



Red & Yellow Specialist Extra Care Melliss Avenue - Kew

FRA Checklist
October 2018





The attached Flood Risk Assessment Checklist has been submitted as part of the Planning Application for the proposed Specialist Extra Care facilities at Melliss Avenue, Kew. This document is to be read in conjunction with AKT II Flood Risk Assessment dated October 2018.

PURPOSE - Why is a checklist needed?

Applicant (external): This checklist sets out what information is required from the applicant to enable the Development Management Team at Richmond to assess the suitability of the proposals against national, regional and local flood risk policy. Each tab provides the applicant with space to cross-reference the information required for assessment to the supporting Flood Risk Assessment. This will enable checks to be made to ensure that all of the required information is included. The template includes information on these policies and links to where additional information can be found.

London Borough of Richmond upon Thames (internal): The purpose of this checklist is to provide the Development Management Team at Richmond a consistent basis for review and assessment of Flood Risk Assessments (FRAs). While the review and assessment of FRAs is primarily done by the Environment Agency (EA), they focus on Fluvial and Tidal risks only - with the remaining sources of flood risk (groundwater, sewer, surface water and ordinary watercourses) being assessed by the Local Authority since 2010.

In addition, the EA review comments on FRAs do not include local planning policies specific to Richmond. As a result of this, Richmond officers need to complete full reviews of FRAs to ensure local policy is being implemented appropriately - particularly with regard to development of basements within areas at risk of flooding. This checklist provides general guidance on review of FRAs coupled with detailed guidance on assessments of applications with basements.

Notes to internal and external users:

Grey cells are automatically populated and should remain untouched.

All other boxes should be populated in order for a full assessment to be carried out as per the instructions given in tab 3. *Flood Risk Classification*.

Boxes or tabs labelled as '*for internal use only*' should be left empty by the applicant filling in the checklist.

Hyperlinks are provided so that additional information can be found in order to aid the completion of this checklist.

A glossary can be found in tab 10. *Glossary* for clarification of technical terms used within this checklist.

The information for the checklist should be inputted by the applicant (external) and supported by a FRA. The London Borough of Richmond upon Thames' reviewing officer (internal) will not go and find missing information if it is not provided in the submission.

Pre-application discussions with the Environment Agency

The Environment Agency encourages early pre application discussions to ensure environmental issues and opportunities are considered early in the planning process especially for sites next to rivers or in high flood risk areas. They can provide a free preliminary opinion if you complete this form and return to kslplanning@environment-agency.gov.uk.

For more detailed advice and review of draft reports this is chargeable at £84 per hour. As part of the charged service (£84 per hour) they will provide professional planning expertise and technical feedback to developers, to help to ensure they include all of the relevant information in planning application submissions. They will provide a dedicated project manager to co-ordinate advice from different environmental disciplines, and provide technical advice and other support, as necessary. Please contact them at: kslplanning@environment-agency.gov.uk

Pre-application discussions with Richmond Council

Richmond Council can provide clear and professional advice to individuals or businesses who are considering applying for planning permission. There are two types of advice:

- (1) Information on process - If you would like advice on the application process and procedures. Please note this service does not offer advice on the acceptability of a scheme.
- (2) Formal pre-application service - This service is chargeable, and provides informal officer advice on a specific scheme. The fee is dependent on the type of advice you would like and the size of the development.

Visit the following website for more information:

<http://www.richmond.gov.uk/services/planning/pre-applications>

Tab: For internal use only



SECTION 1. Summary			
Assessment Summary Comments			
<u>Risk Summary</u>			
Fluvial & Tidal - Flood Zone	Flood Zone 3a	Surface Water	Low
Fluvial & Tidal - Defences	Defended	Groundwater	potential flooding of property at surf
Tidal Breach - Hazard	Extreme	Sewer	No data provided
Fluvial - Hazard	No data provided	Reservoir and artificial	Not in maximum extent
Fluvial & Tidal Flood Risk	[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]		
Surface Water Flood Risk	[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]		
Groundwater Flood Risk	[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]		
Additional Flood Risk	[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]		
Basements	[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]		
Decision and Justification			
We recommend (approval / refusal) [delete as appropriate] of the application for the following reasons [if refused]:			
1. Reason 1 2. Reason 2 etc.			
To overcome our refusal, please submit information which:			
- Shows... - Demonstrates... - Justifies...			
Conditions (only use if application is approved)			
[Only propose conditions if the application is recommended for approval - i.e. only minor omissions that can be addressed at a later stage]			



