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JOB NUMBER: **MD1447**

PROJECT: **162 ASHFORD AVENUE**

CLIENT: MRS SIDHU

REPORT NUMBER: MD1447/rep/002

REPORT TITLE: **FLOOD RISK & DRAINAGE ASSESSMENT**

Prepared with reasonable care and attention:

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EXECUTIVE SUMMARY

M Design were commissioned by Mrs Sidhu to undertake a Flood Risk Assessment (FRA) in support of the planning application for the proposed extension at 162 Ashford Avenue, Hayes.

The development was found to be in Flood Zone 2 of the watercourse to the west. It is therefore important to assess the potential risks to the building. Other sources of flooding have been investigated within this report.

The application is to extend the northern gable of the dwelling and carry out internal alterations to the property. The increase in building area is only 14m2 and therefore it is a minor application.

In summary the this report will ensure that the site is not at risk of flooding and the drainage will be designed in a manner that does not increase the risk of flooding in the area. Development of this site will be shown to be appropriate in relation to flood risk within the body of this report.

1 INTRODUCTION

M Design were commissioned by Mrs Sidhu to undertake a Flood Risk Assessment (FRA) in support of the planning application for the proposed extension at 162 Ashford Avenue, Hayes.

The planning process requires an assessment to be made of any flood risks related to proposed developments. In particular this involves two key issues; whether the development itself would be at risk of being flooded or whether the development would increase the risk of flooding elsewhere. This assessment is contained within this report which has been prepared for submission with the planning application.

The study also assesses the potential requirements for any surface water storage within the on-site infrastructure design.

1.2 Scope of Report

The following tasks were undertaken in the preparation of this report:

- A site visit was carried out in order to identify any risks of flooding to the site, identify drainage patterns, receiving watercourses, and to identify any constraints to the drainage system that may restrict the proposed development;
- Liaison with the Environment Agency was undertaken to establish occurrences of flooding in the area;
- Calculations were undertaken to establish the current surface water runoff from the site
- An evaluation was made of how the proposed development would affect the existing surface water runoff.

1.3 Consultations and Data Sources

The following tasks were undertaken in the preparation of this report:

- Environment Agency Flood Maps;
- Landmark Information Group Maps;
- Institute of Hydrology (1994) Report 124 – Flood Estimation for Small Catchments;
- CIRIA Document 624 'Development and Flood Risk'
- Environment Agency;

2 Site Description

2.1 Site Location

The outbuilding is to the rear of 162 Ashford Avenue, Hayes. The centre of the site is at TQ 121 810.

Fig 2.1 Proposed Development Area.

2.2 Site Description

The site comprises of a residential dwelling with an outbuilding to the rear. It is located within a densely populated area surrounded by other residential dwellings.

2.3 Site Flooding Potential

The development is shown by the Environment Agency flood maps to lie within flood zone 2.

The Environment Agency's definition of this is stated below:

Flood Zone 2 - medium probability

Definition This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.

Appropriate uses Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in table 2, are appropriate in this zone. The highly vulnerable uses are only appropriate in this zone if the Exception Test is passed. Flood risk assessment requirements All development proposals in this zone should be accompanied by a flood risk assessment. Policy aims In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage systems.

To establish if the proposed development is appropriate within Flood Zone 2 the vulnerability of the site is to be assessed. Referring to the table below, the proposed works would be classed as "**Less Vulnerable**".

Table D.2: Flood Risk Vulnerability Classification

Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure, including electricity generating power stations and grid and primary substations.
Highly Vulnerable	• Police stations, Ambulance stations and Fire stations and Command Centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent.19
More Vulnerable	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste.20 • Sites used for holiday or short-let caravans and camping, **subject to a specific warning and evacuation plan**.
Less Vulnerable	• Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non–residential institutions not included in 'more vulnerable'; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment plants. • Sewage treatment plants (if adequate pollution control measures are in place).

Table D.3: Flood Risk Vulnerability and Flood Zone 'Compatibility'

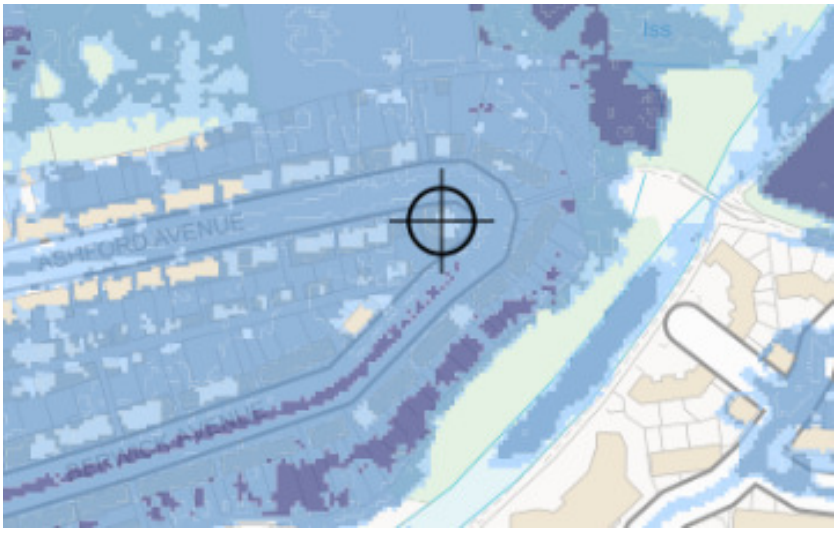
Flood Risk Vulnerability classification (see Table D2)	Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	YES	YES	YES	YES	YES
Zone 2	YES	YES	Exception Test Required	YES	YES
Zone 3a	Exception Test Required	YES	NO	Exception Test Required	YES
Zone 3b 'Functional Floodplain'	Exception Test Required	YES	NO	NO	NO

