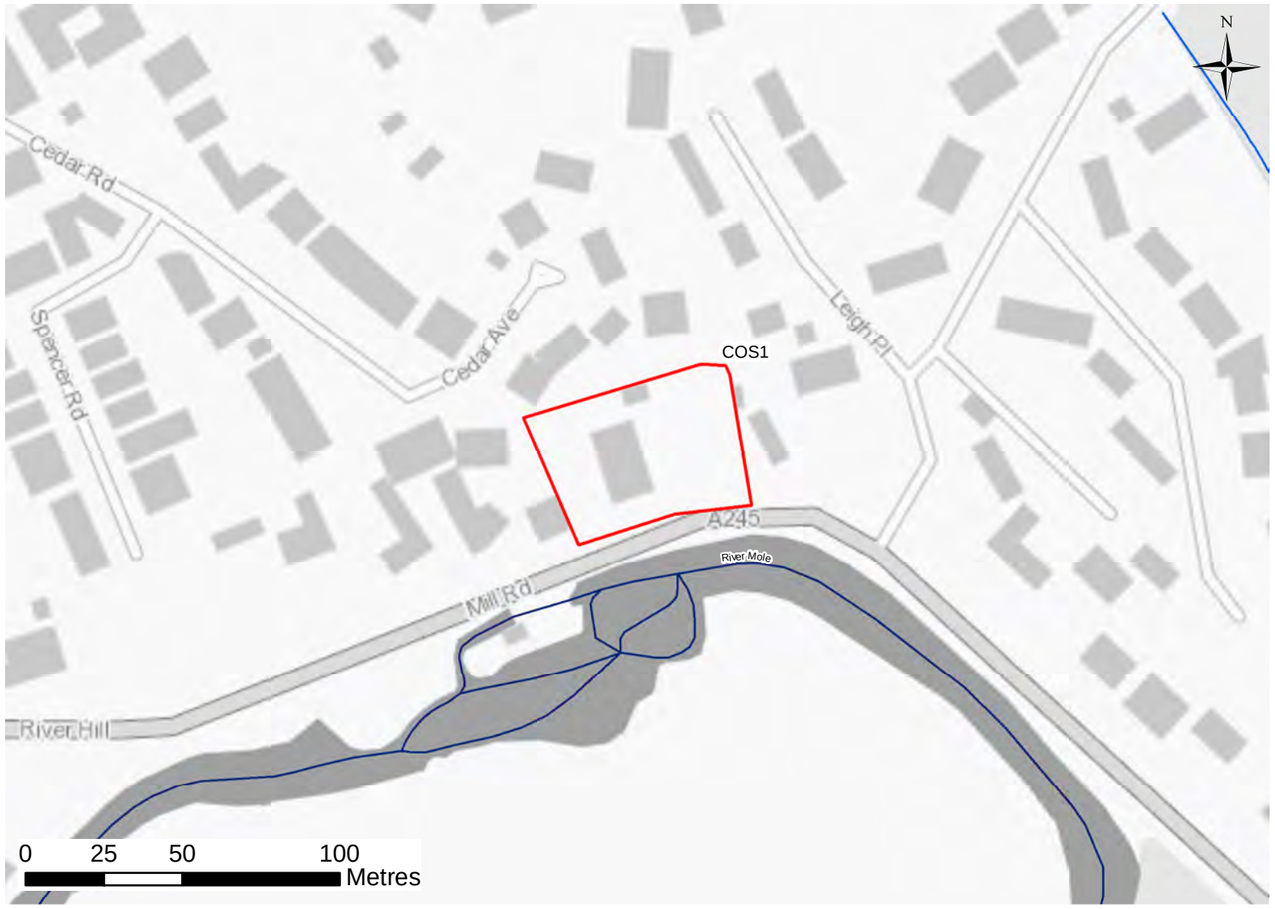
Level 2 SFRA Appendix B

SITE ALLOCATION REFERENCE: COS1	SITE LAA REFERENCE: US492	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.27 ha
SITE NAME: Cedar House, Mill Road, Cobham, KT11 3AL			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE MIDDLE MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 7 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	31%	Flood Zone 2 (0.1% AEP):	69%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Stoke D'Abernon, Cobham and South Hersham

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968, 06 February 1990, December 2013

PROXIMITY TO MAIN RIVER: 16m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 16m **WATERCOURSE NAME:** River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 20, 24 records in Postcode Area KT11 3, KT11 2

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole - Leatherhead to Hersham

SURFACE WATER FLOODING

Low (0.1% AEP):	0%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Secondary A **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Chobham Bagshot Beds

GROUNDWATER BODY: Chobham Bagshot Beds

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	0%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	8%

SITE ALLOCATION REFERENCE	COS1
SITE ADDRESS	Cedar House, Mill Road, Cobham, KT11 3AL

FLOOD RISK SUMMARY

The River Mole is approximately 16m to the south of the site. The majority of the site (69%) is defined as Flood Zone 2, and the remaining 31% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968, February 1990, and December 2013. The site does not lie within a Flood Priority Area.

Modelling for the Middle Mole indicates a small area of flooding on the southern edge of the site, and more notable flooding along A245 Mill Road to the south and west of the site during the design event (1% AEP plus a 25% climate change allowance). Hazard mapping indicates the southern site boundary to have a hazard rating of 'Low' during the design event. Mill Road and River Hill to the west of the site have hazard rating of Significant to Extreme.

Ground levels are approximately 22.45m AOD in the north of the site to around 20.3m AOD in the south of the site. Water levels in the south of the site during the design event are approximately 20.3m AOD.

The Risk of Flooding from Surface Water Map does not indicate the site to be at risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

Part of the site (8%) is at risk of flooding from reservoirs in the event of a breach or failure when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Seven residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development should be steered away from areas within the fluvial design event along the southern edge of the site. If this part of the site is considered for development, level for level and volume for volume floodplain compensation storage must be provided. Refer Level 1 SFRA Section 5.6.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable via A245 Stoke Road to the south and east of the site. (Access to the west, along Mill Road and River Hill is at risk of flooding with a hazard rating Significant and Extreme, and therefore does not provide a safe access route).

- The site is located within the 'River Mole at Stoke D'Abernon, Cobham and South Hersham' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding in the local area.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D2	SITE LAA REFERENCE: US230	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.23 ha

SITE NAME: Car Park south of Southbank, Thorkhill Road, Thames Ditton

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE RIVER RYTHE AND LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

FLOOD ZONES AND HISTORIC FLOOD RECORDS | RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING | RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey | HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated | HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated | HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 7 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	70%	Flood Zone 2 (0.1% AEP):	30%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Rythe between Oxshott and Thames Ditton

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 27m **MAIN RIVER NAME:** River Rythe

PROXIMITY TO NEAREST WATERCOURSE: 27m **WATERCOURSE NAME:** River Rythe

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 22 records in Postcode Area KT7 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Rythe

SURFACE WATER FLOODING

Low (0.1% AEP):	13%	Medium (1% AEP):	6%	High (3.33% AEP):	4%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Unproductive

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

N/A

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: This information is not available for this site.

GROUNDWATER OPERATIONAL CATCHMENT: This information is not available for this site.

GROUNDWATER BODY: This information is not available for this site.

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 21% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	D2
SITE ADDRESS	Car Park south of Southbank, Thorkhill Road, Thames Ditton

FLOOD RISK SUMMARY

The River Rythe runs approximately 27m west of the site and joins the River Thames approximately 240m north of the site. The majority of the site (70%) is defined as Flood Zone 1, and the remaining 30% is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the River Rythe shows that the site is at risk of flooding during the 0.1% AEP event, but not at risk during the design event (1 in 100 year plus 20% climate change).

Modelling for the Lower Thames (Thames Dominated) indicates the north west corner of the site to be at risk of flooding during the design event (1% AEP plus a 35% climate change allowance), with a hazard rating of 'Moderate' on the site. Along Thorkhill Road hazard rating is Significant. Ground levels are approximately 8m AOD in the west of the site to 10.3m AOD in the east. Water levels of approximately 8.7m AOD are indicated in the north west of the site during the design event.

The Risk of Flooding from Surface Water Map indicates a high risk of surface water flooding to the north and west of the site along Thorkhill Road. The site does not lie within a Flood Priority Area.

The BGS Susceptibility to Groundwater Flooding dataset indicates the area is not prone to groundwater flooding.

An area of the site (21%) is at risk of flooding from reservoirs in the event of a breach or failure when river levels are normal and the entire site (100%) is at risk when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Seven residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas in not increased, and where possible reduced. Development should be steered away from those areas at risk from the River Thames in accordance with a sequential approach. If development is proposed in this part of the site, floodplain compensation storage must be provided on a level for level and volume for volume basis for the design event including climate change (refer to Level 1 SFRA Section 5.6).

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable to the north of the site via Southbank and Winters Road, east onto Portsmouth Road and then south onto Windmill Lane. (It is noted that the route west onto Thorkill Road, or west from Winters Gill onto Portsmouth Road are at risk of flooding and not suitable routes).

- The site is located within the 'River Rythe between Oxshott and Thames Ditton' Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D5	SITE LAA REFERENCE: US503	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.07 ha
SITE NAME: 89-90 Woodfield Road, Thames Ditton, KT7 0DS			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE RIVER RYTHE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 7 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	55%	Flood Zone 3a (1% AEP):	45%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Rythe between Oxshott and Thames Ditton

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 71m **MAIN RIVER NAME:** River Rythe

PROXIMITY TO NEAREST WATERCOURSE: 1m **WATERCOURSE NAME:** Tributary of River Rythe

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 22 records in Postcode Area KT7 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Rythe

SURFACE WATER FLOODING

Low (0.1% AEP):	85%	Medium (1% AEP):	17%	High (3.33% AEP):	7%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level,
Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	100%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-17

SITE ALLOCATION REFERENCE	D5
SITE ADDRESS	89-90 Woodfield Road, Thames Ditton, KT7 0DS

FLOOD RISK SUMMARY

A tributary of the River Rythe runs along the northern boundary of the site. The River Rythe is located approximately 71m north of the site. 55% of the site is defined as Flood Zone 2 and the remaining 45% is defined as Flood Zone 3a. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the River Rythe indicates the north and south of the site to be at risk of flooding during a 1% AEP event. Almost the entire site is indicated to be at risk of flooding during the design event (1% AEP plus a 25% climate change allowance). Hazard mapping for the design event defines the centre of the site as 'Low' hazard with areas to the north 'Moderate' to 'Significant' hazard.

Ground levels across the site are approximately 10.7m AOD to 11.5m AOD. Water levels across the site during the design event are approximately 11.5m AOD.

The Risk of Flooding from Surface Water Map indicates the majority of the site to be at low risk of surface water flooding, with areas to the north and east at medium to high risk, which correlate with the areas of river floodplain.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level and groundwater flooding to occur at surface in this area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Seven residential units are proposed for the site. More Vulnerable development (e.g. residential) is only permitted in Flood Zone 3a where it can be demonstrated that the Exception Test is satisfied i.e. (1) that the proposed development will provide wider sustainability benefits to the community that outweigh flood risk, and (2) that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime. The following recommendations are made for this site:

- Retain a 5 metre wide buffer strip alongside Ordinary Watercourses. New development within 8m of an Ordinary Watercourse will require consent from Surrey County Council (as LLFA). Refer Level 1 SFRA Section 5.3.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint. As a result, the built footprint of the new development of the site should not exceed that of the existing development. A review of the existing site by EBC shows that the majority of the site is already developed, and therefore the allocation of this site is not anticipated to increase the building footprint. (Refer to Level 1 SFRA Section 5.6 for details of Floodplain Compensation Storage).

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is not achievable for the site.

