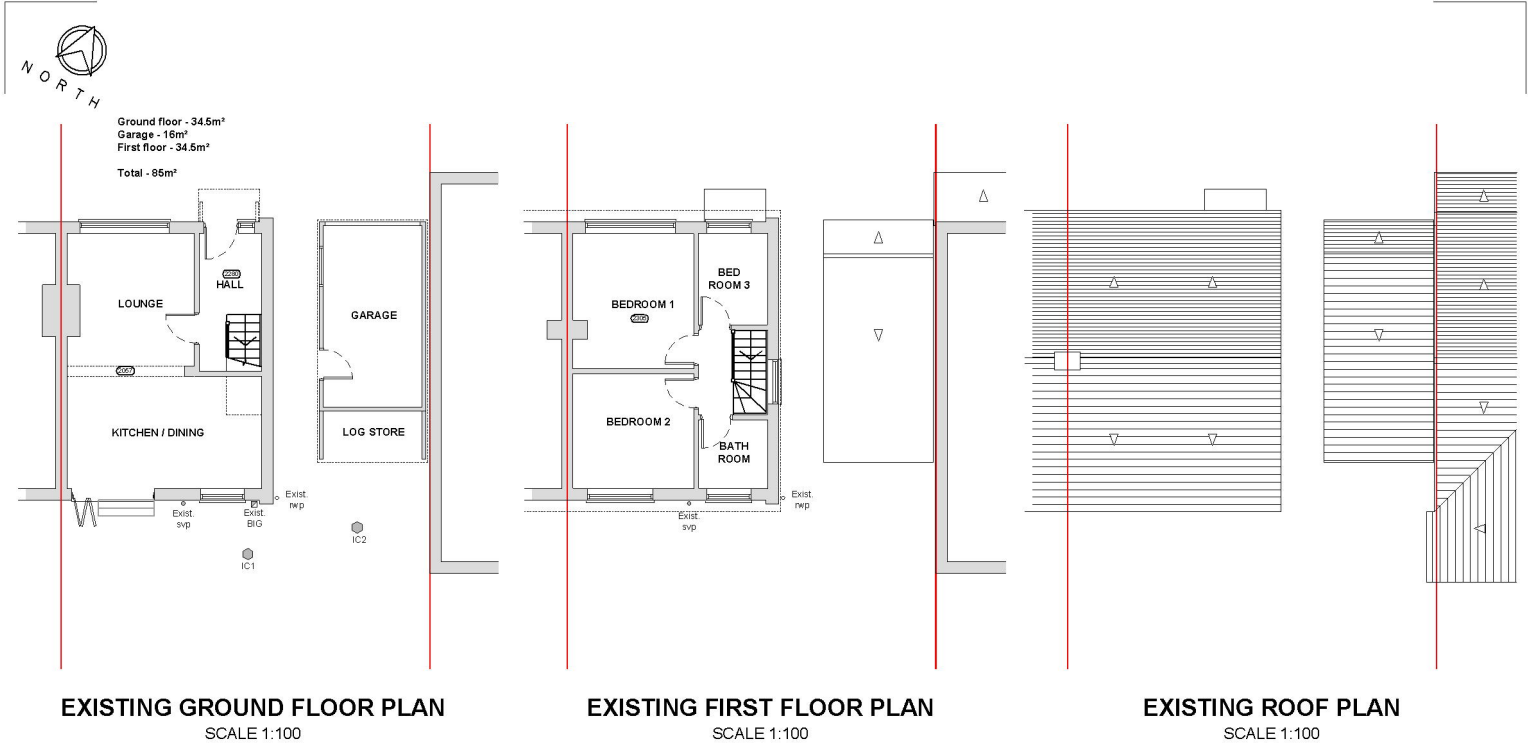
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| CLIENT     | MR B RAINES                                       | P1          | ISSUED FOR PLANNING APPROVAL                              | 08.11.2024 |
| PROJECT    | TWO STOREY SIDE AND SINGLE STOREY REAR EXTENSION. | REV         | DESCRIPTION                                               | DATE       |
|            |                                                   | DRAWINGS    | EXISTING ELEVATIONS                                       |            |
|            |                                                   |             | 79, CHURCH LANE, CROTHORNE, CRAWLEY, WEST SUSSEX RH10 3QG |            |
| SCALE @ A3 | DATE                                              | DWG No      | REVISION                                                  |            |
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| PROJECT    | TWO STOREY SIDE AND SINGLE STOREY REAR<br>EXTENSION. | REV         | DESCRIPTION                                                  | DATE       |
|            |                                                      | DRAWINGS    | EXISTING FLOOR PLANS                                         |            |
|            |                                                      |             | 79, CHURCH LANE, COPTHORNE, CRAWLEY,<br>WEST SUSSEX RH10 3QG |            |
| SCALE @ A3 | DATE                                                 | DWG No      | REVISION                                                     |            |
| 1:100      | NOV 2024                                             | DE1291 / 02 | P1                                                           |            |