As shown previously the site is within **Flood Zone 2** and is classed as **Less Vulnerable**. Table D.3 confirms that the development is appropriate and no exception test is required.

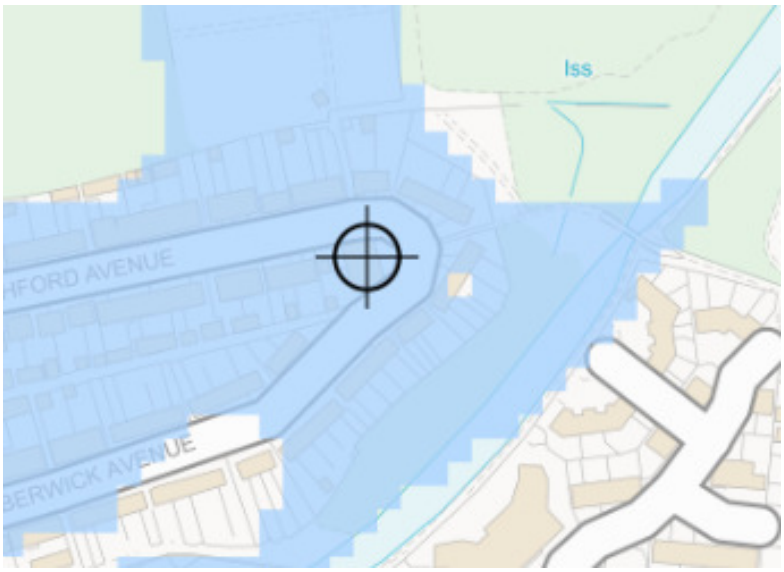
M Design have also considered risk of flooding for other sources. The plan below shows that there is no risk to the proposed development from surface water flooding in a 1 in 30 year storm event.

The following plan shows the risk of surface water flooding in a 1 in 100 year storm event. Again there is no flooding shown on the site.

The final surface water map shows the extreme 1 in 1000 year storm event. There is flooding shown in the area however this is extremely unlikely.



The EA flood maps have highlighted at the site would be at risk of flooding should the local reservoir was to fail. They also state that this is an extremely unlikely event.

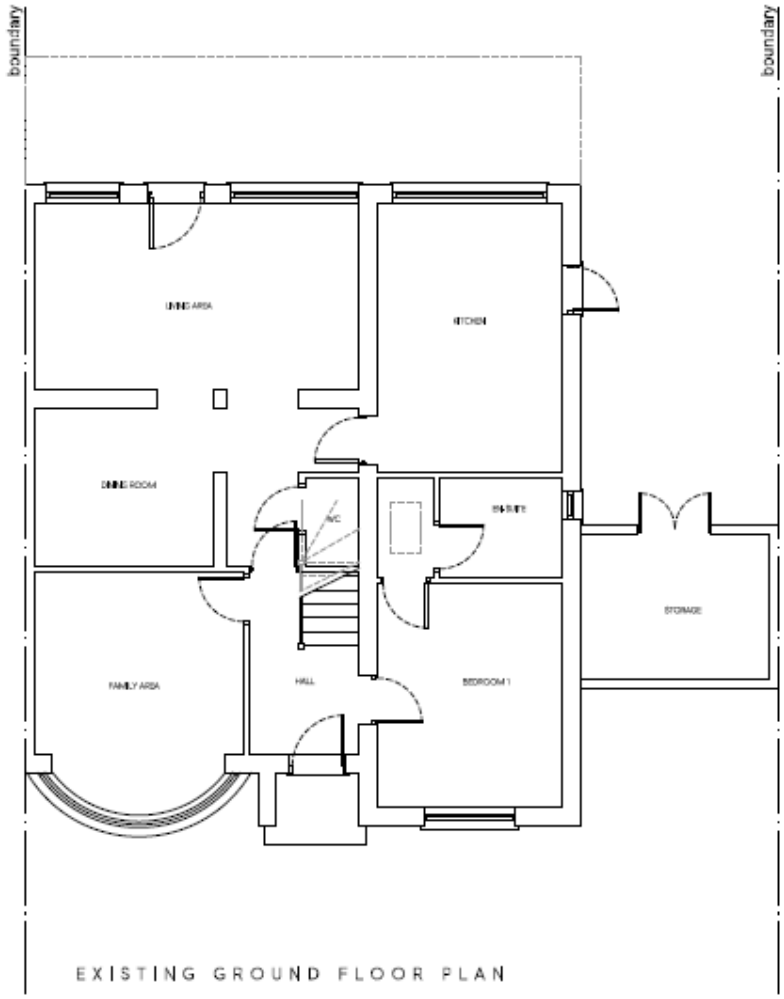


In summary the site is shown to be within flood zone 2. There is also risk of surface water and reservoir flooding, however both of these are said to be extremely unlikely. The proposed building use is acceptable within these flood zones as long as the risk is managed accordingly.

