

FLOOD RISK ASSESSMENT

**Compliant with PPG 2015, new climate change allowances
(Feb 2016) & SUDS guidance (March 2015) & LB Policies**

Existing Building Merchants; replace with MOT
centre

No footprint closer to watercourse

Remains PPG “Less Vulnerable”

No change to site sensitivity

No flood compensation

EA Environmental Permit will be secured as part of
detailed design: full construction and operation
management plan

at

64 DELEMERE ROAD, HAYES, UB4 0NN

October 2018

ARK Ltd

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If this report has been released electronically, the appendices referred to herein can be found in the annexed zip folder/s as .pdf or .dwg files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans may be annexed separately as A1 or A0 copies where a bound-in A3 copy is not appropriate.

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1.0 Scope

This report contains the details of a Flood Risk Assessment carried out by Ark Environmental Consulting Limited ("ARK Ltd") for 64 DELEMERE ROAD. HAYES. UB4 0NN, henceforth referred to as "the site" in this report.

This report has been prepared for GDNB Ltd and must not be relied upon by any other party without the explicit written permission of ARK Ltd.

All parties to this report do not intend any of the terms of the Contracts (Right of Third Parties Act 1999) to apply to this report.

Please note this report does not purport to provide definitive legal advice nor can it be used to demonstrate that the site will never flood in the future.

The Executive Summary contains an overview of key findings and conclusions. However, no reliance should be placed on the Executive Summary until the whole of the report has been read.

Other sections of the report may contain information which puts into context the findings noted within the Executive Summary.

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2.0 Executive Summary

This FRA has been carried out in accordance with the National Planning Policy Framework (NPPF) & PPG 2015. It is to be used to assist the Local Planning Authority (LPA) and Environment Agency (EA) when considering the flooding issues of the proposed development as part of a planning application.

The proposed development is to replace the existing building merchants building with MOT centre; no change to the flood risk vulnerability category: remains "Less Vulnerable".

- No new footprint closer to the Yeading Brook than existing
- No flood compensation required
 - Site will continue to flood as normal
- The continued Less Vulnerable operation is appropriate and also:
 - The property is not inundated in any breach scenarios (fastest type of flooding) for the lifetime, even til Year 2100
- Access and egress / evacuation to FZ1 is also in LOW hazard

Appropriate Flood Resilient measures can be incorporated into the scheme as recommended in this report. In the unlikely event of surcharging of the culverted watercourse, there would likely be suitable warning to evacuate; evacuation routes and flood response management plans are included.

There is no need for occupants to be at or return to the site in the event of a flood given the scheme is a continued "Less Vulnerable" use.

Based on the likely flooding risk and small scale of the proposed development, it is considered that the proposed development can be constructed and operated safely in flood risk terms, without increasing flood risk elsewhere; it is therefore considered appropriate development in accordance with the NPPF/PPG 2015, without the need to pass the Exception Test.

3.0 Introduction

The site boundary is provided in the location plan in Appendix A.

The FRA combined a desktop study, review of available information, consultations and an assessment of all sources of flooding posed to and from the site and proposed development, in accordance with National Planning Policy Framework (NPPF). Appropriate flood mitigation measures were then considered, either as already incorporated within the scheme or recommended for inclusion at detailed design stage. The suitability of the proposed development was also reviewed in the context of the NPPF and the technical guidance accompanying the NPPF.

4.0 Purpose of the Report

This FRA has been carried out in accordance with National Planning Policy Framework (NPPF). It is to be used to assist the Local Planning Authority (LPA) and Environment Agency (EA) when considering the flooding issues of the proposed development as part of a planning application.

The report provides the following information:

- An assessment of the flood risk posed to the site based on flood information and mapping provided by the EA and Strategic Flood Risk Assessment (SFRA);
- An assessment of the proposed development in terms of surface water run-off; and
- Proposals for measures to mitigate the flood risks posed to and from the development where appropriate.