SECTION 2. Application Information					
Location:	Street Address:	Melliss Avenue	National grid reference:	519780	Northing
	Postcode:	TW9 4BD		176910	Easting
Reference number (if known):					
Date reviewed (for internal use only):					
Name of reviewer (for internal use only):					
Existing site description (including vulnerability classification): https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-2-Flood-Risk-Vulnerability					
Development proposal (including vulnerability classification):		Former Thames Water Biothane treatment plant associated with Stag Brewery.			
Will the proposals change the nature or times of occupation or use, such that it may affect the degree of flood risk to these people? If this is the case, describe the extent of the change.		Redevelopment of the site to provide a specialist extra care facility (C2 Use Class) for the elderly comprising of 89 residential units.			
Does the development include a basement?		No			
If so, is it self-contained?					
What is the expected or estimated lifetime of the proposed development likely to be?		60 years			



SECTION 3. Flood Risk Classification			
Flood Risk Type	Further Information	Outcome (Select from drop-down menu)	Section(s) for Completion
Tidal and fluvial - what Flood Zone is the site within?	Environment Agency's flood map for planning: https://flood-map-for-planning.service.gov.uk/ Strategic Flood Risk Assessment (see Figures 1-11): http://www.richmond.gov.uk/flood_risk_assessment	Flood Zone 3a	If more than one Flood Zone / hazard rating occurs within the applicants site, then choose the most conservative of the two.
Flood Defences - is the site defended or undefended?	Environment Agency's flood map for planning: https://flood-map-for-planning.service.gov.uk/	Defended	
Tidal defence breach hazard - what hazard rating is the site given?	Strategic Flood Risk Assessment (see Figures C1-3): http://www.richmond.gov.uk/flood_risk_assessment	Extreme	If development is in Flood Zone 3b and includes a basement, planning permission should not be granted and the application should not progress. If development is in Flood Zones 2, 3a or 3b (without a basement), complete Section 4 .
Fluvial flood hazard - what hazard rating is the site given?	Strategic Flood Risk Assessment (see Figures C4-10): http://www.richmond.gov.uk/flood_risk_assessment	No data provided	
Surface water - what risk is the site given?	Environment Agency's flood map: https://flood-warning-information.service.gov.uk/long-term-flood-risk	Low	If development is in an area of high, medium or low risk, then select the most conservative and complete Section 5 .
Groundwater - what potential to flood is the site given?	Strategic Flood Risk Assessment (see Figure E): http://www.richmond.gov.uk/flood_risk_assessment	Potential flooding of property at surface	If development is in an area with potential to be susceptible to groundwater flooding, complete Section 6 .
Sewer - is there a known risk of sewer flooding at the site?	Applicant can consult with Thames Water to find out whether there are any records of sewer flooding. Strategic Flood Risk Assessment (See Figure I): http://www.richmond.gov.uk/flood_risk_assessment	No data provided	If a development is at risk of sewer, reservoir or from artificial sources, complete Section 7 .
Reservoir and artificial sources - is the site at risk?	Environment Agency's flood map: https://flood-warning-information.service.gov.uk/long-term-flood-risk	Not in maximum extent	