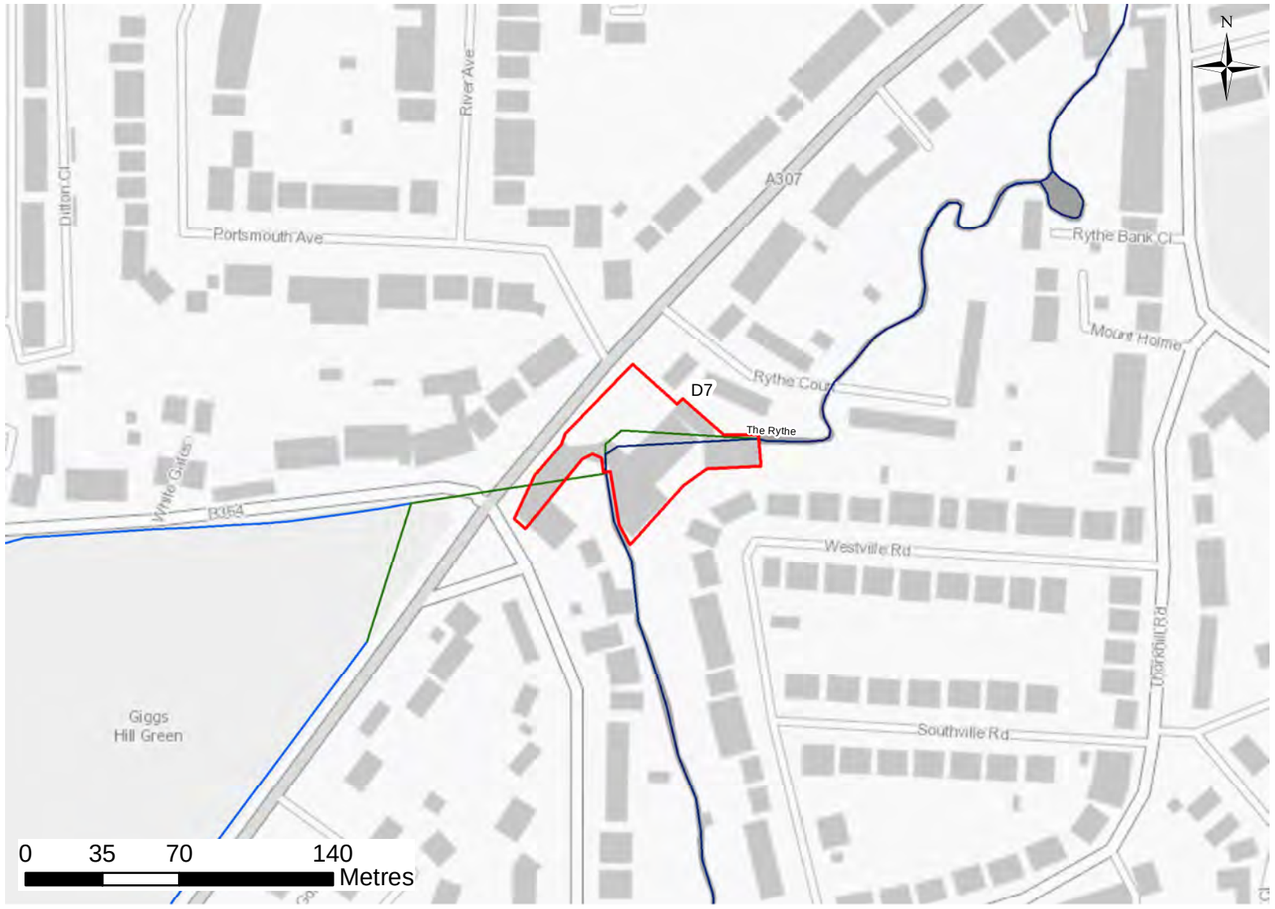
- The site is located within the ‘‘River Rythe between Oxshott and Thames Ditton’’ Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D7	SITE LAA REFERENCE: US443	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.35 ha
SITE NAME: 47 Portsmouth Road			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE RIVER RYTHE AND LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 25 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	99%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	1%

FLOOD WARNING AREA: River Rythe between Oxshott and Thames Ditton

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 0m **MAIN RIVER NAME:** River Rythe

PROXIMITY TO NEAREST WATERCOURSE: 0m **WATERCOURSE NAME:** River Rythe

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 22 records in Postcode Area KT7 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Rythe

SURFACE WATER FLOODING

Low (0.1% AEP):	16%	Medium (1% AEP):	3%	High (3.33% AEP):	1%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Unproductive, Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 42% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	D7
SITE ADDRESS	47 Portsmouth Road

FLOOD RISK SUMMARY

The River Rythe and an Ordinary Watercourse adjoining the Rythe are culverted beneath the site. The River Rythe joins the River Thames approximately 500m north of the site. The majority of the site (99%) is defined as Flood Zone 2, and the remaining 1% as Flood Zone 3b from the River Rythe. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the River Rythe indicates the southern and eastern tips of the site to be at risk of flooding during a 1% AEP plus a 20% climate change allowance event, with these areas having a 'Low' to 'Moderate' hazard rating.

Modelling for the Lower Thames does not indicate the site to be at risk of flooding during a 1% AEP plus a 35% climate change allowance event and therefore has not been assigned a hazard rating from the Lower Thames for the design event.

Ground levels are approximately 10.3m AOD in the north of the site to 9.1m AOD towards the south.

The Risk of Flooding from Surface Water Map indicates low to high probability flood risk in the south and west of the site.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

Part of the site (42%) is at risk of flooding from reservoirs in the event of a breach or failure when river levels are normal. The entire site (100%) is at risk of flooding when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Twenty five residential units are proposed for the site.

More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. More Vulnerable development is not permitted within Flood Zone 3b. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made:

- New development within 8m of a Main River will require consent from the Environment Agency. (Guidance on Environment Agency Flood Risk Activity Permits is available online https://www.gov.uk/guidance/flood-risk-activities-environmental-permits). Opportunities to deculvert the watercourse beneath the site should be explored as part of the development proposals for the site. An 8 metre wide undeveloped buffer strip should be retained alongside Main Rivers. Revised hydraulic modelling would need to be undertaken to determine the design event flood extent once deculverted.

- Development within the design flood extent (1% AEP including central climate change allowance) to the eastern and southern edges of the site must not decrease the available floodplain storage.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable from the north of the site via the A307 southbound.

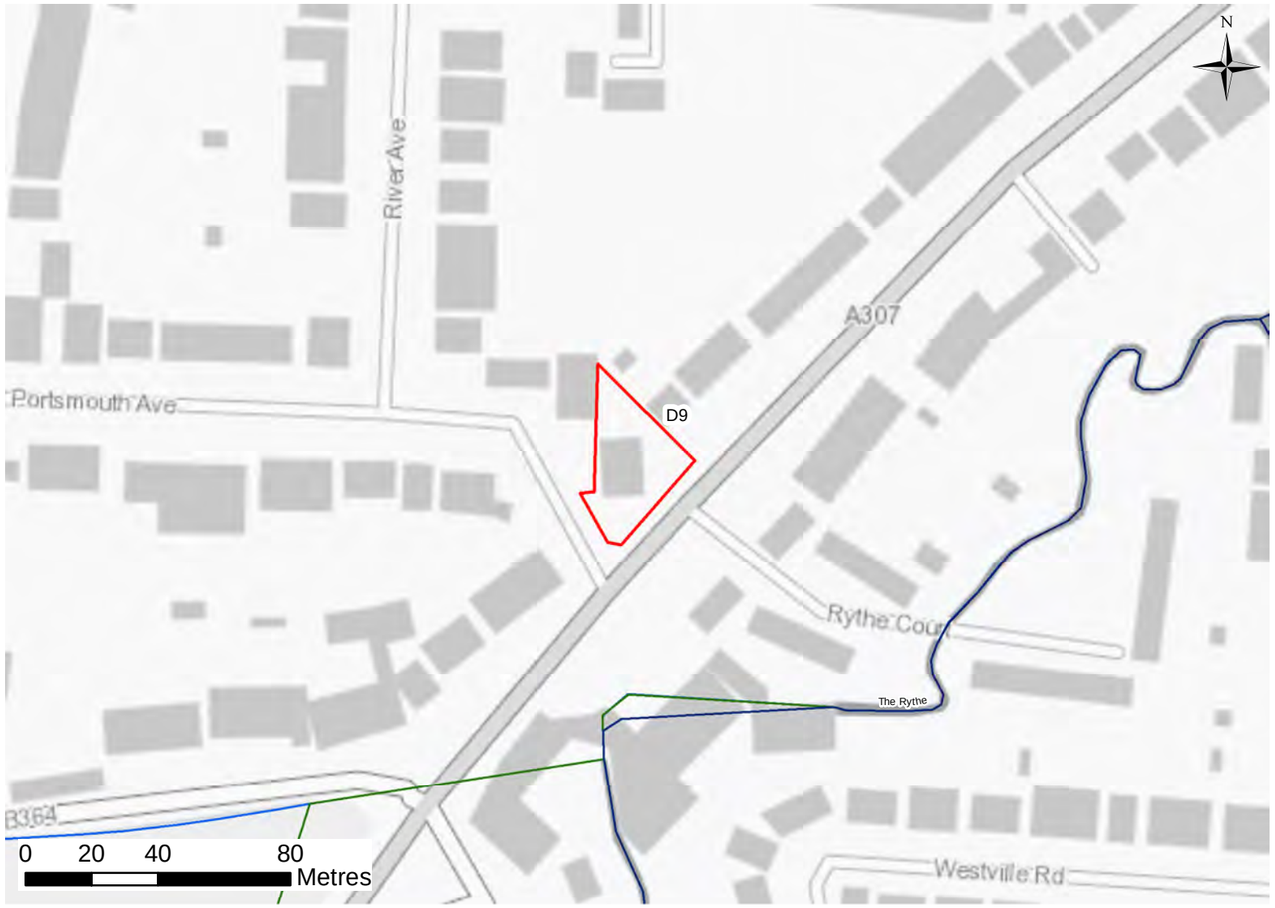
- The site is located within the 'River Rythe between Oxshott and Thames Ditton' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D9	SITE LAA REFERENCE: US495	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.09 ha
SITE NAME: Corner Cottage, Portsmouth Road, KT7 0TQ			



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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 5 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	100%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Rythe between Oxshott and Thames Ditton

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 53m **MAIN RIVER NAME:** River Rythe

PROXIMITY TO NEAREST WATERCOURSE: 45m **WATERCOURSE NAME:** Tributary of River Rythe

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 22 records in Postcode Area KT7 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Rythe

SURFACE WATER FLOODING

Low (0.1% AEP):	2%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Unproductive

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

N/A

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: This information is not available for this site.

GROUNDWATER OPERATIONAL CATCHMENT: This information is not available for this site.

GROUNDWATER BODY: This information is not available for this site.

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	2%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	90%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-18

SITE ALLOCATION REFERENCE	D9
SITE ADDRESS	Corner Cottage, Portsmouth Road, KT7 0TQ

FLOOD RISK SUMMARY

A tributary of the Rythe runs from the south west to the north east of the site, approximately 45m from the site. The entire site (100%) is defined as Flood Zone 2 from the 1968 historic flood outline. Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area. The site does not lie within a Flood Priority Area.

Modelling for the River Rythe and Lower Thames (Thames Dominated) does not indicate the site to be at risk of flooding up to a 1% AEP plus a 20% allowance for climate change and a 1% AEP plus an 35% allowance for climate change respectively, and therefore has not been assigned a hazard rating for the design event.

Ground levels are approximately 10.7m AOD in the north of the site to 9.1m ADO in the east.

The Risk of Flooding from Surface Water Map indicates the south of the site to be at low risk of flooding from surface water, but the A307 adjacent to the site at high risk of surface water flooding and SCC hold records of external property flooding along this road.

The BGS Susceptibility to Groundwater Flooding dataset indicates the site is within an area that is not prone to groundwater flooding. However, to the west, there is potential for groundwater flooding at surface.

A small area of the site (2%) is at risk of flooding from reservoirs in the event of a breach or failure when river levels are normal. The majority of the site (90%) is at risk of flooding when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Five residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. The A307 adjacent to the site is shown to be at high risk of surface water flooding. Consideration should be made of the impact of the development on local surface water flowpaths; proposed development provides an opportunity to contribute towards reducing the risk of surface water flooding along the A307. Developers should explore opportunities to contribute to schemes with SCC (as the LLFA).