5.0 Report Information Sources

The information source used to undertake this FRA has been collected from the following sources:

- British Geological Survey Website;
- EA Website;
- London Borough of Hillingdon (LBH) SFRA
- LBH SUDS Local Guidance 2015 and as updated
- London Plan SUDS Guidance
- LBH / Drain London / EA Preliminary Flood Risk Assessments 2011 and as updated
- Internet mapping and searches.

6.0 Consultation

This report assesses the hazard and likely appropriate flood response management based on these data. The EA detailed data have been requested and used in this report as appropriate.

7.0 Overview of British Legislation

7.1 National Planning Policy

The National Planning Policy Framework (NPPF) and PPG 2015 supercede all Planning Policy Statements (PPS's) and Planning Policy Guidance (PPG's). Flood risk is retained as a key development consideration and is incorporated within Section 10: "Meeting the challenge of climate change, flooding and coastal change":

"Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere."

The Sequential and Exception Tests are retained as part of the NPPF. The accompanying NPPF Technical Guidance also includes Tables 2 and 3 to assist with flood risk vulnerability classifications and development suitability.

March 2015 SUDS Guidance and PPG 2015 compliant.

7.2 Local Policy

Test Valley Borough council consider flood risk through relevant environmental and climate change policies which enforce the requirements of the NPPF / PPG.

The Strategic Flood Risk Assessment (SFRA) (2017) is the key source of flood risk specific information for the area. The SFRA provides a more detailed review of flood risks and recommendations for ensuring developments can be constructed and operated safely in accordance with the NPPF. Greater detail of the SFRA is provided in the report.

8.0 Site Status and Environmental Setting

8.1 Site Location and Status

The planning application boundary is c. 0.05 hectares. The site comprises an existing builder merchants buildings and hardstanding access.

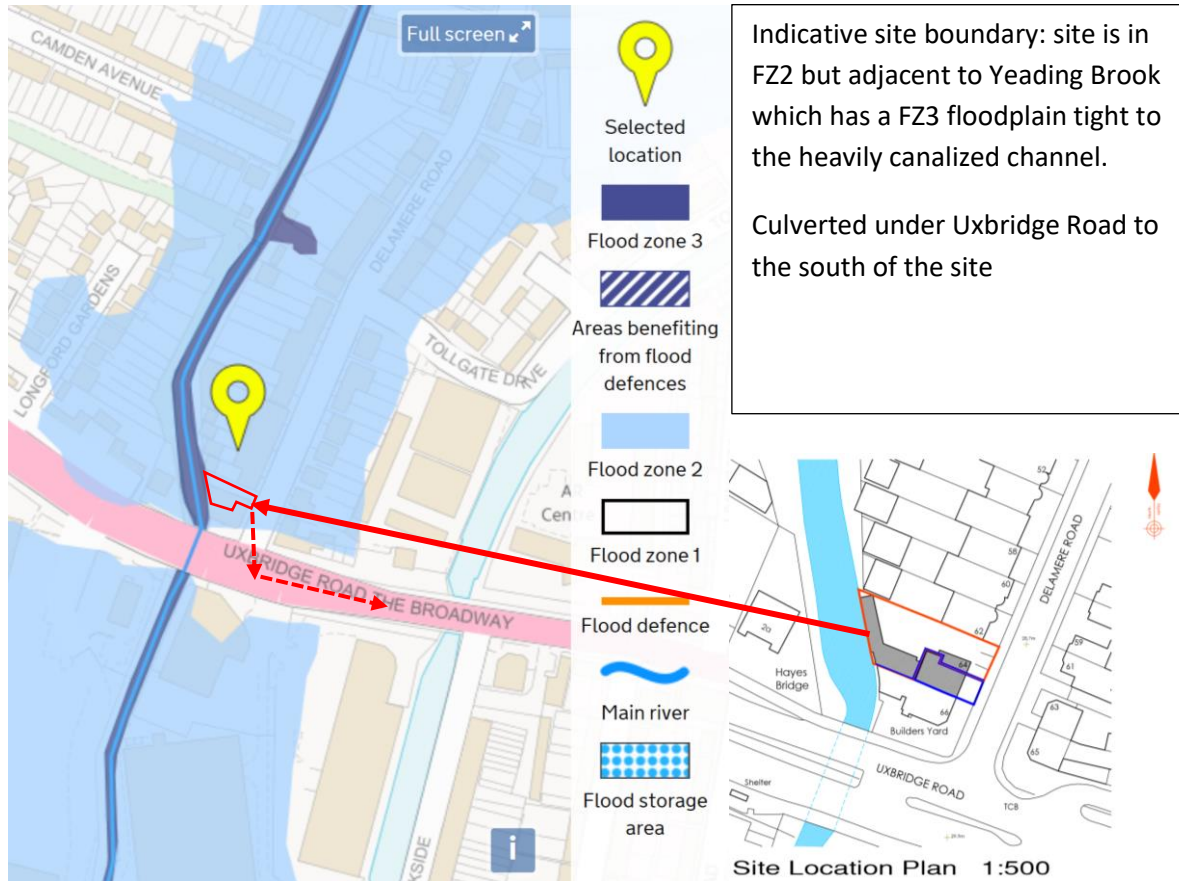
Buildings in the west form the western perimeter of the site and area directly adjacent to Yeading Brook.