SECTION 4. Fluvial and Tidal Flood Risk						
Considerations	Summary of information from Flood Risk Assessment			Reference to Flood Risk Assessment (page number and/or section details)	Assessment Comments (for internal use only)	Information
Flood Zone	Flood Zone 3a			AKTII FRA October 2018 - Section 6.	Flood Zone 3a Defended	Automatically populated from Section 3.
Fluvial flood hazard rating	Very low			Section 6.3.	No data provided	
Tidal Defence Breach hazard rating					Extreme	
Has the latest flood model been used and a Product 4 included from the EA (including location/status of flood defences)?	Yes			Appendix 3.		Request detailed flood map from kslenquiries@environment-agency.gov.uk
How far is the proposed development from any flood defence structures / rivers edge ?	approx. 45m.			Section 3.		FRA and plans clearly show distance to flood defence and river. New Richmond local plan policy aims to increase distance from rivers edge/flood defence i.e 16 metres for tidal Thames and 8 meters for main river (e.g. Beverley Brook). It is <u>essential</u> to consult the Environment Agency for any proposed development within 20 metres of a flood defence/river edge.
Is the sequential test required (reviewer, select from drop-down menu) ?	Yes			Section 6.1.		<p>The sequential test is required if a development is proposed for Flood Zones 2 and 3. See information in the NPPG at: https://www.gov.uk/guidance/flood-risk-and-coastal-change#sequential-approach</p> <p>The sequential test will not be required if it is NOT a major development AND at least one of the following applies:</p> <ul style="list-style-type: none"> - It is a Local Plan proposal site that has already been sequentially tested, unless the use of the site being proposed is not with the allocations in the Local Plan - It is within a main centre boundary as identified within this Local Plan (Richmond, Twickenham, Teddington, Whitton and East Sheen) - It is for residential development or a mixed use scheme and within the 400 meter buffer area identified within the Plan or surrounding the centres referred to above. - Redevelopment of an existing single residential development - Conversions and change of use <p>See the Council's Local Plan Policy LP 21 at: http://www.richmond.gov.uk/local_plan.</p> <p>https://www.gov.uk/guidance/flood-risk-and-coastal-change#aim-of-Sequential-Test</p> <p>https://www.gov.uk/guidance/flood-risk-and-coastal-change#Sequential-Test-to-individual-planning-applications</p>
Sequential Test - if yes to above question, what other locations with a lower risk of flooding have been considered for this development? If none, what are the reasons for this?	None. Development in proposed in a developed area.			Section 6.1.		https://www.gov.uk/guidance/flood-risk-and-coastal-change#aim-of-Sequential-Test
Is the Exception Test required (reviewer, select from drop-down menu)?	Yes			Section 6.2.		<p>The Exception Test is required when a vulnerable development is proposed for an area at risk as per the NPPG: https://www.gov.uk/guidance/flood-risk-and-coastal-change#The-Exception-Test-section</p> <p>https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/575184/Table_3_-_Flood_risk_vulnerability_and_flood_zone_compatibility.pdf</p> <p>https://www.gov.uk/guidance/flood-risk-and-coastal-change#The-Exception-Test-section</p> <p>https://www.gov.uk/guidance/flood-risk-and-coastal-change#Exception-Test-for-specific-development-proposals</p>
Exception Test - if yes to above questions, what evidence is there that the development has wider sustainability benefits and is safe over its lifetime without increasing flood risk elsewhere?	Shortfall of modern appropriate housing for the elderly. Enhancement of the metropolitan open land.			Section 6.2.		https://www.gov.uk/guidance/flood-risk-and-coastal-change#Exception-Test-for-specific-development-proposals
How is flood risk likely to be affected by climate change? (i.e. how will climate change impact predicted flood risk?)	EA recommends future defence level of 6.70m AOD.			Appendix 3.		<p>Advice on how to take account of climate change can be found at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances</p>
What is the predicted level of the design flood? If the site is <u>defended</u> , populate the <u>defended box only</u> If the site is <u>undefended</u> , populate the <u>undefended box only</u>	Fluvial - defended:	6.07	m AOD			<p>The fluvial design flood should be that of a 1% chance in any one year event with the appropriate allowance for climate change (if the required climate change flood scenario data is not available, then the applicant can estimate this from currently available information - the approach used must be reviewed and accepted by the Environment Agency) .</p> <p>The tidal defence breach design flood level is the year 2100 scenario from the TE2100 study for the closest / worst case breach location to the site.</p> <p>This information must be sourced from the Environment Agency (Product 4 dataset) or derived using site specific modelling that has been reviewed & accepted by the Environment Agency.</p>
Fluvial - undefended:		m AOD				
Tidal Defence Breach:	6.09	m AOD				
If the buildings proposed as part of the development flood during design flood conditions - provide the relevant depths (enter N/A if buildings do not flood)	Fluvial:	n/a	m			If the buildings are anticipated to flood and the development is not 'water-compatible', then it should be refused.
Tidal Defence Breach:	1.5	m				