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable via the A307 southbound.

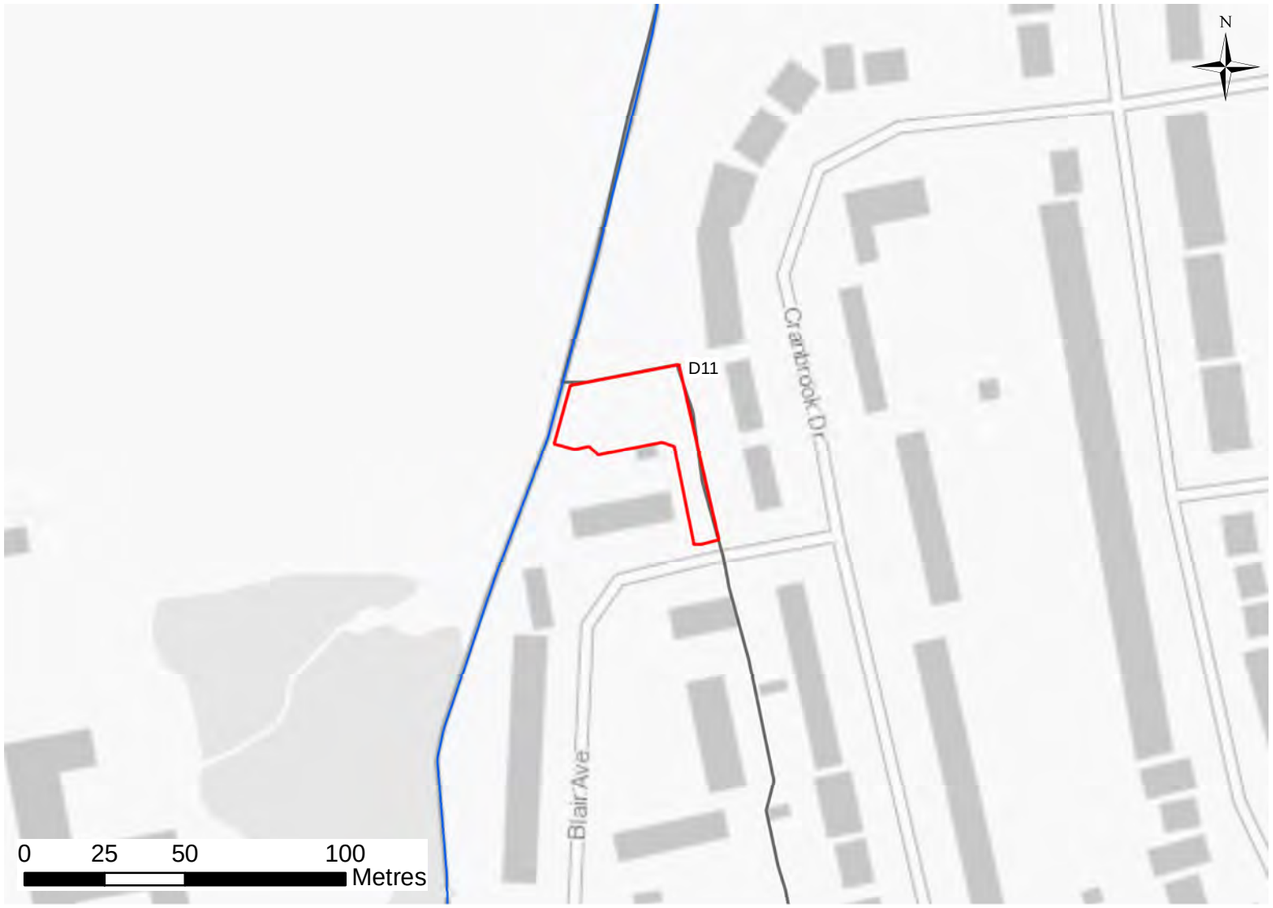
- The site is located within the 'River Rythe between Oxshott and Thames Ditton' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D11	SITE LAA REFERENCE: US158	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.11 ha
SITE NAME: Garages to the rear of Blair Avenue, Weston Green			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 4 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	100%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 458m **MAIN RIVER NAME:** River Ember

PROXIMITY TO NEAREST WATERCOURSE: 2m **WATERCOURSE NAME:** Tributary of River Ember

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 7 records in Postcode Area KT10 8

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	21%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Unproductive

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

N/A

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	D11
SITE ADDRESS	Garages to the rear of Blair Avenue, Weston Green

FLOOD RISK SUMMARY

A tributary of the River Ember runs along the north western site boundary of the site. The River Ember is located approximately 458m north of the site. The entire site (100%) is defined as Flood Zone 2 from both modelling outputs and also its location within the 1968 historic flood outline. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area. The site does not lie within a Flood Priority Area.

Modelling for the Lower Mole indicates flooding across most of the site during the design event (1% AEP plus a 20% climate change allowance). Hazard information is not available for this site and therefore flood depths have been considered. The site is shown to experience flood depths of up to 0.5m during a 1% AEP event including 20% climate change.

Ground levels are approximately 10.8m AOD in the north of the site to around 11m AOD in the south of the site. Water levels in the south west of the site during the design event are approximately 10.9m AOD.

The Risk of Flooding from Surface Water Map indicates flow paths of low probability of flooding from surface water along the eastern and western boundaries of the site.

The BGS Susceptibility to Groundwater Flooding dataset does not indicate the potential for groundwater flooding to occur in this area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Four residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not require. However a site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. As the site and access routes in the local area are at risk of flooding during the design event (1 in 100 year plus climate change) and therefore the following recommendations are made:

- In the absence of hazard mapping for the Lower Mole, maximum depth mapping has been used to assess whether safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable. (Refer also Appendix A Figure 12 for detailed version colour palette for the Lower Mole maximum depth mapping). Depths of up to 0.1m are experienced across the site. Along Cranbrook Drive, flood depths are up to 0.1m, and then there is dry route via Station Road.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Given the risk of flooding to the site and local area, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding, including access routes and places of safety.

- The site is adjacent to a tributary of the River Ember. Mapping shows that this is an Ordinary Watercourse. Retain a 5 metre wide buffer strip alongside Ordinary Watercourses. New development within 8m of a Main River or Ordinary Watercourse will require consent from Surrey County Council (as LLFA). Refer to Level 1 SFRA Section 5.3.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible is reduced. 55% of the site is indicated to be at risk of flooding during the 1% AEP plus 20% climate change event (this provides a conservative estimate for the central climate change allowance of 12% in the Mole catchment). Any increase in built footprint within the design flood extent will need to be compensated for, on a level for level volume for volume basis within the site. (Refer to Level 1 SFRA Section 5.6 for details of Floodplain Compensation Storage).

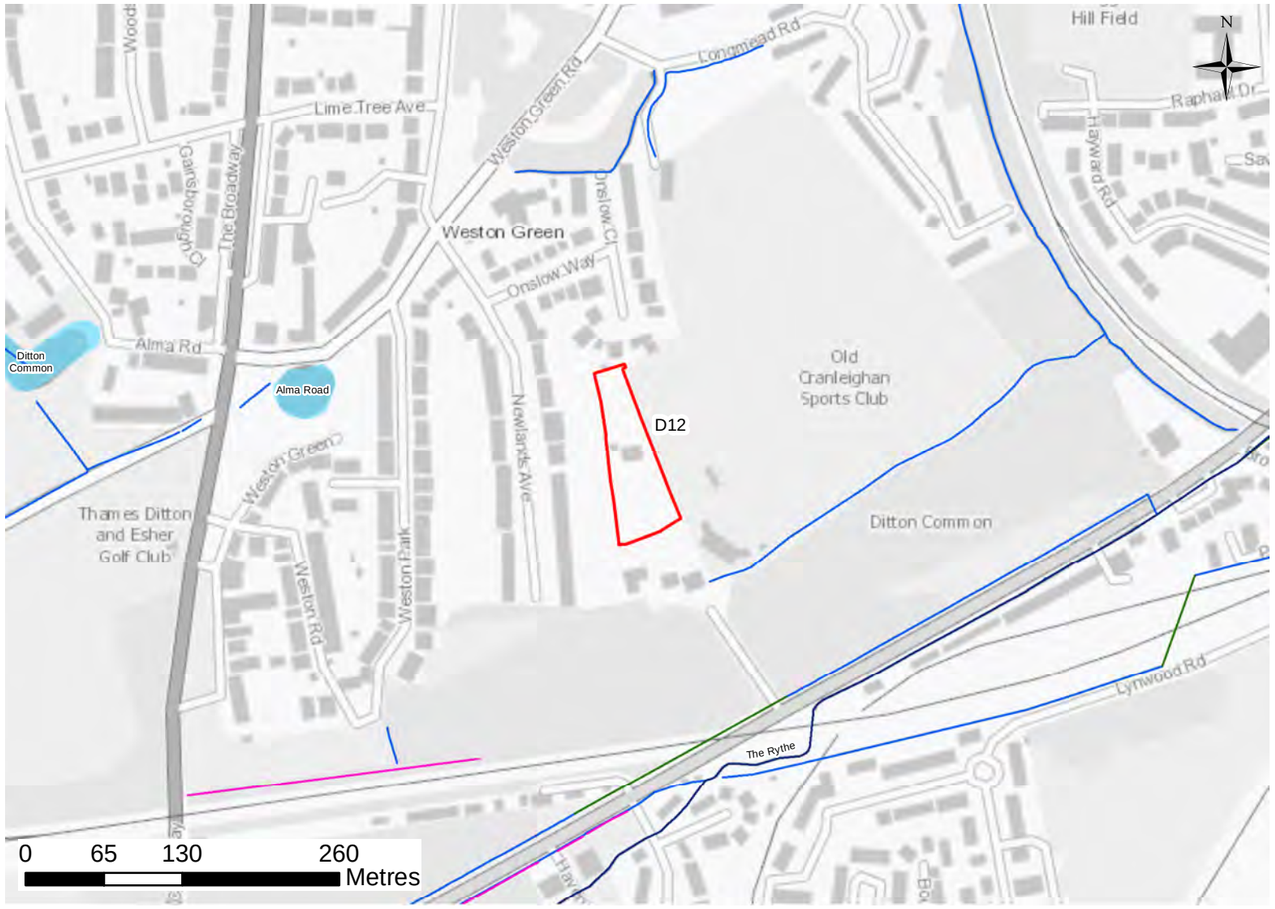
- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D12	SITE LAA REFERENCE: US226	DELIVERY PERIOD: 6 to 10 years	SITE AREA: 0.53 ha
SITE NAME: Sandpiper, Newlands Avenue, Thames Ditton, KT7 0HF			



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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE RIVER RYTHE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 21 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	83%	Flood Zone 2 (0.1% AEP):	17%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Rythe between Oxshott and Thames Ditton

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 191m **MAIN RIVER NAME:** River Rythe

PROXIMITY TO NEAREST WATERCOURSE: 58m **WATERCOURSE NAME:** Tributary of River Rythe

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 22 records in Postcode Area KT7 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	9%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 92% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 99%

SITE ALLOCATION REFERENCE: D15	SITE LAA REFERENCE: US24	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.55 ha
SITE NAME: Flats 9-41 and Garages on Longmead Road, Thames Ditton, KT7 0JF			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE RIVER RYTHE AND LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 37 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	79%	Flood Zone 2 (0.1% AEP):	21%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Rythe between Oxshott and Thames Ditton

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 489m **MAIN RIVER NAME:** River Rythe

PROXIMITY TO NEAREST WATERCOURSE: 7m **WATERCOURSE NAME:** Tributary of River Rythe

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 22 records in Postcode Area KT7 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	4%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level,
Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