Topography: Not required as a) no works will alter the operation or sensitivity of the site and b) there is no requirement for raised floor levels; it is a continued Less Vulnerable use at the site; flood resilience will be incorporated to as high as is feasible and given it is for a garage, the whole ground floor can be flood resilient.

8.2 Existing Flood Risk

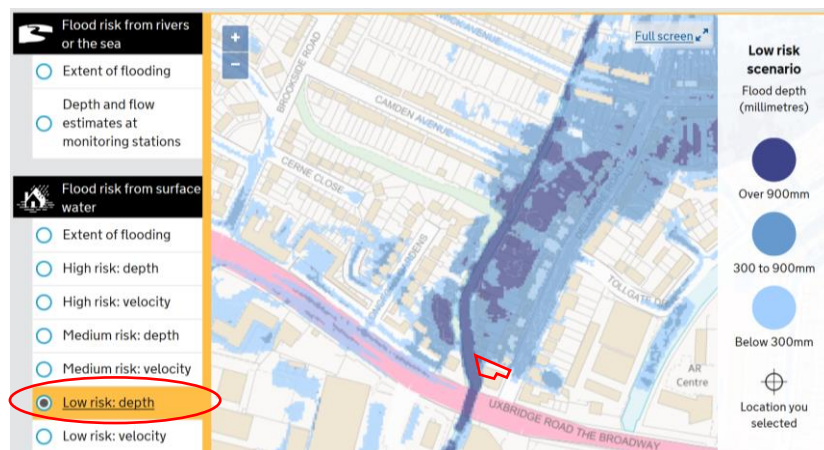
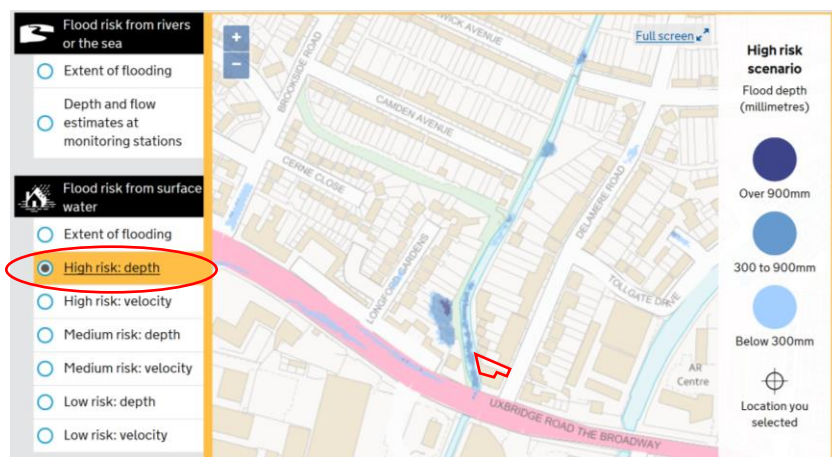
Fluvial and Tidal.