SECTION 4. Fluvial and Tidal Flood Risk				
Considerations	Summary of information from Flood Risk Assessment	Reference to Flood Risk Assessment (page number and/or section details)	Assessment Comments (for internal use only)	Information
How will the development be made safe from flooding and the impacts of climate change, for its lifetime?	All of the habitable accommodation will be provided at first floor level and above. There will be a Flood Warning and Evacuation Plan in place. It is intended where possible to utilise flood resilient construction techniques.	Section 7.1.		For example, providing compensatory flood storage which has been agreed with the Environment Agency, flood resilient design for the buildings and / or appropriate flood evacuation measures (a flood evacuation plan - this must be reviewed and accepted by the Emergency Planning Team) https://www.gov.uk/guidance/flood-risk-and-coastal-change#development-made-safe-from-flood-risk https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-resilience-and-flood-resistance
How has it been ensured that the development and any flood protection measures will not cause any increase in flood risk off-site and downstream?	Not applicable as the site is not located within the fluvial flood zone.	Section 6.		Have the levels of the site changed? If yes, has the applicant demonstrated how they will mitigate any increase if flood risk upstream or downstream from the site? The Environment Agency requires any loss of fluvial flood zone storage to be prevented, known as 'compensation storage'. If such an instance occurs, ensure the EA have been consulted and commented on this matter.
What flood related risks will remain after the flood risk mitigation measures have been implemented? (residual risks)	Not applicable as the site is in the defended zone.			Residual risks are those that remain after mitigation measures have been implemented. For example, the finished floor level might be set above the 1% chance event - but the applicant also needs to assess what happens during a 0.1% chance event (such as providing appropriate evacuation routes)
How, and by whom, will these risks be managed over the lifetime of the development?	There will be a Flood Warning and Evacuation Plan in place.	Section 7.1.		For example, signing up to receive flood warnings and setting up an evacuation plan. Visit the following link for information: https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-warning-and-evacuation-plans
Additional applicant comments:				
Case officer assessment considerations (for internal use only):				
1 Is the land use (with associated vulnerability classification) suitable for the sites corresponding fluvial / tidal flood risk? https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/575184/Table_3_-_Flood_risk_vulnerability_and_flood_zone_compatibility_pdf				
2 Is there an appropriate freeboard (a minimum of 300mm above the 1% chance in any one year event with an allowance for climate change fluvial flood level OR a minimum of 600mm above the 1% AEP fluvial flood level should be adopted if no climate change flood level data is available for a specific location) between the design flood level and the finished ground floor level / access route?				
3 Will occupants be able to safely exit the property if a flood event was to occur?				
4 Has the application considered the impacts of climate change and proposed measures which will make the development safe for its lifetime?				
Summary comments (for internal use only) linked to Summary Tab:				
[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]				