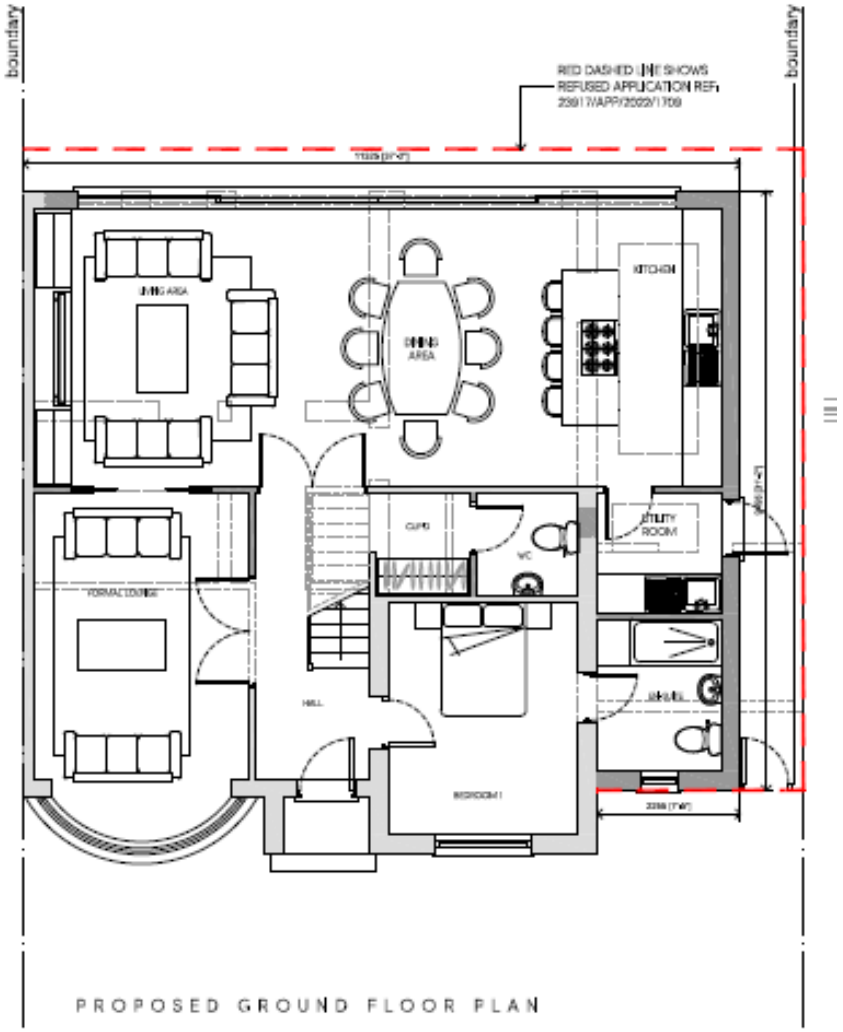
3 Proposed Development

3.1 Proposed Development Description

The proposal for the site is to extend the northern gable of the building to extend the kitchen area and provide a downstairs toilet and utility area.



Existing Arrangement



Proposed Arrangement

3.2 Proposed Development Surface Water Runoff & Proposals

for the discharge of surface water from the additional roof area soakways will be investigated. If it is found that the ground conditions make soakaways unfeasible then the drainage will connect to the existing plot drainage system on site. The client will liaise with the local sewage undertaker regarding the connection to confirm if any flow restrictions will be required.

3.2 Flood Mitigation

As the building is within flood zone 2 the occupiers of the building should sign up to the Environment Agency early warning flood system. This will give advanced warnings of any potential flooding so the resident can prepare for the floods or head to an area outside of the flood zone.

If there is any flood protection measures within the existing building then these should be carried through within the construction of the new gable.

The extension will be kept at the same floor level as the existing dwelling so the flood risk will not increase. The use of the building will not be changed and therefore the vulnerability of the building will not increase.

The increase in building area is only 14m2 and therefore it is a minor application.

4 Conclusions

4.1 Conclusions

This report has shown that the development will be carried out taking into consideration the flood risk on site and also elsewhere in the catchment area.

The increase in building area is only 14m2 and therefore it is a minor application.

The site is shown to be with flood zone 2 but the proposed use is acceptable within this zone. There is a risk of surface water flooding and reservoir flooding, however these have been shown to be only in extreme circumstances.

There is no sleeping accommodation within the ground floor of the extension and its inclusion will not increase the variability classification of the site.

Taking all the above into account, and providing the client signs up to the Environment Agency flood warning system the site is thought to be acceptable in terms of flood risk.

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