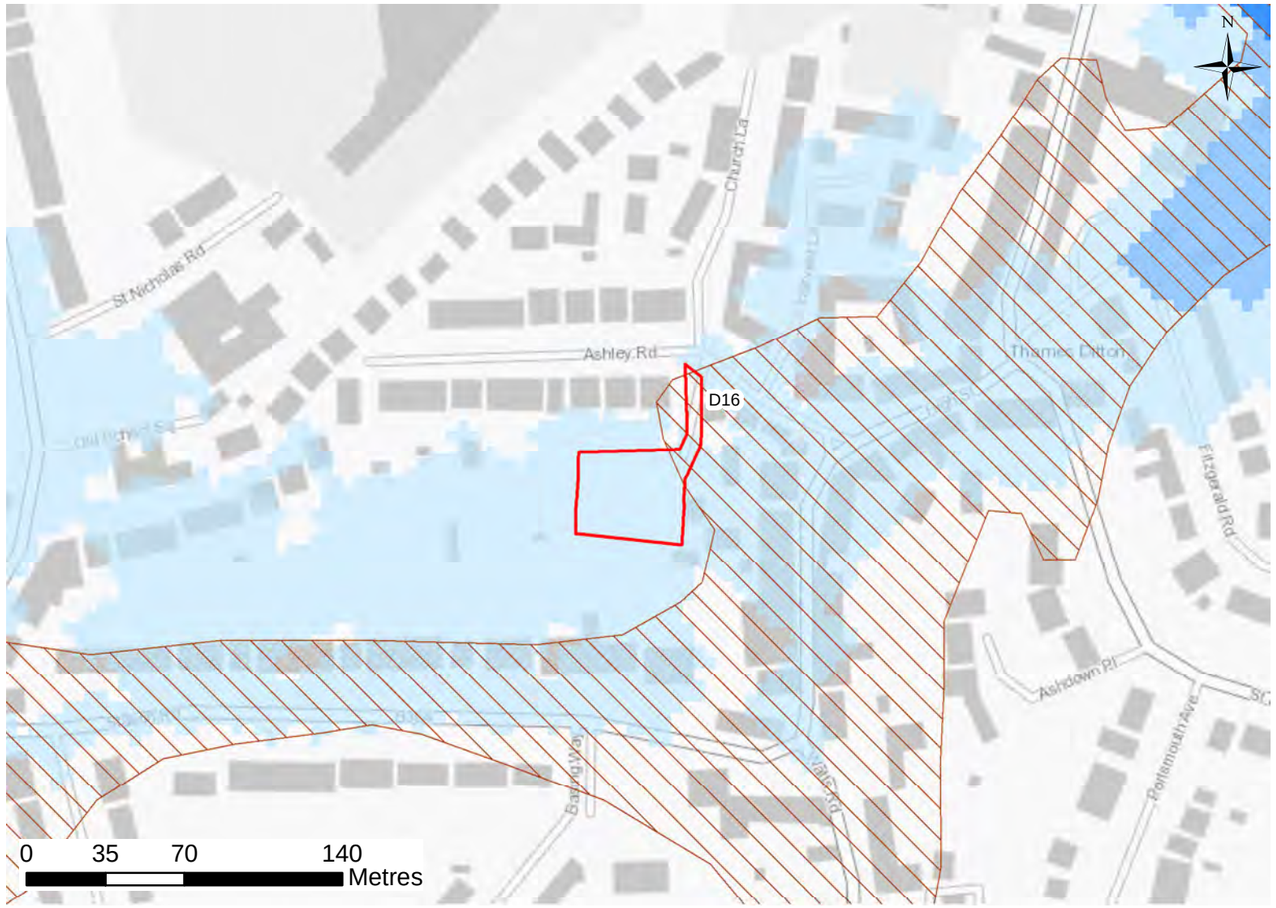
GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 92% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE: D16	SITE LAA REFERENCE: US237	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.21 ha
SITE NAME: Ashley Road Car Park, Thames Ditton			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 14 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	8%	Flood Zone 2 (0.1% AEP):	92%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Thames at Thames Ditton

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 304m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 268m **WATERCOURSE NAME:** Tributary of River Ember

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 22 records in Postcode Area KT7 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury

RIVER OPERATIONAL CATCHMENT: Thames Lower

WATERBODY NAME: Thames (Egham to Teddington)

SURFACE WATER FLOODING

Low (0.1% AEP):	74%	Medium (1% AEP):	36%	High (3.33% AEP):	12%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100%	WHEN THERE IS ALSO FLOODING FROM RIVERS: 100%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-17

SITE ALLOCATION REFERENCE	D16
SITE ADDRESS	Ashley Road Car Park, Thames Ditton

FLOOD RISK SUMMARY

A tributary of the River Ember runs approximately 268m to the west of the site. The River Thames is located approximately 304m north east of the site. The majority of the site (92%) is defined as Flood Zone 2, and the remaining 8% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site to have experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Thames Dominated) indicates the majority of the site to be at risk of flooding during the design event (1% AEP plus a 35% climate change allowance), with the entire site indicated to be at risk during the 1% AEP plus a 81% climate change allowance event and the majority of the site at risk in the 0.1% AEP. The site is not indicated to be at risk of flooding during the 1% AEP event.

Hazard mapping shows that the centre of the site to be at 'Moderate' to 'Low' hazard during the design event (1% AEP plus a 35% climate change allowance).

Ground levels are approximately 9m AOD in the north of the site to around 8.5m AOD in the south. Water levels during the design event are approximately 8.7m ADO across the site.

The Risk of Flooding from Surface Water Map indicates the centre of the site to be at high risk of flooding from surface water, with surface water flood risk reducing to medium and then low towards the site boundary.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

EBC NO LONGER INTEND TO TAKE THIS SITE FORWARD WITHIN THE LOCAL PLAN.

Fourteen residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site (69%) is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint (refer to Level 1 SFRA Section 5.6 regarding floodplain compensation). As a result, the built footprint of the new development of the site should not exceed that of the existing development. Given the current use as a car park, this will limit the number of units that can be delivered on the site.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is not available to the east along Ashley Road and High Street as these routes are shown to have Moderate hazard. Dry routes may be achievable via Ashley Road to the and followed west, or through adjacent properties south on to Station Road, however this is likely to be pedestrian access only and requires routes through adjacent properties if High Street to the south is already experiencing flooding.

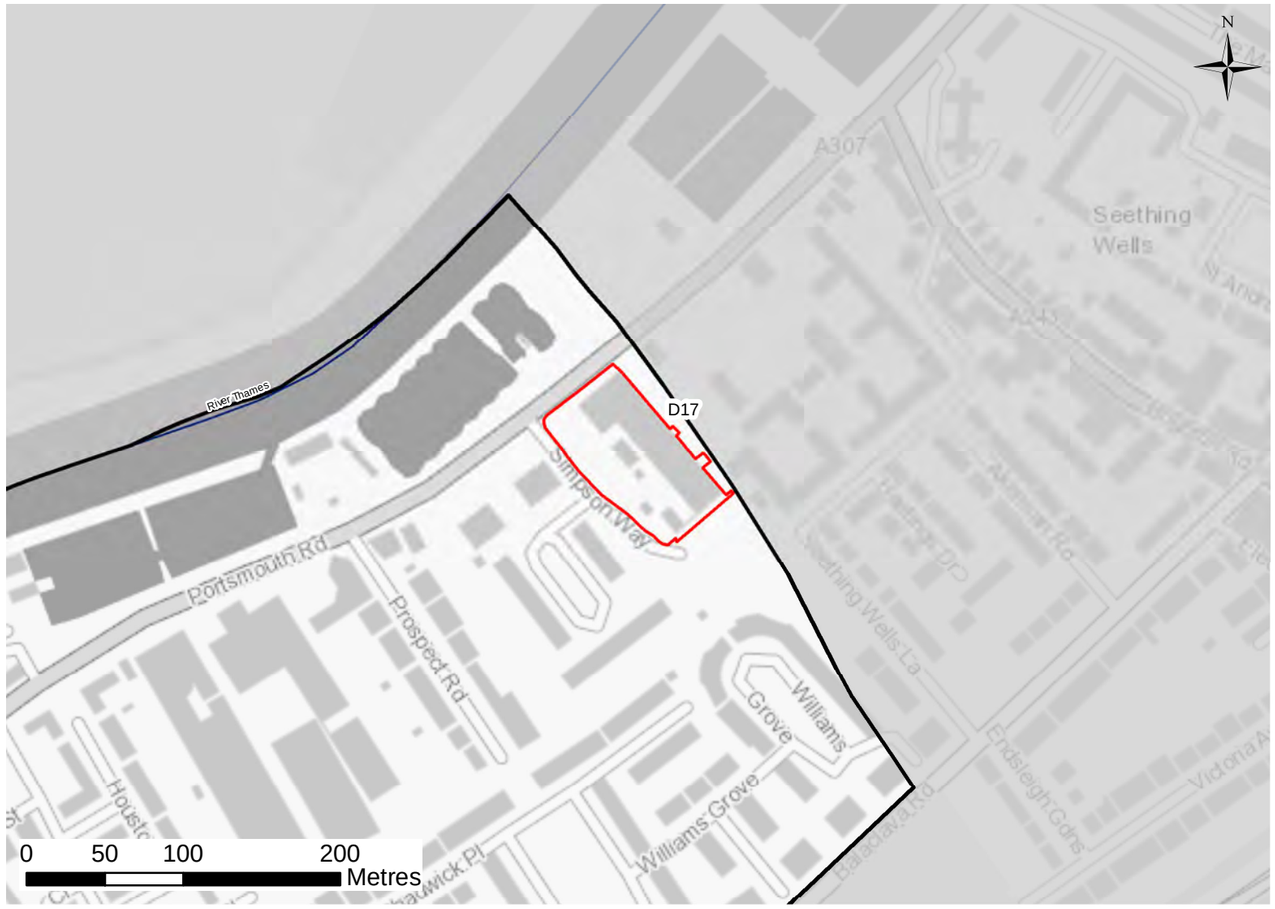
- The site is located within the 'River Thames at Thames Ditton' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D17	SITE LAA REFERENCE: US232	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.66 ha
SITE NAME: Nuffield Health Club, Simpson Way, Long Ditton			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

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FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 16 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	100%	Flood Zone 2 (0.1% AEP):	0%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: N/A

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: N/A

PROXIMITY TO MAIN RIVER: 117m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 117m **WATERCOURSE NAME:** River Thames

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 0 records in Postcode Area KT6 4

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury

RIVER OPERATIONAL CATCHMENT: Thames Lower

WATERBODY NAME: Thames (Egham to Teddington)

SURFACE WATER FLOODING

Low (0.1% AEP):	2%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Unproductive

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: N/A

GROUNDWATER OPERATIONAL CATCHMENT: N/A

GROUNDWATER BODY: N/A

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 0% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 90%

SITE ALLOCATION REFERENCE	D17
SITE ADDRESS	Nuffield Health Club, Simpson Way, Long Ditton

FLOOD RISK SUMMARY

The site is located just to the south of Portsmouth Road, 100m south of the River Thames. The site is within Flood Zone 1, low probability of flooding from rivers. Land to the north of Portsmouth Road is within Flood Zone 3a, high probability of flooding.

Modelling for the River Thames (Thames dominated) for the 1 in 100 year plus 35% climate change allowance, shows that land to the north of Portsmouth Road is at risk of flooding, with hazard rating up to Extreme. Mapping of these results for the wider area is available in Level 2 Appendix A Figures 4 and 5.

The Risk of Flooding from Surface Water Map indicates the local road network may be susceptible to surface water ponding.

The BGS Susceptibility to Groundwater Flooding dataset indicates this area is not considered to be prone to groundwater flooding.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when there is also flooding from rivers. When river levels are normal, the site is not shown to be at risk.

SITE SPECIFIC RECOMMENDATIONS

Sixteen residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 1 and the Exception Test is not required. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) should be identified for the site. Routes along Portsmouth Road to the west are shown to be at risk of flooding from the River Thames. However routes along Portsmouth Road and then south along Windmill Lane are shown to be dry during the design event including 35% climate change allowance. Routes along Portsmouth Road to the east and on to Brighton Road are also dry and Low hazard rating. Pedestrian routes to the south of the site onto Williams Grove are also dry during the design event including climate change.