SECTION 5: Surface Water Flood Risk				
Considerations	Summary of information from Flood Risk Assessment	Reference to Flood Risk Assessment (page number and/or section details)	Assessment Comments (for internal use only)	Information
Flood risk:	very low	Section 6.7.	Low	Automatically taken from Section 3.
How is flood risk at the site likely to be affected by climate change?	Attenuation has been provided for all events and up to including 1 in			Advice on how to take account of climate change can be found at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances
What is the expected flood depth at the site due to a rainfall for all event risk bands within the site?	High risk 0 mm	Section 6.7.		This may be provided as a depth range (e.g. 300mm to 900mm - if so, select the upper part of this range to assess surface water flood risk)
	Medium risk 0 mm			
	Low risk 0 mm			
Are properties expected to flood internally due to a rainfall with a 1% chance of occurring in one year (High Risk) and if so, to what depth?	No.	Section 6.7.		
	0 mm			
How will the development be made safe from flooding and the impacts of climate change, for its lifetime?	Building will be elevated above the surrounding street levels by approx. 0.6m.	Section 6.7.		For example, providing flood resilient buildings. Further guidance: https://www.gov.uk/guidance/flood-risk-and-coastal-change#development-made-safe-from-flood-risk https://www.gov.uk/guidance/flood-risk-and-coastal-change#Flood-resilience-and-flood-resistance
How has it been ensured that the development and any flood protection measures will not cause any increase in flood risk off-site and downstream?	Attenuation has been provided for all events and up to including 1 in 100 year event + 40% CC.	Section 8.3.		Have the impacts of climate change, over the expected lifetime of the development been taken into account?
What flood related risks will remain after the flood risk mitigation measures have been implemented? (residual risk)	The site is at very low risk of surface water flooding.	Section 6.7.	Are the residual risks acceptable?	
How, and by whom, will these risks be managed over the lifetime of the development?	SuDS maintenance strategy will be in place.			For example, setting up an evacuation plan. Visit the following link for information: https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-warning-and-evacuation-plans
Additional applicant comments:				
Case officer assessment considerations (for internal use only):				
1 Note that the management of surface water runoff should be assessed by the Richmond LLFA Officer (this assessment applies to surface water flood risk only)				
Further guidance can be found: http://www.richmond.gov.uk/sustainable_drainage_systems.pdf				
2 Are the building floor levels set generally more than 150mm above the surrounding ground levels or above the predicted 'high risk' surface water flood depth? (whichever is greater)				
3 Will occupants be able to safely exit the property if a flood was to occur?				
Summary comments (for internal use only) linked to Summary Tab:				
[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]				



SECTION 6: Groundwater Flood Risk					
Considerations	Summary of information from Flood Risk Assessment		Reference to Flood Risk Assessment (page number and/or section details)	Assessment Comments (for internal use only)	Information
Flood risk:	low		Section 6.5.	Potential flooding of property at surface	Automatically take from Section 3 .
At what level is the water table?	0	mAOD	Section 6.5.		This varies throughout the seasons so use the wettest scenario that is not flood conditions - it may also be provided as a depth below ground.
Is the water table above the basement floor level? Is groundwater ingress likely?	N/A - No basement is proposed.		Section 2.		Refer Section 2 .
Is the site within 100m of a watercourse? (Main River or Ordinary Watercourse) Or permanent water body? (pond or lake) If yes - state the names of the relevant water features	River Thames				Close proximity to water bodies can elevate the local groundwater table and increase the risk of groundwater flooding.
What geological / superficial deposit formation is the basement located in?	N/A				Refer to the SFRA - Figure B (link below). Permeable superficial deposits (gravels and alluvium) are more likely to have groundwater flooding and / or displacement issues. http://www.richmond.gov.uk/figure_b_geology.pdf
Will groundwater displacement negatively impact surrounding properties or infrastructure?	N/A				<p>The applicant should address this issue by providing a <i>Screening Assessment</i> (as a minimum) that either confirms low risk of impacts (and therefore no further work is needed) or advises the level of impact and the associated mitigation actions proposed.</p> <p>The assessment must be prepared by an individual who is a Hydrogeologist and holds one or more of the following qualifications:</p> <ul style="list-style-type: none"> - Chartered Member of the Geological Society - Registered Ground Engineering Professional (with the Institute of Civil Engineers) <p>The <i>Screening Assessment</i> must include the following as a minimum requirement:</p> <ul style="list-style-type: none"> - Description of the proposed basement development - Construction methods proposed - Characteristics of potential impacts (including the impact on soils, land use, water quality and hydrology with descriptions of the nature & scale of impacts and the extent of the impacted area) - Details of mitigation measures (where appropriate)
What measures are proposed to manage the risk? (groundwater flooding and any other negative impacts identified in the Screening Assessment)	N/A				<p>For example, non-return valves, pumps, tanking, perforated pipes and gravel drainage blankets can be installed to reduce the risk to underground structures. Further options for mitigation of groundwater flooding can be found:</p> <p>http://www.local.gov.uk/sites/default/files/documents/environment-agency-option-6f9.pdf</p>

