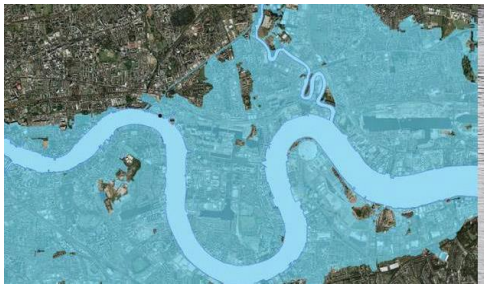
Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

FLOOD RISK ASSESSMENT

21 Ormond Drive
Hampton
TW12 2TP



Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

VERSION CONTROL

PROJECT NAME: 21 Ormond Drive, Hampton TW12 2TP

REPORT TITLE: FLOOD RISK ASSESSMENT

Revision Record	Rev.	Date	Status	Description	Name/Signature	
	1.0	14/05/24	FINAL	PLANNING APPLICATION	JUDE SWAMPILLAI	JS

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

INDEX

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

1. INTRODUCTION

Star Design Solutions has been commissioned by Good Design and build to prepare a flood risk assessment in support of a planning application for a residential development at 21 Ormond Drive, Hampton TW12 2TP. The development consists of internal alteration, loft conversion, rear extension at the ground floor level of the property with rear bi-folding door to rear garden.

This report will take the form of a formal Flood Risk Assessment in accordance with the 2021 National Planning Policy Framework (NPPF), the current 2022 Planning Practice Guidance (PPG) and the relevant policies contained in The London Plan.

As shown in Figure 1, the development is located in Flood Zone 1. Land within flood zone 1 has a low probability of flooding. Locations in flood zone 1 have a low probability of flooding. This means in any year land has a less than 0.1% chance of flooding from rivers or the sea. Flood zone 1 developments doesn't need a flood risk assessment as part of their planning application.

Figure 1 - Environment Agency Fluvial Flood Map

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

Flood defenses have been built to protect against flooding from rivers or the sea. Flood defenses reduce, but do not completely stop the chance of flooding because they can be overtopped or fail.

This area falls under the jurisdiction of the Richmond upon Thames planning and is covered within the Richmond upon Thames planning authority's strategic flood risk assessment (SFRA).

2. THE SITE

The development is located close to Longford river and north of the river Thames, and to the south of the property is located Hampton rail station. The area is surrounded by residential properties, and developments.

The location of the site is shown in Figure 2 below.

Figure 2 – Site Location

The site is in regular shape and is approximately 490sqm. The overall topography of the site was relatively flat.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

DESCRIPTION OF EXISTING HYDROLOGY

As mentioned previously, the site is located north of the Thames, which flows in an easterly direction.

VULNERABILITY CLASSIFICATION, SEQUENTIAL AND EXCEPTION TESTS

Regarding Table 2: 'Flood Risk Vulnerability Classification' in the NPPF, buildings that include residential units are classed as 'more vulnerable'. Hence the proposed redevelopment is classed as 'more vulnerable'.

On the basis that the development is located within a Flood Zone 1 area, the EA requires a Sequential Test to be carried out to ensure sensitive, critical, or vulnerable developments are not located in areas of significant risk of flooding.

With reference from the flow diagram shown on 'London Borough of Hammersmith and Fulham Strategic Flood Risk Assessment Level 1 &2 – Figure 4, it shows that applying the sequential test for the suitability of the site results in 'applying exception test' for a 'more vulnerable' site, and hence has been deemed acceptable sequentially.

Regarding Table 3: 'Flood Risk Vulnerability Classification' in the NPPF, a development classed as 'more vulnerable' in a Flood Zone 2 requires an Exception Test. For the Exception Test to be passed:

A: 'It must be demonstrated that the development provides wider sustainability benefits to the community that outweighs flood risk, informed by an SFRA.'
This development complies with this requirement as a source of aiding the housing targets set by the Borough, which relates to Policies H2 (Affordable Housing) & H4 (Protecting and Re-shaping the Existing Housing Stock) of the Fulham Local Plan document. It should also be noted that various residential developments are being put in place in and around the local area.