The site is adjacent to the Yeading Brook; the site is in FZ2 as the Yeading Brook is en-mained / canalised and heavily culverted in this area.



EA Surface Water Risk

- Site NOT inundated in EA high risk scenario
- Site only partly (5%) inundated in EA low risk scenario
 - Site and works in EA NO – LOW hazard



Still ideal to address residual surface water risk:

- Precautionary measures: resilience and waterproofing as necessary to encourage surface waters away from entering building and prevent inundation.

The assessment therefore concentrates on the hazard rating, refuge and flood warning management including suitability of evacuation.

Summary of All Flood Sources

Flood Sources	Site Status	Comment on flood risk posed to / from the development
Fluvial / Tidal	Site in Flood Zone FZ2 adjacent to FZ1 fluvial	New flood resilience / resistance is to be incorporated for continued PPG "Less Vulnerable" No PPG Exception Test is required. No increase in impermeable areas. No highly vulnerable uses.

		Only continued Less Vulnerable Low risk based on proposed use
Groundwater	SFRA mapping indicates site not in area of groundwater flooding.	The proposed development will not increase the risk of groundwater flooding Low Risk
Artificial Sources	Not in reservoir risk area Canal located c. 60m to east of site No other artificial sources within 250m	Low Risk Mitigation measures for fluvial and surface water risk are appropriate to address this low risk
Surface Water / Sewer Flooding	Site is located adjacent a general EA surface water risk zone Condition, depth and location of surrounding infrastructure uncertain	New flood resilience / resistance is to be incorporated No increase in impermeable areas. Development will not increase the peak flow or volume of discharge from the site: Low Risk No further drainage assessment required
Climate Change	Included in the flood modelling extents Site not within climate change flood extent area	Development will not significantly increase the peak flow and volume of discharge from the site Low risk posed to and from the development

How to address new climate change allowances

No detailed site specific flood levels and site is in EA FZ2; precautionary approach for Less Vulnerable replacement scheme is considered an appropriate approach.

No further assessment required. Note: if the EA write in their letter objecting on these grounds, it suggests they have not read the report or understood the data availability / scheme and site specifics; raised floor levels are not required so the uplift for new climate change allowances is not relevant.

9.0 Assessment of Proposed Development

9.1 Proposed Development

The proposed development can be seen in Appendix B.

The proposed development is:

- Change builder merchant to MOT test centre with new buildings
 - Continued Less Vulnerable
- No flood compensation required for this use in FZ2 (or FZ3 or FZ1 in fact)
- No buildings closer to Yeading Brook
- No sleeping uses as part of this application
- Surface Water: discharge to Yeading Brook, subject to EA Permit (see below)
 - No need to discharge surface water to sewer
 - New safe Drainage closed system as appropriate
- **Surface Water: critically, site is in NO hazard area in EA High risk scenario**
 - **Flood resilience and resistance appropriate to address**

There will be no increase in impermeable areas on the site given the proposed change of use.

9.1b Environmental Permit Required with EA: Building Near Adjacent to Watercourse: Consent Required

It is acknowledged that EA consent will be required (formerly called Flood Defence Consent). This is not required as part of the planning application.

Detailed details of construction stage, Yeading Brook wall protection measure, building techniques etc will be provided as part of the consent process.

This will include details of the drainage strategy to ensure pollution control is appropriate and will need to be signed off by the EA.

This Environmental Permit / Consent will be undertaken as part of detailed design, post-planning.

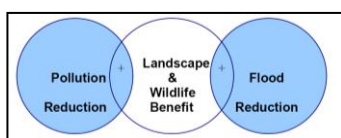
9.1c Sustainable Drainage Systems (SUDS)

The site is defined by the footprint of the building and adjacent hardstanding; there is no increase in impermeable areas as a result of the scheme; hence SUDS are not considered necessary but required in some capacity by policy where feasible and appropriate at the site. Regardless:

Critical for this site: pollution prevention measures as part of Environmental Permit / Consent process which will be undertaken as part of detailed designs.