1 - Front elevation looking from church lane.



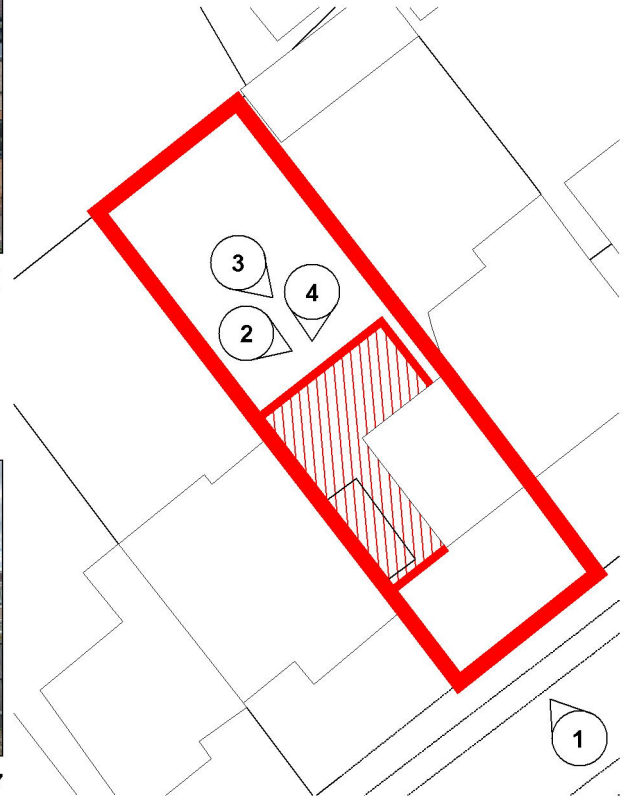
2 - Rear elevation looking to No. 81



3 - Rear elevation



4 - Rear elevation looking to No. 77



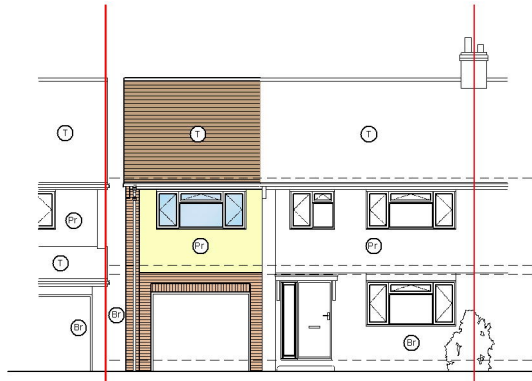
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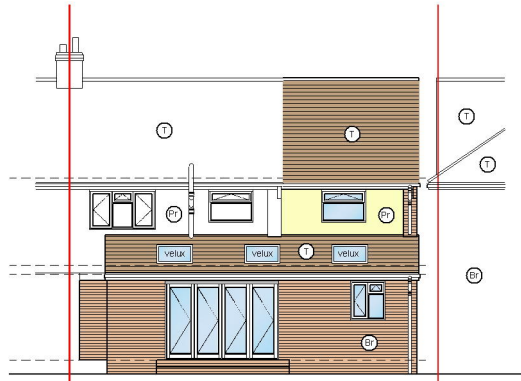
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CLIENT  
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TWO STOREY SIDE AND SINGLE STOREY REAR  
EXTENSION.