B: The development should be on developable previously developed land or, if not, it must be demonstrated there is no such alternative land available.' This is indeed a brownfield site and the development proposals will involve construction on a developable area.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

C: 'A FRA must demonstrate that the development will be safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall.'

This FRA demonstrates that the proposal does not increase the flood risk on-site or elsewhere.

3. PROPOSED DEVELOPMENT

The existing structure is a two-story detached house used as a family dwelling. The above property comprises the ground and first floor of the main house. The external walls are of solid masonry which extend down to a corbelled brick footing. The internal load-bearing walls are also of masonry up to the first-floor level. The ground floor, upper floors, and pitch and flat roofs are suspended timber floors. The property is in its original structural form.

The proposed works are wholly within the land belonging to 21 Ormond Drive, Hampton TW12 2TP. The proposed development will be a loft conversion and ground floor rear extension with a large bi-folding door to the rear and some internal alternation to give more livability to the house.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

4. QUANTIFYING FLOOD RISKS

FLOODING FROM RIVERS OR THE SEA

The primary risk of flooding is based on the fact that the proposed development locations in flood zone 1 which is very low probability of flooding. This means in any year land has a less than 0.1% chance of flooding from rivers or the sea. Considering the height of these flood defenses and the fact the Thames Barrier is in place, the chances of them being overtopped or breached are very low risk means that this area has a chance of flooding of less than 0.1% each year. This takes into account the effect of any flood defences in the area.

Figure 3 - River Flood Risk Map

Figure 3 shows that the property is located in very low risk of river and sea flood areas.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

SURFACE WATER FLOODING

Flooding from overland flows is caused by very heavy rainfall in areas where natural and artificial channels run at full capacity and are unable to cope with the excess water.