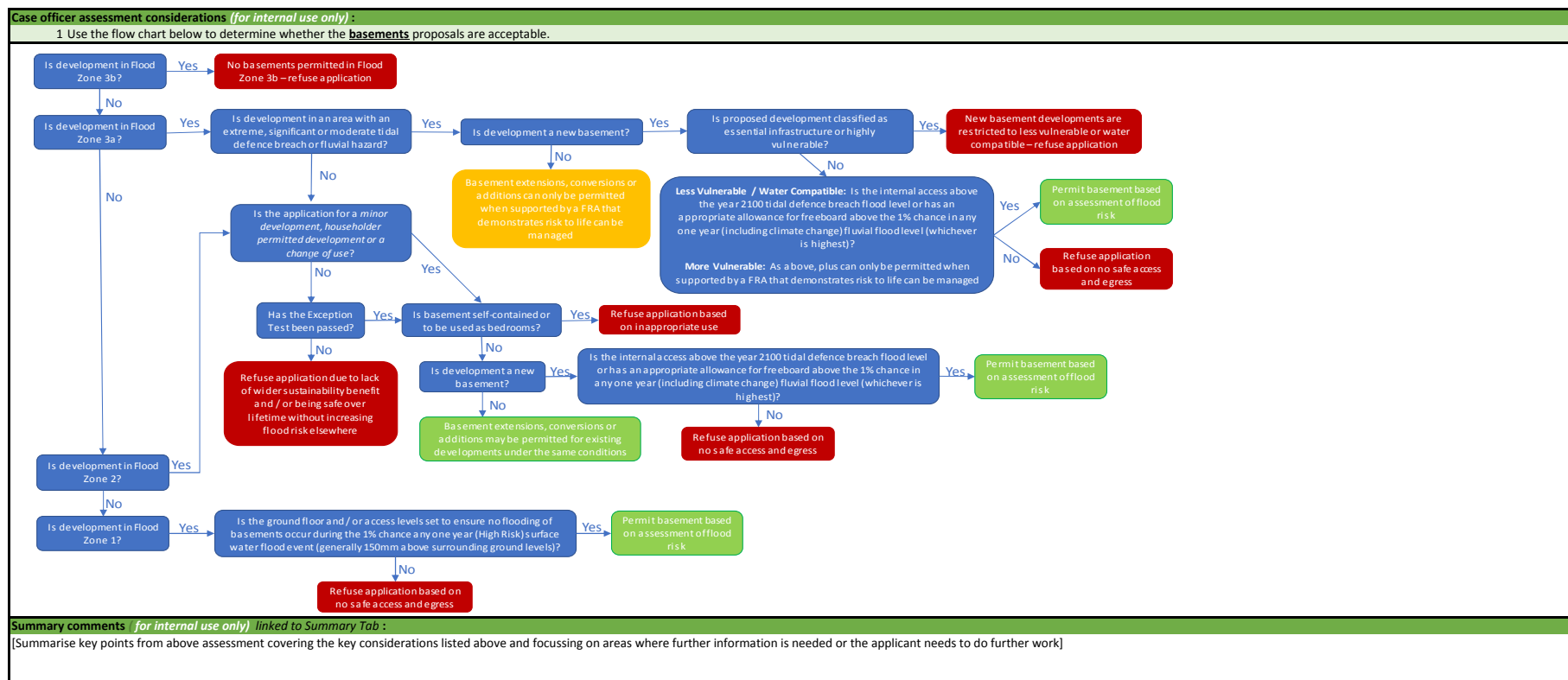
SECTION 6: Groundwater Flood Risk				
Considerations	Summary of information from Flood Risk Assessment	Reference to Flood Risk Assessment (page number and/or section details)	Assessment Comments (for internal use only)	Information
What flood related risks will remain after the flood risk mitigation measures have been implemented? (residual risk)	N/A		Are the residual risks acceptable?	
How, and by whom, will these risks be managed over the lifetime of the development?	N/A			
Additional applicant comments:				
Case officer assessment considerations (for internal use only) :				
1 Have the necessary measures been put in place to mitigate groundwater flood risk to the property and adjacent properties?				
Summary comments (for internal use only) linked to Summary Tab :				
[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]				