|                                                             |                              |             |            |
|-------------------------------------------------------------|------------------------------|-------------|------------|
| P1                                                          | ISSUED FOR PLANNING APPROVAL |             | 08.11.2024 |
| REV                                                         | DESCRIPTION                  | DATE        |            |
| DRAWING                                                     |                              |             |            |
| PHOTO SHEET                                                 |                              |             |            |
| 79, CHURCH LANE, COTHORNE, CRAWLEY,<br>WEST SUSSEX RH10 3QG |                              |             |            |
| SCALE: @ A3                                                 | DATE                         | DWG No      | REVISION   |
| NTS                                                         | NOV 2024                     | DE1291 / 06 | P1         |

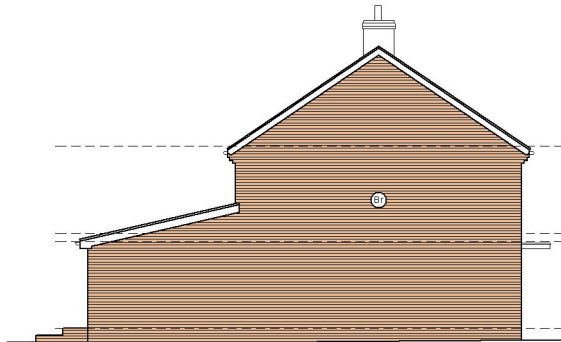


PROPOSED FRONT ELEVATION  
SCALE 1:100

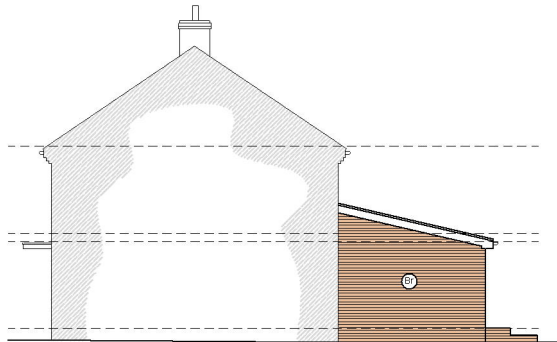


PROPOSED REAR ELEVATION  
SCALE 1:100

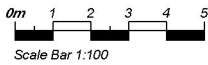
| MATERIALS KEY |                                           |
|---------------|-------------------------------------------|
| (T)           | Concrete interlocking tile roof           |
| (PT)          | Plain clay tile roof                      |
| (RT)          | Flat Roof                                 |
| (Z)           | Zinc Seam Roof                            |
| (S)           | Shingle Roof                              |
| (ST)          | State Tile Roof                           |
| (F)           | Facing Brickwork                          |
| (T)           | Tile hanging                              |
| (R)           | Render Finish                             |
| (T)           | Timber Cladding                           |
| (P)           | PVC Cladding                              |
| (S)           | Stone Finish                              |
| (P)           | Pebble Dash Render                        |
| (P)           | uPVC sealed double glazed casement units  |
| (U)           | Sealed double glazed sliding sash all bar |
| (O)           | Obscure glazed                            |
| (B)           | Bi-Fold doors - PC Aluminium              |
| (P)           | Patio Doors                               |
| (V)           | Velux window                              |