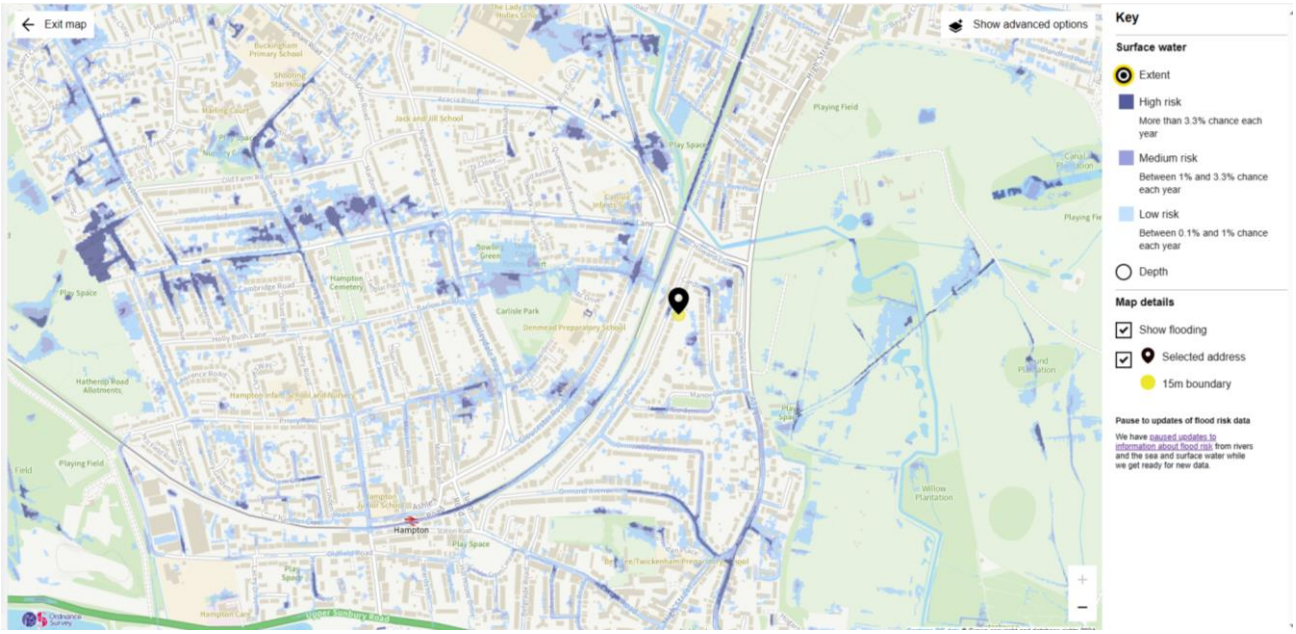


Figure 4 – Surface Water Flood Risk Map (Extent)

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

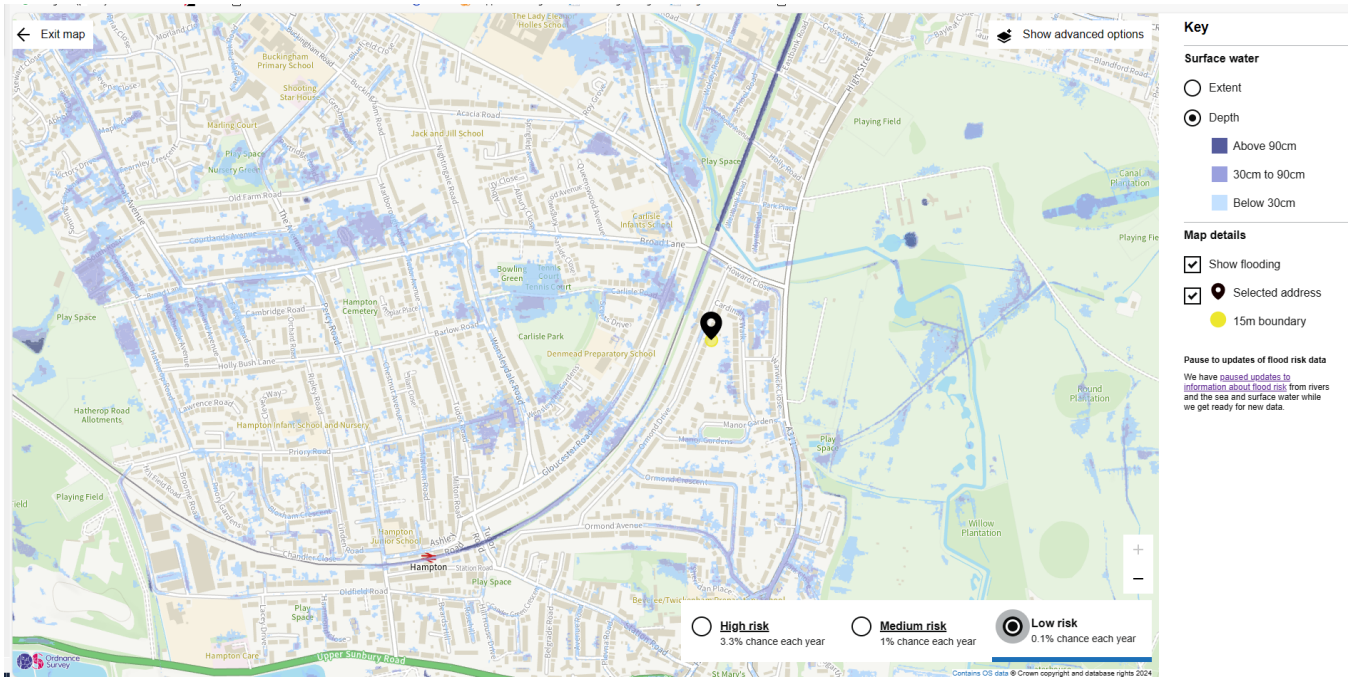


Figure 5 – Surface Water Flood Risk Map (Depth)

The risk and potential consequences of surface water flooding on the development based on Figure 4 & 5 is shown to be at Very low risk means that this area has a chance of flooding of less than 0.1% each year. 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.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

5. MITIGATION MEASURES

NEW GROUND FLOOR

The internal ground floor is a concrete slab with a damp-proofing membrane throughout. The rear garden levels shall be retained without any further alterations.