SECTION 7. Additional Sources of Flood Risk				
Considerations	Summary of information from Flood Risk Assessment	Reference to Flood Risk Assessment (page number and/or section details)	Assessment Comment: (for internal use only)	Information
Sewer flood risk:	Low	Section 6.4.	No data provided	Automatically take from Section 3.
Reservoir and artificial sources of flood risk:	Very Low	Section 6.6.	Not in maximum extent	
What measures are proposed to manage the risk?	N/A			
What flood related risks will remain after the flood risk mitigation measures have been implemented?	Maintenance of on-site and public drainage systems.			For example, non-return valves to prevent backflows and pumped systems to manage sewerage.
How, and by whom, will these risks be managed over the lifetime of the development?	SuDS maintenance strategy will be in place.			For example, setting up an evacuation plan. Visit the following link for information: https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-warning-and-evacuation-plans
Additional applicant comments:				
Case officer assessment considerations (for internal use only):				
1 Have the necessary measures been put in place to appropriately manage sewer and artificial sources of flood risk?				
Summary comments (for internal use only) linked to Summary Tab:				
[Summarise key points from above assessment covering the key considerations listed above and focussing on areas where further information is needed or the applicant needs to do further work]				



SECTION 8. Basements				
Considerations	Summary of information from Flood Risk Assessment	Reference to Flood Risk Assessment (page number and/or section details)	Assessment Comments (for internal use only)	Information
Is the basement self-contained?	N/A			If so, the access / egress will need to be assessed separately from the rest of the building. No self-contained basements will be permitted in Flood Zones 2 and 3.
Is there a safe access / egress route above the flood level shown in Box C in Section 9?	N/A			
Are there any points below the worst case flood level (Box C in Section 9) where water could enter the basement?	N/A			If so, permission should not be granted. Checks should be made that the basement is watertight. For example, there should be no airbricks, windows, light wells etc. below the flood level.
What mitigation measures have been implemented?	N/A			Drainage measures such as perforated pipes and gravel drainage blankets can be installed to reduce the risk structures due to groundwater. Non-return valves can help to prevent backflows and pumped systems can manage sewerage. Sustainable Drainage Systems can help prevent surface water flooding issues. Internal staircases may be installed for safe egress. Electricity circuit boards should be located in an area at minimal risk. Lightwells can be constructed with surrounds higher than the design flood level or constructed in way that can resist entry of flood water (for example using smaller glass apertures within a re-enforced concrete slab)
What flood related risks remain after the flood risk mitigation measures have been implemented?	N/A			
How, any by whom, will these risks be managed over the lifetime of the development?	N/A			For example, having a pump, signing up to receive flood warnings and setting up an evacuation plan. https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-warning-and-evacuation-plans
Additional applicant comments:				



SECTION 9. Ground levels

Please fill in the boxes (orange shaded) for the proposed ground levels and finished flood levels below. If the development does not include a basement, complete Figure 1 (boxes A and B). If it does include a basement, complete Figure 2 (boxes A, B and F). Levels should be presented in metres above Ordnance Datum, mAOD.