PROPOSED SIDE ELEVATION  
SCALE 1:100



PROPOSED SIDE ELEVATION  
SCALE 1:100



Scale Bar 1:100

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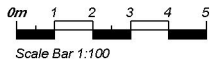
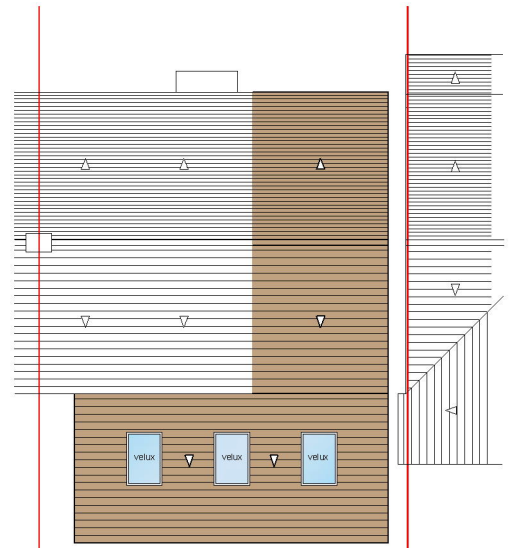
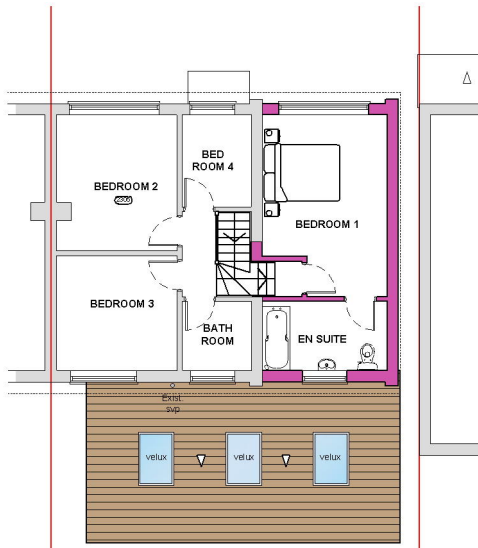
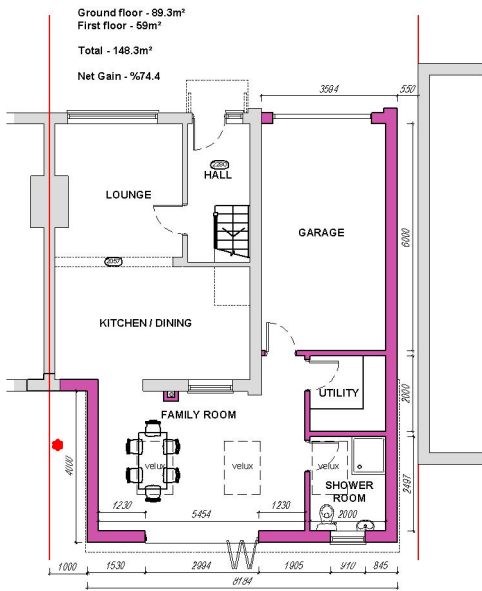
CLIENT

MR B RAINES

PROJECT

TWO STOREY SIDE AND SINGLE STOREY REAR  
EXTENSION.

|                                                              |                              |             |            |
|--------------------------------------------------------------|------------------------------|-------------|------------|
| P1                                                           | ISSUED FOR PLANNING APPROVAL |             | 08.11.2024 |
| REV                                                          | DESCRIPTION                  | DATE        |            |
| DRAWINGS                                                     |                              |             |            |
| PROPOSED ELEVATIONS                                          |                              |             |            |
| 79, CHURCH LANE, CORTHORNE, CRAWLEY,<br>WEST SUSSEX RH10 3QG |                              |             |            |
| SCALE @ A3                                                   | DATE                         | DWG No      | REVISION   |
| 1:100                                                        | NOV 2024                     | DE1291 / 05 | P1         |



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| CLIENT                                               | P1 ISSUED FOR PLANNING APPROVAL                              |             | 08.11.2024  |
|                                                      | REV                                                          | DESCRIPTION | DATE        |
| PROJECT                                              | DRAWINGS                                                     |             |             |
|                                                      | PROPOSED FLOOR PLANS                                         |             |             |
| TWO STOREY SIDE AND SINGLE STOREY REAR<br>EXTENSION. | 79, CHURCH LANE, CROTHORNE, CRAWLEY,<br>WEST SUSSEX RH10 3QG |             |             |
|                                                      | SCALE @ A3                                                   | DATE        | REVISED     |
|                                                      | 1:100                                                        | NOV 2024    | DE1291 / 04 |
|                                                      |                                                              |             | P1          |