- It is recommended that an Emergency Plan is developed for occupants of the site to set out the response in the event of flooding in the local area including access routes and places of safety.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D21	SITE LAA REFERENCE: US233	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.32 ha

SITE NAME: Nuffield Health Car Park, Simpson Way, Long Ditton

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 10 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	100%	Flood Zone 2 (0.1% AEP):	0%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: N/A

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: N/A

PROXIMITY TO MAIN RIVER: 232m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 232m **WATERCOURSE NAME:** River Thames

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 4, 0 records in Postcode Area KT6 5, KT6 4

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury, Mole

RIVER OPERATIONAL CATCHMENT: Thames Lower, Mole Lower and Rythe

WATERBODY NAME: Thames (Egham to Teddington), Rythe

SURFACE WATER FLOODING

Low (0.1% AEP):	0%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Unproductive

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: N/A

GROUNDWATER OPERATIONAL CATCHMENT: N/A

GROUNDWATER BODY: N/A

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	0%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	39%

SITE ALLOCATION REFERENCE	D21
SITE ADDRESS	Nuffield Health Car Park, Simpson Way, Long Ditton

FLOOD RISK SUMMARY

The site is located to the south of Portsmouth Road, 200m south of the River Thames. The site is within Flood Zone 1, low probability of flooding from rivers. Land to the north of Portsmouth Road is within Flood Zone 3a, high probability of flooding.

Modelling for the River Thames (Thames dominated) for the 1 in 100 year plus 35% climate change allowance, shows that land to the north of Portsmouth Road is at risk of flooding, with hazard rating up to Extreme. Mapping of these results for the wider area is available in Level 2 Appendix A Figures 4 and 5.

The Risk of Flooding from Surface Water Map indicates the local road network may be susceptible to surface water ponding.

The BGS Susceptibility to Groundwater Flooding dataset indicates this area is not considered to be prone to groundwater flooding.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when there is also flooding from rivers. When river levels are normal, the site is not shown to be at risk.

SITE SPECIFIC RECOMMENDATIONS

Ten residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 1 and the Exception Test is not required. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) should be identified for the site. Routes along Portsmouth Road to the west are shown to be at risk of flooding from the River Thames. However routes along Portsmouth Road and then south along Windmill Lane are shown to be dry during the design event including 35% climate change allowance. Routes along Portsmouth Road to the east and on to Brighton Road are also dry and Low hazard rating. Pedestrian routes to the south of the site onto Williams Grove are also dry during the design event including climate change.

- It is recommended that an Emergency Plan is developed for occupants of the site to set out the response in the event of flooding in the local area including access routes and places of safety.

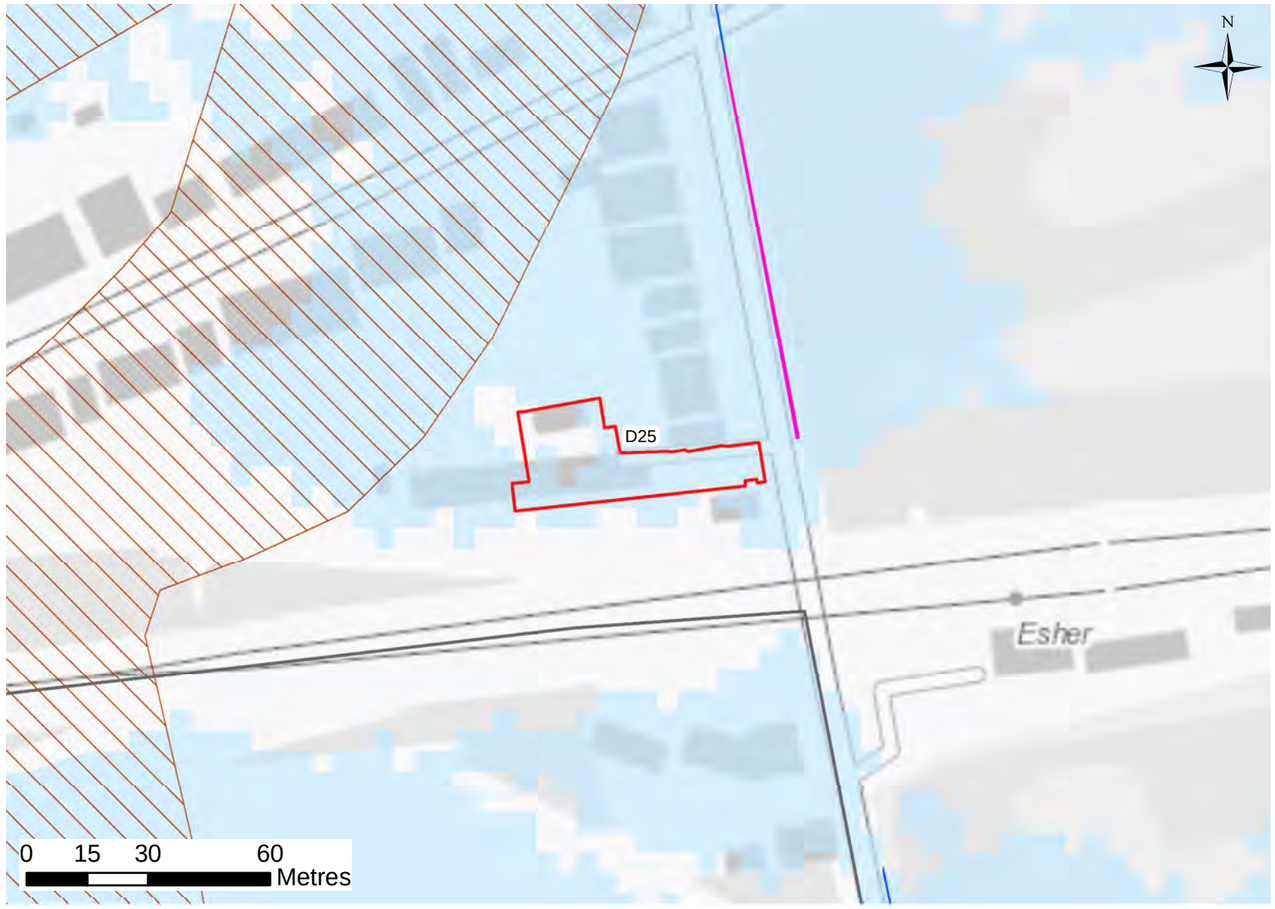
- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D25	SITE LAA REFERENCE: US265	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.09 ha
SITE NAME: 5A-6A Station Road, Esher, KT10 8DY			



*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 5 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	27%	Flood Zone 2 (0.1% AEP):	73%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: N/A

PROXIMITY TO MAIN RIVER: 580m **MAIN RIVER NAME:** River Ember

PROXIMITY TO NEAREST WATERCOURSE: 9m **WATERCOURSE NAME:** Unnamed Watercourse

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 7 records in Postcode Area KT10 8

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.3%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 96% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	D25
SITE ADDRESS	5A-6A Station Road, Esher, KT10 8DY

FLOOD RISK SUMMARY

An unnamed watercourse runs south to north 9m to the west of the site. The River Ember lies approximately 580m north of the site. The majority of the site (73%) is defined as Flood Zone 2, and the remaining 27% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and the Sea due to Defences area.

Historic flood records indicate that the site has not experienced flooding previously. The site does not lie within a Flood Priority Area.

Modelling for the Lower Mole does not indicate the site to be at risk of flooding during the design event (1% AEP plus a 20% climate change allowance) and therefore has not been assigned a hazard rating for the design event.

Ground levels across the site are approximately 11.8m AOD.

The Risk of Flooding from Surface Water Map indicates a small area at low risk of surface water flooding to the east of the site.

The BGS Susceptibility to Groundwater Flooding dataset indicates there is potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when there is also flooding from rivers and the majority (96%) is at risk when river levels are normal.

SITE SPECIFIC RECOMMENDATIONS

Five residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. As the site is not shown to be at risk of flooding from rivers during the design event, floodplain compensation storage is not likely to be required.

- In the absence of hazard mapping for the Lower Mole, depth mapping has been used to assess whether safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable. Safe access/egress is achievable along Station Road which is not shown to flood during the design event (1 in 100 year plus 20% climate change).

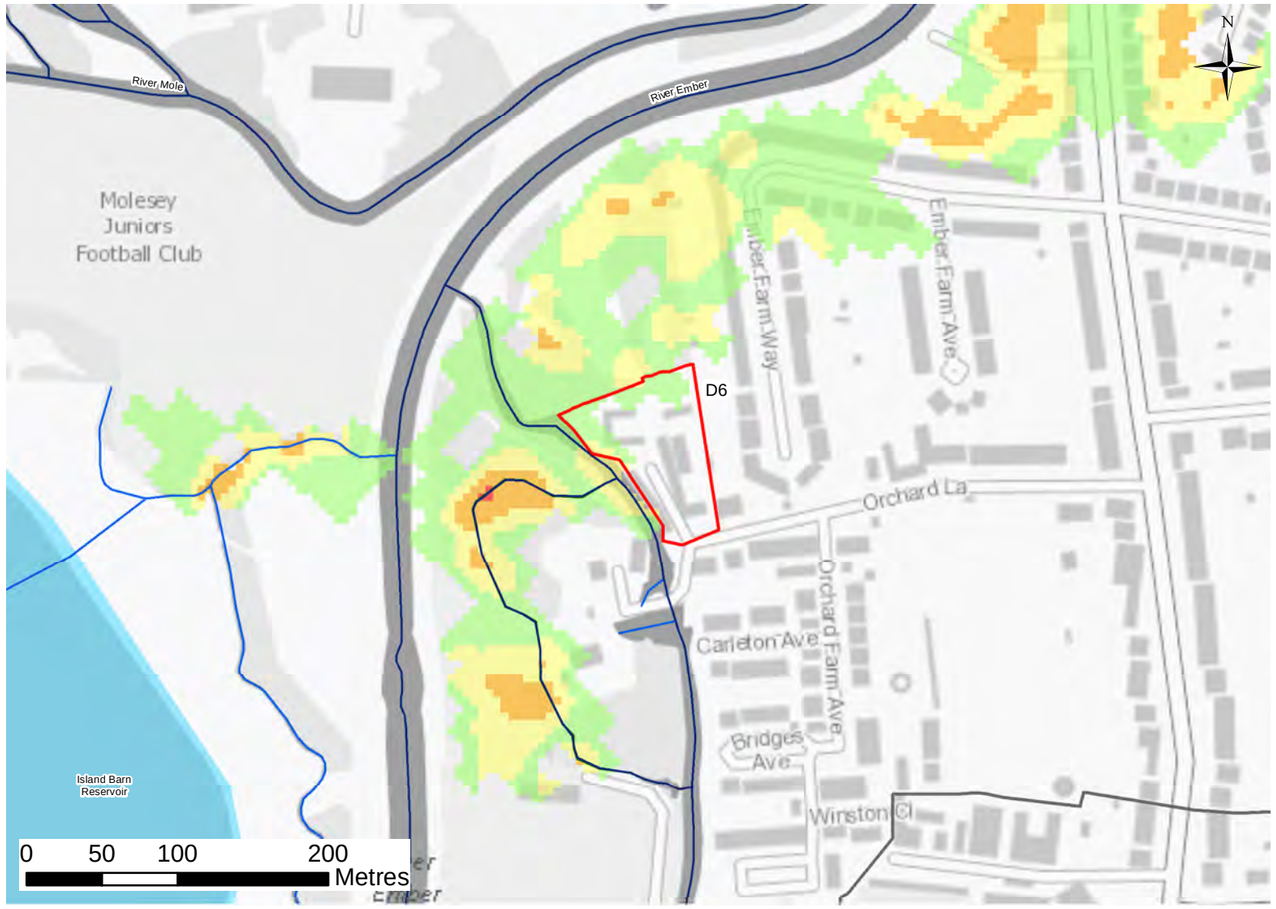
- The site is located within the 'River Mole at Esher and East Molesey' Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D6	SITE LAA REFERENCE: US462	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.64 ha
SITE NAME: Sundial House, The Molesey Venture			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: TRIBUTARY DOMINATED AND LOWER MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 61 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	35%	Flood Zone 2 (0.1% AEP):	64%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	1%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968, 06 November 1974, December 2013

PROXIMITY TO MAIN RIVER: 1m **MAIN RIVER NAME:** River Ember

PROXIMITY TO NEAREST WATERCOURSE: 1m **WATERCOURSE NAME:** River Ember

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 10 records in Postcode Area KT8 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	9%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Secondary (undifferentiated), Unproductive

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

N/A

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	100%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

SITE ALLOCATION REFERENCE	D6
SITE ADDRESS	Sundial House The Molesey Venture

FLOOD RISK SUMMARY

A tributary of the River Ember runs along the eastern boundary of the site and joins the River Thames approximately 1.3km north east of the site. 35% of the site is defined as Flood Zone 1, 64% is Flood Zone 2, and the remaining 1% as Flood Zone 3b (derived from the Lower Thames (Tributary Dominated Model)). The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968, November 1974, and December 2013. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Tributary Dominated) indicates the north and north west of the site to be at risk of flooding during the design event (1% AEP plus a 35% climate change allowance). The site is not indicated to be at risk of flooding during a 1% AEP event. Hazard mapping for the design event indicates areas of 'Low' to 'Moderate' hazard in the north and north west. Ground levels are approximately 8.7m AOD in the north of the site to 9.7m ADO in the south of the site. Water levels in the north of the site during the design event are approximately 8.9m AOD.