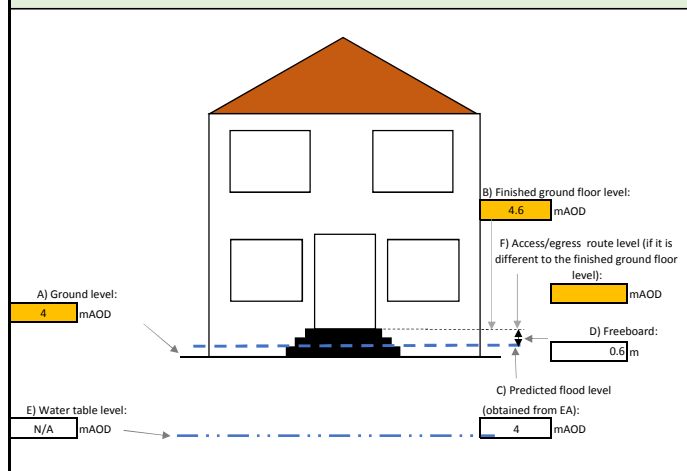


Figure 1. Development with no basement

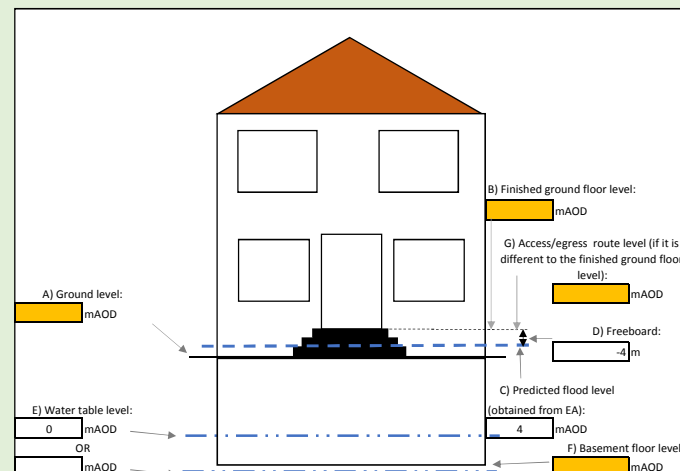


Figure 2. Development with basement

Box C takes the most conservative value from the levels below:

Fluvial design flood level:	0	m AOD
Tidal defence breach flood level:	0	m AOD
Surface water flood level:	4	m AOD



SECTION 10. Glossary	
Term	Definition
Artificial sources	Sources of water which are man made such as reservoirs, lakes and canals.
Basement	The floor of a building which is partly or entirely below ground level. A habitable basement includes rooms which are living, sleeping, eating and cooking rooms. A non-habitable basement is only made up of rooms which are not habitable, such as bathrooms, laundry rooms, closets, storage rooms, <u>equipment rooms and hallways</u>
Design flood	Design floods are hypothetical floods used for planning and floodplain management investigations. In this case, the fluvial design flood should be that of a 1% chance in any one year event with the appropriate allowance for climate change. The tidal defence breach design flood level is the year 2100 scenario from the TE2100 study for the closest / worst case breach location to the site.
Exception Test	Applied in line with Sequential Test in the case where there are no reasonably available sites for a proposed development in Flood Zones 1 or 2 and the suitability of sites in Flood Zone 3 (areas with a <u>high probability of river or sea flooding</u>) <u>needs to be considered</u> .
Finished floor levels	The final level or position of the finished floor, including any tiles, as opposed to the level of the concrete or wood subfloor surface or floor joists.
Fluvial	Flooding caused by rivers.
Freeboard	An allowance for uncertainty in estimating flood levels and for potential wave action (for example, as a result of for example vehicles driving through flood water)
Groundwater	Water held underground in the soil pores and crevices in rock.
Hazard	Hazard is considered to be a combination of risk and probability.
Mitigation	The action of reducing the severity, seriousness or painfulness of something.
Sequential Test	The test ensures that a sequential approach is followed to steer new development to areas with the <u>lowest probability of flooding</u> . Detailed in the National Planning Practice Guidance.
Self-contained unit	A self-contained unit of accommodation is one which has a kitchen / cooking area, bathroom and toilet inside it for the exclusive use of the household living within the unit.
Surface water	Water that collects on the surface of the ground as a result of rainfall or overflow from Ordinary Watercourses.
Water table	The level below which the ground is saturated with water.

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