SOLID MASONRY WALLS

Lime Based Plaster:

Lime-based plaster products have good water resistance properties and once installed over a water-resistant render, such as sand/cement or proprietary sealant, will provide effective resistance to flooding.

Following immersion in floodwater lime-based plasters over a water-resistant render should dry out quickly and should not deteriorate even if subjected to repeated exposure to floodwater. The water-resistant render beneath the plaster reduces water penetration into the underlying masonry, allowing the wall to dry out more quickly without the need to remove the plaster finish. Hence repair costs can be reduced.

Hydraulic lime:

Hydraulic lime finishes with water-resisting additives can also provide effective flood resistance for masonry walls, both internally and externally. As with lime-based plaster, hydraulic lime coatings have good water resistance properties and can allow walls to dry out without the need for replacement following immersion in floodwater.

Internal Stud Walls:

Internal timber stud walls are to be constructed using WBP timber sections. Plasterboard sheets can be replaced with timber panels, using WBP bonded plywood, but this is unlikely to provide a good finish for decorations. Alternatively, plasterboard can be replaced horizontally thus reducing the amount of plasterboard replacement should flooding re-occur.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

Proposed External bi-fold Doors to Rear Garden

All new doors and windows housed within new masonry walls and abutments with concrete floors will have a damp-proof course lapped over new damp-proof membranes at the sill level. Propose sill level is approximately 300mm above the existing garden level. Adequate sealants will be applied around door & window openings accordingly to prevent water egress in the event of flooding.

Escape route.

The primary escape route will be via the stairs to the ground floor and via the main entrance hallway area to temporary accommodation at the higher ground. The main front and rear entrance are approximately 300mm above the existing ground level.

Water Efficient measure

All new and existing shower heads will be replaced with water-efficient shower heads. All toilets (old and new) flush system will dual flush. All white goods (e.g. washing machines) will be water-efficient appliances.

Sustainable Drainage proposals (SuDs)

We propose to replace all hard-paved areas with permeable paving. The existing downpipe will be modified to connect to the water-bud and overflow from the water-bud will be connected to sewer or soak away.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