Modelling for the Lower Mole does not indicate the site to be at risk up to and including the design event (1% AEP plus a 20% climate change allowance) and therefore has not been assigned a hazard rating from the Lower Mole for the design event.

The Risk of Flooding from Surface Water Map indicates low probability of ponding in the south of the site.

The BGS Susceptibility to Groundwater Flooding dataset indicates the area is not prone to groundwater flooding.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Sixty one residential units are recommended for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. More Vulnerable development is not permitted within Flood Zone 3b. This part of the site should be retained as floodplain and steps taken to restore land to provide a more natural edge of the River Ember. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Retain an 8 metre wide undeveloped buffer strip alongside Main Rivers and explore opportunities for riverside restoration. New development within 8m of a Main River will require consent from either the Environment Agency. (Guidance on Environment Agency Flood Risk Activity Permits is available online https://www.gov.uk/guidance/flood-risk-activities-environmental-permits).

- Development within the design flood extent (1% AEP including central climate change allowance) must not decrease the available floodplain storage. Given that only some of the site (26%) is located in the flood extent for the design flood (1% AEP including central climate change allowance), it may be possible to provide floodplain compensation storage within the site for any increase in building footprint. Floodplain compensation must be provided in relation to the design event (1 in 100 year), on a level for level and volume for volume basis. (Refer to Level 1 SFRA Section 5.6).

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable via Orchard Lane to the east and then south onto Ember Lane.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D18	SITE LAA REFERENCE: US271	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.08 ha
SITE NAME: 118-120 Bridge Road, East Molesey, KT8 9HW			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: TRIBUTARY DOMINATED AND LOWER MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

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- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 6 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	69%	Flood Zone 2 (0.1% AEP):	31%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 92m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 92m **WATERCOURSE NAME:** River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 5 records in Postcode Area KT8 9

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.1%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level,
Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	D18
SITE ADDRESS	118-120 Bridge Road East Molesey KT8 9HW

FLOOD RISK SUMMARY

The River Mole runs approximately 92m east of the site and joins the River Thames approximately 600m north east of the site. The majority of the site (69%) is defined as Flood Zone 1, and the remaining 31% is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Tributary Dominated) does not indicate the site to be at risk of flooding up to and including the design event (1% AEP plus a 35% climate change allowance) and therefore has not been assigned a hazard rating for the design event. (The entire site is indicated to be at risk of flooding during a 1% AEP event plus a 81% climate change allowance, with hazard rating Low to Moderate 'Danger for Most').

Modelling for the Lower Mole does not indicate the site to be at risk of flooding up to and including the 0.1% AEP event and therefore has not been assigned a hazard rating for the design event.

Ground levels are approximately 8.7m AOD in the south of the site to 8.9m AOD in the north east.

The Risk of Flooding from Surface Water Map indicates a low risk of surface water flooding to the north of the site.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level and the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Six residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. As the site is not shown to be at risk of flooding from rivers during the design event, floodplain compensation storage is not likely to be required. Consideration should be made of the impact of the development of the development on local surface water flowpaths; proposed development provides an opportunity to improve the risk of surface water flooding along Bridge Road and Arnison Road.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance for river flooding) is achievable to the west of the site. These routes are shown to be susceptible to surface water flooding.

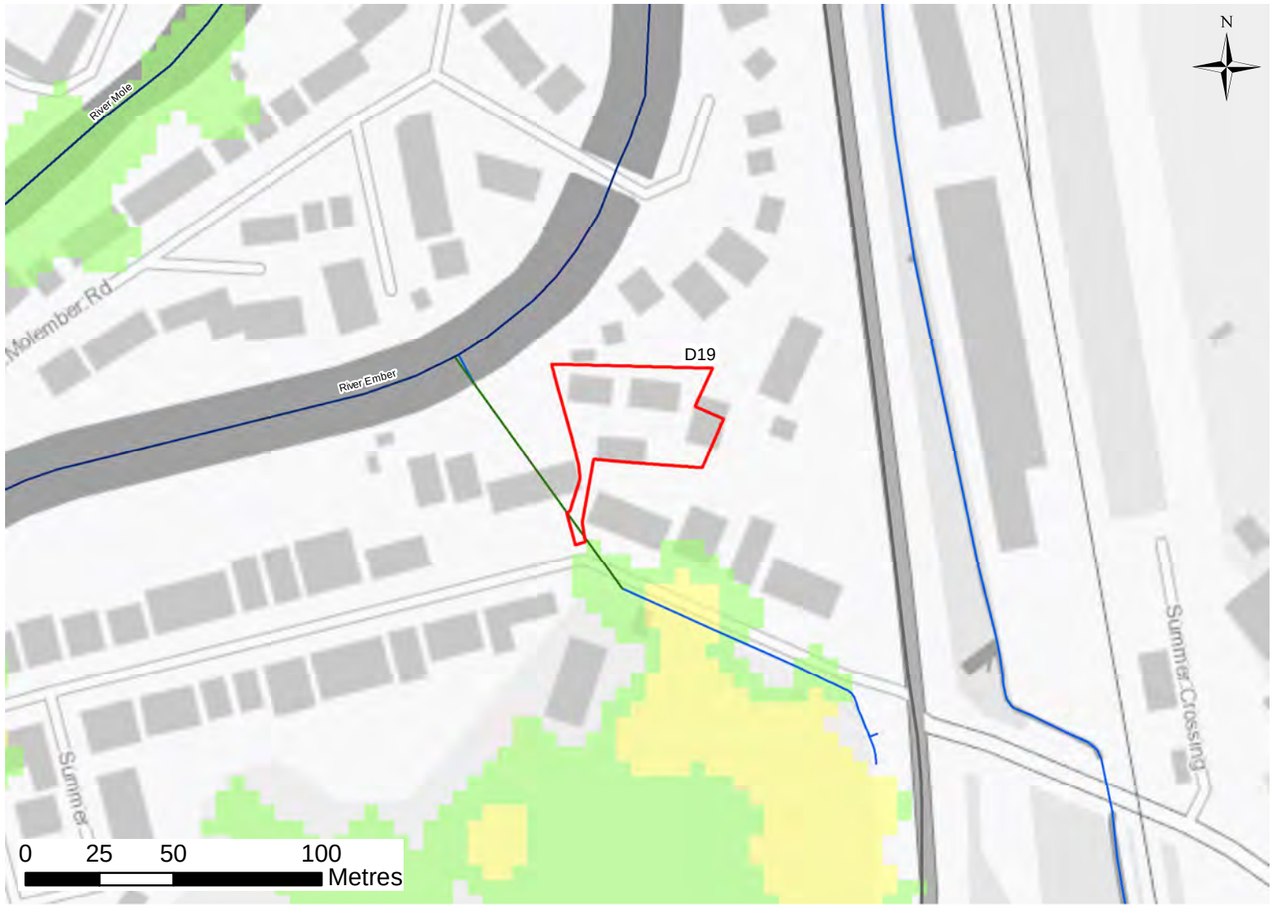
- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing. There may be opportunities for development proposals at the site to contribute towards measures to reduce the risk of flooding on Bridge Street and Arnison Road (as shown in the RoFSW mapping).

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: D19	SITE LAA REFERENCE: US272	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.17 ha
SITE NAME: Industrial units at 67 Summer Road, East Molesey, KT8 9LX			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: TRIBUTARY DOMINATED AND LOWER MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 12 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	100%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 March 1947, 06 November 1974

PROXIMITY TO MAIN RIVER: 21m **MAIN RIVER NAME:** River Ember

PROXIMITY TO NEAREST WATERCOURSE: 0m **WATERCOURSE NAME:** Tributary of River Ember

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 5 records in Postcode Area KT8 9

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	19%	Medium (1% AEP):	1%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Secondary (undifferentiated)

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

N/A

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: This information is not available for this site.

GROUNDWATER OPERATIONAL CATCHMENT: This information is not available for this site.

GROUNDWATER BODY: This information is not available for this site.

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	D19
SITE ADDRESS	Industrial units at 67 Summer Road East Molesey KT8 9LX

FLOOD RISK SUMMARY

A tributary of the River Ember runs through the south west of the site. The River Ember runs approximately 21m west of the site and joins the River Thames approximately 400m north east of the site. The entire site (100%) is defined as Flood Zone 2 from the Lower Thames. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in March 1947, and November 1974. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Tributary Dominated) shows that the site itself is not at risk of flooding up to and including the design event (1% AEP plus a 35% climate change allowance). However Summer Road, the access route to the site, is shown to be at risk, with hazard rating of Low to Moderate.

Modelling for the Lower Mole indicates the site to be at risk of flooding during a 0.1% AEP event, but not during the design event (1 in 100 year plus climate change).

Ground levels are approximately 7.2m AOD to the south of the site to 6.7m ADO in the north.

The Risk of Flooding from Surface Water Map indicates a low to medium risk of flooding from surface water to the east of the site.

The BGS Susceptibility to Groundwater Flooding dataset indicates the area is not prone to groundwater flooding.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Twelve residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime. The following recommendations are made for this site:

- Retain an 8 metre wide undeveloped buffer strip alongside Main Rivers and explore opportunities for riverside restoration. Retain a 5 metre wide buffer strip alongside Ordinary Watercourses. New development within 8m of a Main River or Ordinary Watercourse will require consent from either the Environment Agency or Surrey County Council (as LLFA) respectively. (Guidance on Environment Agency Flood Risk Activity Permits is available online https://www.gov.uk/guidance/flood-risk-activities-environmental-permits).

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. As the site is not shown to be at risk of flooding from rivers during the design event, floodplain compensation storage is not likely to be required.