Concept SUDS Strategy

The following diagram indicates the philosophy behind the proposed SUDS strategy, and is taken from the EA's SUDS guidance:



(Source: Environment Agency, 2009)

Table 2 indicates the SUDS Hierarchy Appraisal for the site and proposed development:

Table 2: Site Specific SUDS Appraisal

SUDS Hierarchy	SUDS Technique	Potential Benefits			Site Specific		
		Flood Reduction	Pollution Reduction	Landscape & Wildlife Benefit	?	Scheme Specific SUDS Appraisal and Comment	Suitability
Most Sustainable ↑ ↓ Least Sustainable	Living Roofs	•	•	•	X	Not considered necessary or commensurate; required roof construction not likely suitable for green roof	
	Ponds / Basins	•	•	•	X	Not considered necessary or commensurate	
	Swales	•	•	•	X	Not considered necessary or commensurate	
	Infiltration Techniques	•	•		X	Not considered necessary or commensurate	
	Permeable Surfaces and Filter Drains	•	•		X	Not considered necessary or commensurate	
	Tanked Systems	•			X	Not considered necessary or commensurate	

Key:

Potentially suitable at the site: *

Incorporated in the scheme: ✓

Not suitable / possible at the site: X

9.2 Flood Resilience

Where any new works / elements are proposed, the most flood resilient measures / specifications will be used:

The proposed development will utilize the flood resilient techniques recommended in the NPPF Technical Guidance where appropriate and also the recommendations that have previously been issued by various councils and the EA.

These include **if part of the scheme**:

- Plasterboards will be installed in horizontal sheets rather than conventional vertical installation methods to minimise the amount of plasterboard that could be damaged in a flood event
- If new required: wall sockets will be raised to as high as is feasible and practicable in order to minimise damage if flood waters inundate the property
- Any wood fixings on ground floor will be robust and/or protected by suitable coatings in order to minimise damage during a flood event
- If new required: the Damp Proof Membrane will be installed above the main floor slab and tied in to the walls where appropriate, to reduce the turnaround time for returning the property to full operation after a flood event.
- If new required: the ground floor waterproofing will be extended to an appropriate level above existing ground levels
- Sensible storing of any materials easily damaged by water at higher levels within the building

9.3 Refuge and Evacuation

Based on the likely flood risk (EA data) and associated warning time that is feasible, it is considered likely that there would be sufficient time to evacuate.

The scheme is for Less Vulnerable in FZ2 with immediate access to FZ1; evacuation should be to Delemer Road and then to Uxbridge Road: in fully unrestricted FZ1.

9.4 Flood Warning Response Management

The EA have a clear set of warning levels which site users should keep updated. Tenants should read the plan and understand the response requirements.

It is recommended that the site users understand and sign up to the EA Flood Warning scheme.

Based on the available emergency planning guidance, the following is in principle the procedure to be followed specific to the site.

All staff to be trained to:

- A. Understand the EA Flood Warning process

-
- B. Understand the response: communication and coordination
 - C. Provide written copies of procedure and a map of the evacuation route, location of safe refuge and contact details to all staff and in appropriate location within the building i.e. health and safety noticeboard.

Upon Flood Alert received from the Environment Agency:

- 1) Staff to monitor the warning levels (website / phone)
- 2) Managers to make decision if a flood warning is posted before next operational day as to whether the outlet closed as a precautionary measure until warning is reduced / removed

If the flood warning is then deemed to potentially exceed the level of protection as advised by the EA, then:

- 3) Managers are to be responsible for communicating and organizing all staff and to ensure customers are informed
- 4) Staff to take cars assess if there are any dependent / vulnerable site users that require assistance in evacuation
- 5) All staff should be made aware of emergency safe location (to be confirmed) and safest route; however it will be the responsibility of any “customers” to decide on final destination
- 6) Site Management and Tenants to agree safe refuge location in Flood Zone 1 for all staff or agree staff to return home and await further notice that site is back to operation and safe.
- 7) Site managers make decision when to return to site and that site is safe for continued use (particularly if the site has been inundated).