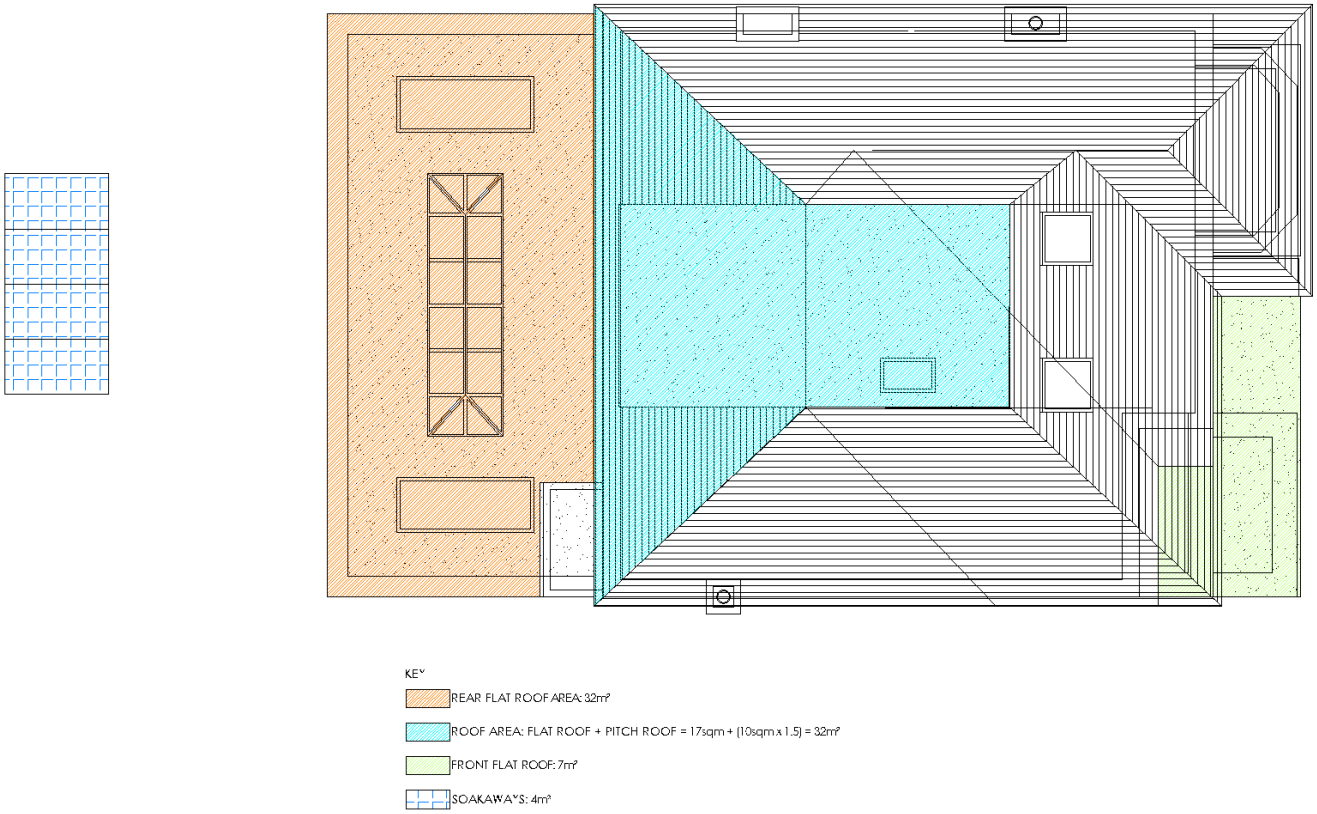


Figure 6 – proposed Impermeable area and soaraway location.

The only impermeable area will be the extension roof as all new external hard standing will be of permeable surfacing, e.g. porous paving. A cellular crate soakaway will be provided in the rear garden. The size has been calculated using the guidance in Planning Consultation document which states that 1m3 must be provided for every 16m2 of impermeable area. Applying this for the extension roof area, rounded up to 64m2: 64/16 = 4.0m3. The existing pitch roof is connected to sewers, and we proposed to remove 32sqm of that to soakaway which will reduce the flow to existing public sewer system.

Drainage:

The existing drainage serving the property is a combined surface water and foul system. Non- return valve will be fixed and maintained by the property owner to protect the dwelling from future flooding due to surcharging of public sewer systems. All existing external gullies will be upgraded to modern standards to handle surface water.

Star Design Solutions Ltd
Independent House,
15b Mile End Road, Colchester, CO4 5BT
Phone: 01206 584784 / 0208 432 0807
admin@starda.co.uk | www.starda.co.uk

6. CONCLUSION

The proposed works involve the development of loft conversion and rear extensions. Existing roof area and patio area discharge to surface water sewer. So, no alteration to the total runoff area so no net increase in roof runoff but it will be reduction.

As shown in Figure 1, the re-development is located in Flood Zone 1 Land within flood zone 1 has very low probability of flooding from rivers and the sea. The proposed development is located in an area that has a very low risk of flooding from sea and river but is protected by the existing Thames barrier and flood defences. Considering the height of these flood defenses and the fact the Thames Barrier is in place, the chances of them being overtopped or breached are very low.

Surface water flooding on the development to be at Very low risk means that this area has a chance of flooding of less than 0.1% each year.

For mitigation measures, further installations as mentioned in section 5 will be required to meet drainage standards and help alleviate any risk of flooding.

In conclusion, it is contended that this development will remain safe over its lifetime – and complies fully with the NPPF / PPG and Richmond guidance/policies.

Prepared By
Jude Swampillai
B Eng. (Hons), CEng MICE
Star Design Solutions Ltd