- Safe access/egress (i.e. that is dry or Low hazard during the design event (1% AEP event including central climate change allowance) should be provided for new development. Summer Road, the main access for the site, is shown to have a section at Moderate hazard, but the remainder of the route along Summer Road is Low hazard, and then the route along the A306 is dry. Improvements to Summer Road, or identification of alternative routes from the site to the A306 should be provided to demonstrate safe access for the site.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

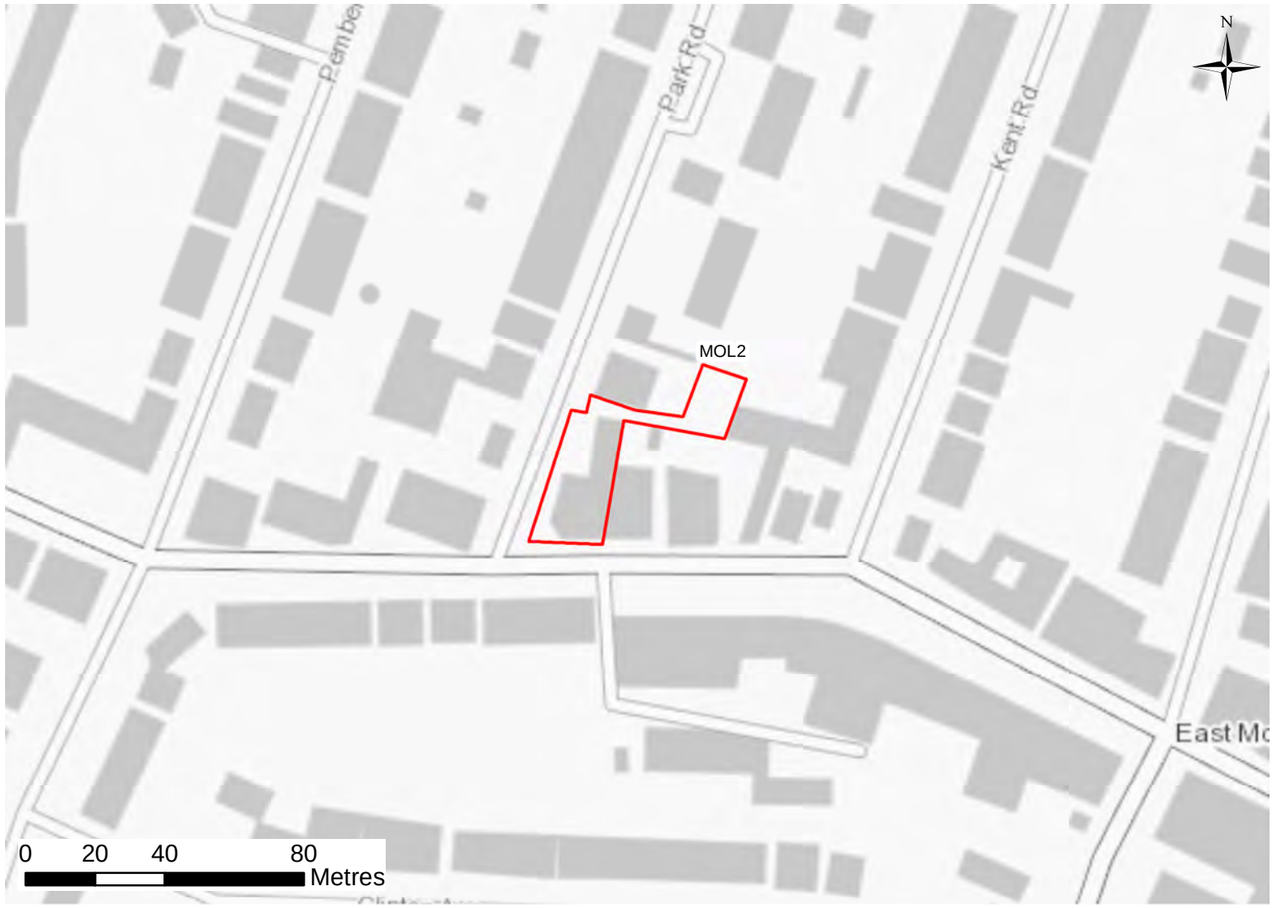
- The site is located within the 'River Mole at Esher and East Molesey' Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL2	SITE LAA REFERENCE: US507	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.11 ha
SITE NAME: 133-135 Walton Road, East Molesey, KT8 0DT			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED AND TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 8 residential units/mixed-use

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	100%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 489m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 489m **WATERCOURSE NAME:** River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 5, 10 records in Postcode Area KT8 9, KT8 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	29%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL2
SITE ADDRESS	133-135 Walton Road, East Molesey, KT8 0DT

FLOOD RISK SUMMARY

The River Mole is located approximately 489m south of the site. The site (100%) is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Thames Dominated) indicates that the majority of the site is at risk of flooding during a 1% AEP event including 35% climate change and the whole site to be at risk of flooding during a 1% AEP event including 81% climate change. Hazard mapping for the design event (1% AEP plus a 35% climate change allowance) 'Low' to 'Moderate' hazard in the north and 'Moderate' to 'Significant' hazard in the south.

Ground levels are approximately 9m AOD in the north of the site to 8.7m AOD in the south. Water levels across the site during the design event are approximately 9m AOD.

Modelling for the Lower Thames (Tributary Dominated) indicates that the site is not at risk of flooding up to and including the design event (1% AEP plus a 35% climate change allowance) and therefore has not been assigned a hazard rating from the Tributary Dominated model for the design event. Almost the entire site is shown to be at risk of flooding during a 1% AEP plus an 81% climate change allowance and 0.1% AEP event.

The Risk of Flooding from Surface Water Map indicates the area local to the site to be at risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Eight residential units/mixed use are proposed for the site. More Vulnerable and Less Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is not achievable. The site and the section of Walton Road adjoining the site is at Moderate hazard during the design event (River Thames, Thames Dominated scenario). However, this is the edge of the floodplain, and once the route along Walton Road to the west is then Low hazard and dry, and there is a dry access route to Hurst Road (avoiding the floodplain of the Dead River). Elmbridge BC, in consultation with Emergency Planners, will need to determine whether improvements can be made to Walton Road to provide a more reliable access route, and/or whether reliance on evacuation prior to a flood event is sufficient.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site (95%) is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint. As a result, the built footprint of the new development of the site should not exceed that of the existing development. This may limit the number of units that can be delivered on the site. A review of the existing site by EBC shows that the majority of the site is already developed, and therefore the allocation of this site is not anticipated to increase the building footprint.

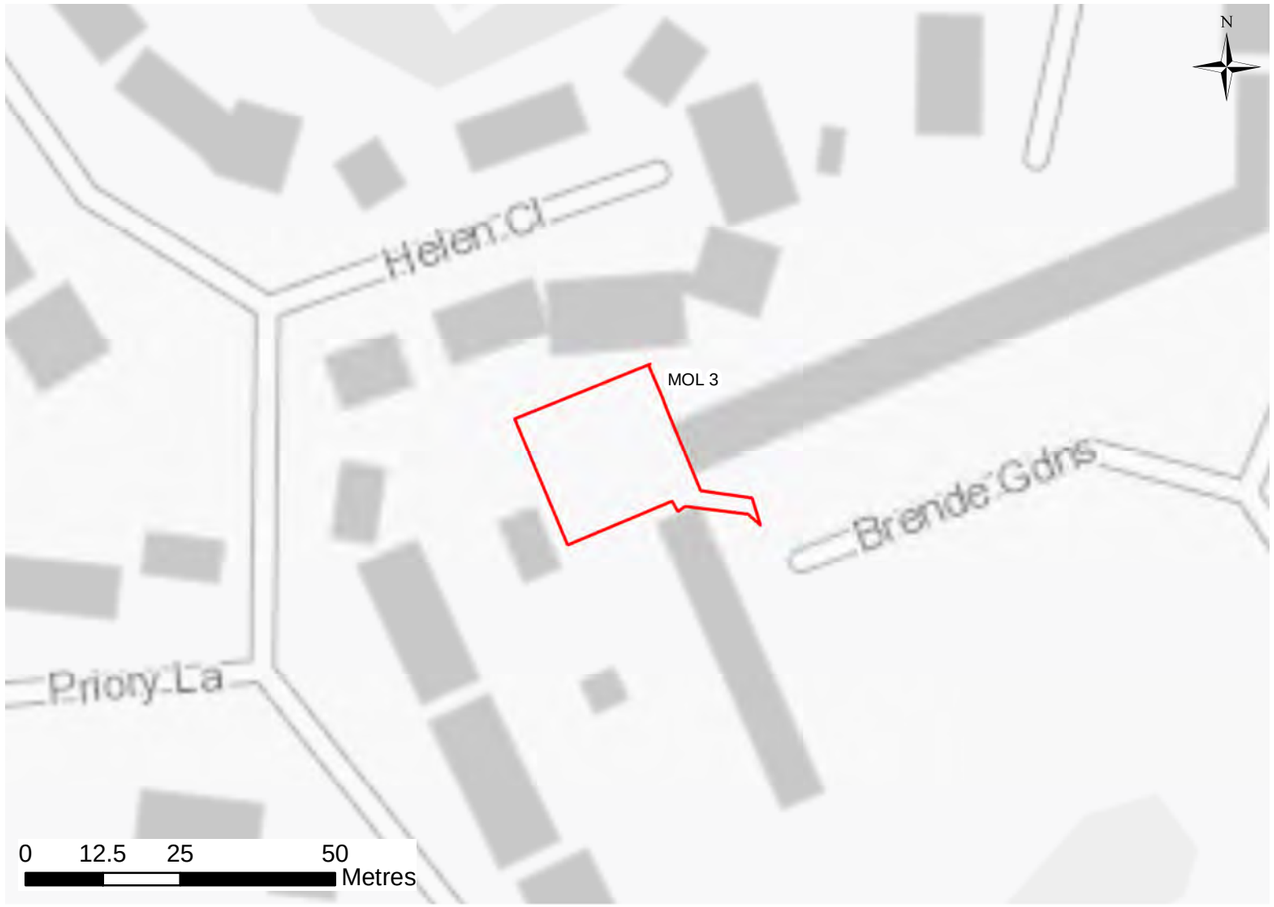
- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL 3	SITE LAA REFERENCE: US529	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.05 ha
SITE NAME: Garage block west of 14 and north of 15 Brende Gardens, West Molesey			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER, LOWER MOLE AND LOWER THAMES: TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

FLOOD ZONES AND HISTORIC FLOOD RECORDS | RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING | RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey | HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated | HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated | HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 4 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	98%	Flood Zone 2 (0.1% AEP):	2%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 420m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 420m **WATERCOURSE NAME:** River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 9 records in Postcode Area KT8 2

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.2%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL 3
SITE ADDRESS	Garage block west of 14 and north of 15 Brende Gardens, West Molesey

FLOOD RISK SUMMARY

The River Mole is located approximately 420m south from the site. The majority of the site (98%) is defined as Flood Zone 1, and the remaining 2% is defined as Flood Zone 2 from the Dead River. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in September 1968. The site does not lie within a Flood Priority Area.

The site itself is not shown to be at risk from the fluvial watercourses during the design events. However, the local area and access routes are at risk. To the west of the site, there is the risk of flooding from the Dead River, south along Molesey Road. To the north east, there is the risk of flooding from the River Thames, affecting Walton Road, with Significant hazard rating between Seymour Road and Matham Road.

Ground levels across the site are approximately 9.5mAOD to 9.8mAOD.

The Risk of Flooding from Surface Water Map indicates a low risk of flooding from surface water along the northern and south eastern site boundary.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Four residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2, and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable for the site north along Grange Road, west onto Walton Road, north along Rosemary Avenue, and then onto A3050 Hurst Road.