Clear communication in Flood Warning Event

The management will need to understand and sign up and train staff with regards the EA Flood Warning scheme.

It is recommended that all staff are trained to communicate and coordinate the necessary measures upon receiving a flood warning of appropriate level that evacuation is required.

The staff member receiving the call should immediately use the public address / involve other staff in alerting calmly that there is a need to evacuate the premises, and where all site users should go, depending on their mode of transport.

Flood Safety Pack

Tenants / owners should ensure a flood safety evacuation pack is kept in a safe and easily accessible place. This should include as a minimum:

- First aid kit
- Torch
- Warm clothing or blanket
- List of appropriate contact numbers
- Bottled water
- Waterproofs / Wellington boots
- Non-perishable food

The up to date EA procedural levels should be read and understood by all occupiers.

9.5 Annual Monitoring

It is recommended that Tenants contact the EA on an annual basis to confirm the flood status of the property.

If the flood status has changed, the evacuation and refuge plan should be reviewed and updated by suitable flood risk consultants as appropriate.

9.6 Surface Water Runoff – Flood Risk from the Development

In accordance with the NPPF, this FRA also considers the risks posed from the development to surrounding areas.

Site is change of use and there will be no increase in impermeable areas; hence the 40% for new climate change allowances is not applicable.

Where new white goods units are required, the proposals will incorporate new low-water demand devices (Building Regs requirement regardless) such that the increase in peak flow and volume of flow is likely to be negligible.

Given no change of flood risk vulnerability, it is considered likely that the development will have no tangible effect on surrounding infrastructure. There will not be any significant increase in overland flow from the site.

9.7 Climate Change including Govnt new allowances (Feb 2016)

The impact of climate change in accordance with the NPPF is likely to be an increase in the rainfall intensity in the future, which will increase peak storm flows to sewer.

The scheme, where such new elements are required, will incorporate low flush and reduced water demand showers and toilets, such that the combined flows to sewer are likely to have a negligible impact. It is considered therefore that flows in the future are not likely to have a significant impact, even with an allowance for climate change.

There is unlikely to be an unacceptable impact on the receiving sewers owing to the small scale of the development.

The EA data incorporated likely increases in flood levels including an accommodation for climate change.

9.8 Flood Risk Vulnerability

The proposal is an MOT test centre i.e. retaining a “Less Vulnerable” use.

The NPPF also retained Flood Risk Vulnerability and Flood Zone “Compatibility” Classification this states that a “Less Vulnerable” development in Flood Zone 2 (or FZ3 in fact) does not require the Exception Test to be passed.

Based on the data reviewed to date, the flood risk assessment recommends the property can be constructed and continue to be operated safely in flood risk terms without increasing flood risk elsewhere: NPPF / PPG compliant.

10.0 Conclusion

The site is considered to be generally at a low risk from all sources of flooding except for future extreme fluvial flood events; the EA website map and SFRA indicate the site is in Flood Zone 2. The scheme is a change of use but for continued “Less Vulnerable” use in accordance with the NPPF; it is therefore an appropriate type of development within Flood Zone 2 (and FZ3 and 1) without the need to pass the Exception Test.

Access and egress to FZ1 is also in LOW hazard areas with access to FZ1 immediately.

The proposed scheme can incorporate suitable flood resilient measures.

Based on the likely flooding risk, it is considered that the proposed development can be constructed and continued to be operated safely in flood risk terms, without increasing flood risk elsewhere and is therefore appropriate development in accordance with the NPPF/PPG 2015.

It is recommended that the property signs up to the EA Flood Warning scheme.

10.1 Recommendations for Further Work

1. If more up to date flood levels are available, the residual risk should be re-evaluated

11.0 Appendices

- A. Site Location & Ex Plans
- B. Proposed Development Plans

Appendices A & B