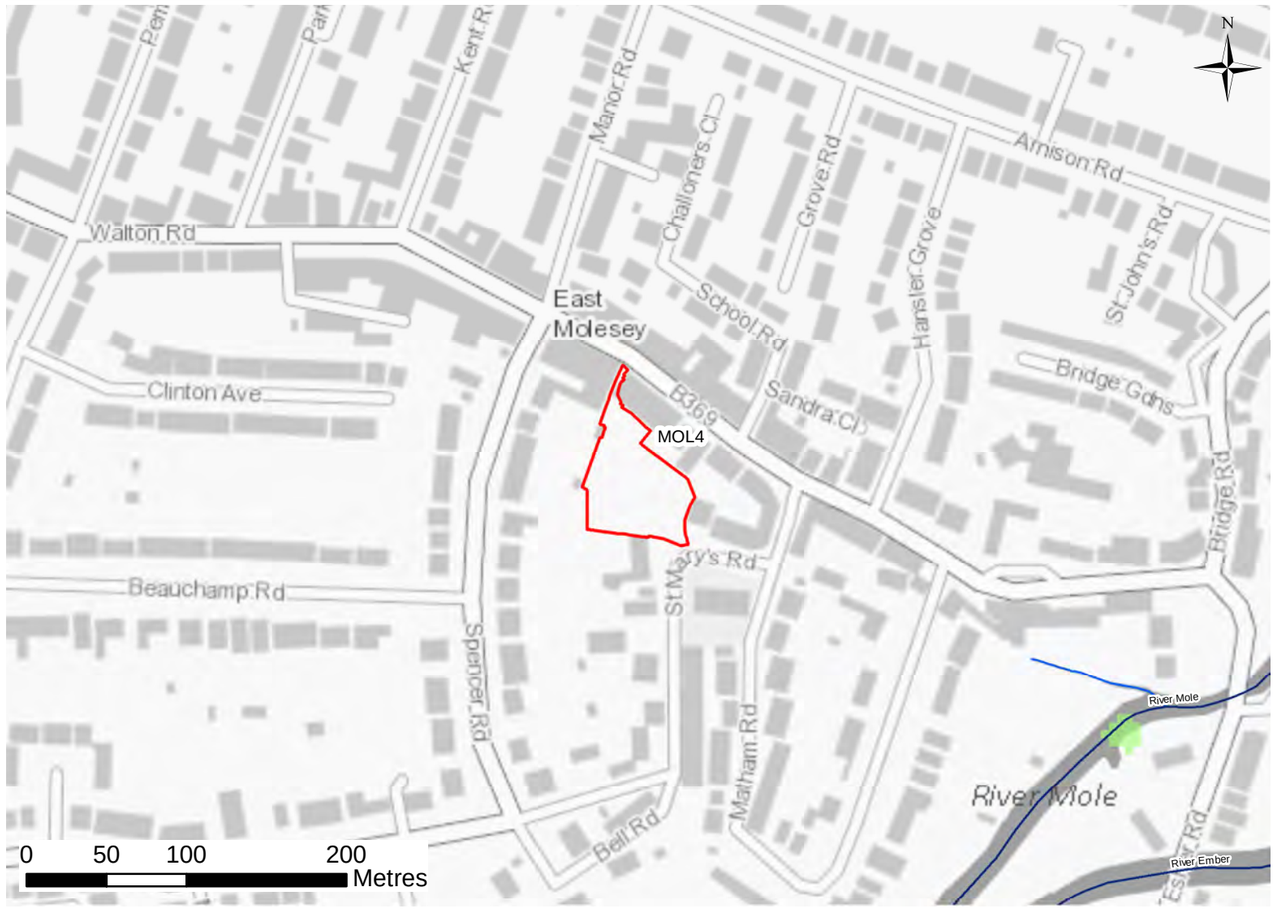
- The site is located within the 'River Mole at Esher and East Molesey' Warning Area. Given the risk of flooding in the local area, and the need to follow specific access routes, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas in not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL4	SITE LAA REFERENCE: US299	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.39 ha
SITE NAME: East Molesey Car Park, Walton Road, East Molesey			



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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED AND TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 23 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	2%	Flood Zone 2 (0.1% AEP):	98%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 271m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 225m **WATERCOURSE NAME:** Tributary of River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 10 records in Postcode Area KT8 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	53%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level,
Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL4
SITE ADDRESS	East Molesey Car Park, Walton Road, East Molesey

FLOOD RISK SUMMARY

A tributary of the River Mole is located 225m east of the site, and the River Mole is approximately 271m south. The majority of the site (98%) is defined as Flood Zone 2, and the remaining 2% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Thames Dominated) shows majority of the site is at risk of flooding during a 1% AEP event including 35% climate change, the entire site is shown to be at risk of flooding during a 1% AEP event including 81% climate change. Hazard mapping for the design event (1% AEP plus a 35% climate change allowance) indicates the majority of the site to be at 'Moderate' to 'Significant' hazard.

Ground levels are approximately 8.5m AOD in the north to 9.1m AOD in the south. Water levels across the site during the design event are approximately 9.1m AOD.

Modelling for the Lower Thames (Tributary Dominated) indicates that the site is not at risk of flooding up to and including the design event and therefore has not been assigned a hazard rating from the Tributary Dominated model for the design event. Almost the entire site is shown to be at risk of flooding during a 1% AEP plus an 81% climate change allowance and 0.1% AEP event.

The Risk of Flooding from Surface Water Map indicates the north of the site to be at low risk of flooding from surface water. The local area (Walton Road, St Mary's Road) are shown to be at risk of surface water flooding.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level and the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

THIS SITE IS NO LONGER AVAILABLE AND WILL NOT BE TAKEN FORWARD IN THE LOCAL PLAN.

Twenty-three residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable for the site, south onto St Mary's Road and then west to Beauchamp Road, north onto High Street, west onto Walton Road, north onto Rosemary Avenue and west onto Hurst Road. (Routes east from the site along Walton Road, or east along St Mary's Road are at Significant hazard, and therefore not suitable routes).

- The site is located within the 'River Mole at Esher and East Molesey' Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint. As a result, the built footprint of the new development of the site should not exceed that of the existing development. This may limit the number of units that can be delivered on the site.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL8	SITE LAA REFERENCE: US498	DELIVERY PERIOD: 6 to 10 years	SITE AREA: 0.24 ha
SITE NAME: 7 Seymour Close and Land to rear of 103-113 Seymour Close, East Molesey, KT8 0JY			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED AND TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 5 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	100%	Flood Zone 2 (0.1% AEP):	0%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 134m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 134m **WATERCOURSE NAME:** Tributary of River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 10 records in Postcode Area KT8 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	11.7%	Medium (1% AEP):	6%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL8
SITE ADDRESS	7 Seymour Close and Land to rear of 103-113 Seymour Close, East Molesey, KT8 0JY

FLOOD RISK SUMMARY

The River Mole flows east to the south of Molesey Park Road (to the south of the site). The site is entirely within Flood Zone 1, low probability of flooding from rivers. However, the site is within the historic flood outline, and the local area and main access routes are shown to be at risk from the Thames during the design event (1 in 100 year including climate change).

Modelling for the River Thames (Thames dominated) for the 1 in 100 year plus 35% climate change allowance, shows that land to the north of the site including Walton Road is at risk of flooding, with hazard rating up to Significant. Modelling for the River Thames (tributary dominated) for the 1 in 100 year plus 35% climate change allowance, shows that Esher Road, to the east of the site is at risk of flooding (Low hazard rating). Mapping of these results for the wider area is available in Level 2 Appendix A Figures 4 and 5.

The Risk of Flooding from Surface Water Map indicates the local road network may be susceptible to surface water ponding.

The BGS Susceptibility to Groundwater Flooding dataset indicates there is potential for groundwater flooding of property below ground level in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Five residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 1 and the Exception Test is not required. Due to the risk of flooding to the wider area, the following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable for the site. A dry route is available west along Beauchamp Road, north along High Street, west along Walton Road, north along Rosemary Avenue and then west along Hurst Road. (Routes to the east from the site would include the part of Walton Road at Significant hazard and are therefore not suitable routes).

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Given the risk of flooding from rivers in the wider area, it is recommended that Emergency Plans are developed for occupants of the site to set out the response in the event of flooding, including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL9	SITE LAA REFERENCE: US153	DELIVERY PERIOD: 6 to 10 years	SITE AREA: 0.2 ha
SITE NAME: 11-27 Down Street, West Molesey, KT8 2TG			

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 7 residential units							
VULNERABILITY CLASSIFICATION: More Vulnerable							
FLOOD ZONES AND HISTORIC FLOODING							
Flood Zone 1 (<0.1% AEP):	49%	**Flood Zone 2 (0.1% AEP):**	51%	**Flood Zone 3a (1% AEP):**	0%	**Flood Zone 3b (defined in SFRA report):**	0%
FLOOD WARNING AREA: River Mole at Esher and East Molesey							
FLOOD PRIORITY AREA: N/A				**STATUS:**	N/A		
RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED:	06 September 1968						
PROXIMITY TO MAIN RIVER:	368m	**MAIN RIVER NAME:**	River Mole/Dead River				
PROXIMITY TO NEAREST WATERCOURSE:	368m	**WATERCOURSE NAME:**	River Mole/Dead River				
THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 9 records in Postcode Area KT8 2							
WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION							
RIVER MANAGEMENT CATCHMENT: Mole							
RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe							
WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)							

SURFACE WATER FLOODING					
Low (0.1% AEP):	25%	**Medium (1% AEP):**	0%	**High (3.33% AEP):**	0%
GROUNDWATER FLOODING					
BEDROCK GEOLOGY: Thames Group				**SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel	
BEDROCK AQUIFER: Unproductive				**SUPERFICIAL AQUIFER:** Principal	
BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING					
Potential for groundwater flooding to occur at surface					
WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION					
GROUNDWATER MANAGEMENT CATCHMENT: Thames GW					
GROUNDWATER OPERATIONAL CATCHMENT: Colne GW					
GROUNDWATER BODY: Lower Thames Gravels					
RISK OF FLOODING FROM RESERVOIRS					
PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:					
WHEN RIVER LEVELS ARE NORMAL: 100%				**WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%	

SITE ALLOCATION REFERENCE	MOL9
SITE ADDRESS	11-27 Down Street, West Molesey, KT8 2TG

FLOOD RISK SUMMARY

The Dead River joins the River Mole 368m south from the site. 51% of the site is defined as Flood Zone 2, and the remaining 49% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Dead River does not indicate the site to be at risk of flooding up to and including a 1% AEP event plus a 35% allowance for climate change and therefore has not been assigned a hazard rating for the design event (1% AEP plus a 20% climate change allowance). (The north of the site is indicated to be at risk of flooding during a 1% AEP event plus a 70% allowance for climate change and a 0.1% AEP event).

Ground levels are approximately 9.4m AOD in the north to 10.2m AOD in the south.

The Risk of Flooding from Surface Water Map indicates the north corner of the site to be at low risk of flooding from surface water. The local area to the north and east is shown to be susceptible to surface water flooding.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Seven residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable to the north and east of the site via Down Street. A dry route is available north via Faraday Road and Rosemary Avenue and then west along A3050 Hurst Road. (Routes west from the site towards Pool Road and Molesey Road are at risk of flooding from the Dead River during the design event. Hazard ratings in some sections are Moderate and Significant and therefore these routes are not safe).

- The site is located within the 'River Mole at Esher and East Molesey' Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL10	SITE LAA REFERENCE: US318	DELIVERY PERIOD: 6 to 10 years	SITE AREA: 0.11 ha
SITE NAME: Vine Medical Centre, 69 Pemberton Road, East Molesey, KT8 9LJ			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED AND TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 7 residential units/mixed-use

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	100%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 632m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 632m **WATERCOURSE NAME:** River Thames

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 5 records in Postcode Area KT8 9

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL10
SITE ADDRESS	Vine Medical Centre 69 Pemberton Road East Molesey KT8 9LJ

FLOOD RISK SUMMARY

The River Thames runs approximately 632m north of the site. The entire site (100%) is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. There are records of flooded properties in the local roads. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Thames Dominated) shows the majority of the site to be at risk of flooding in the design event (1% AEP plus a 35% climate change allowance) and the entire site to be at risk of flooding during the 1% AEP event including 81% climate change. Hazard mapping for the design event indicates a 'Low' hazard across the majority of the site, with the north east corner indicated to have no hazard, and the south west corner to have 'Moderate' hazard. Ground levels are approximately 8.9m AOD across the site. Water levels across the site during the design event are approximately 9m AOD.

Modelling for the Lower Thames (Tributary Dominated) does not indicate the site to be at risk during the design event.

The Risk of Flooding from Surface Water Map does not indicate the site to be at risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

THIS SITE IS NO LONGER AVAILABLE AND WILL NOT BE TAKEN FORWARD IN THE LOCAL PLAN.

Seven residential/mixed use units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) may be achievable east along Vine Road, Arnison Road and then south along Bridge Street and Esher Road. There are sections at Low hazard along this route.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint. As a result, the built footprint of the new development of the site should not exceed that of the existing development. This may limit the number of units that can be delivered on the site.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

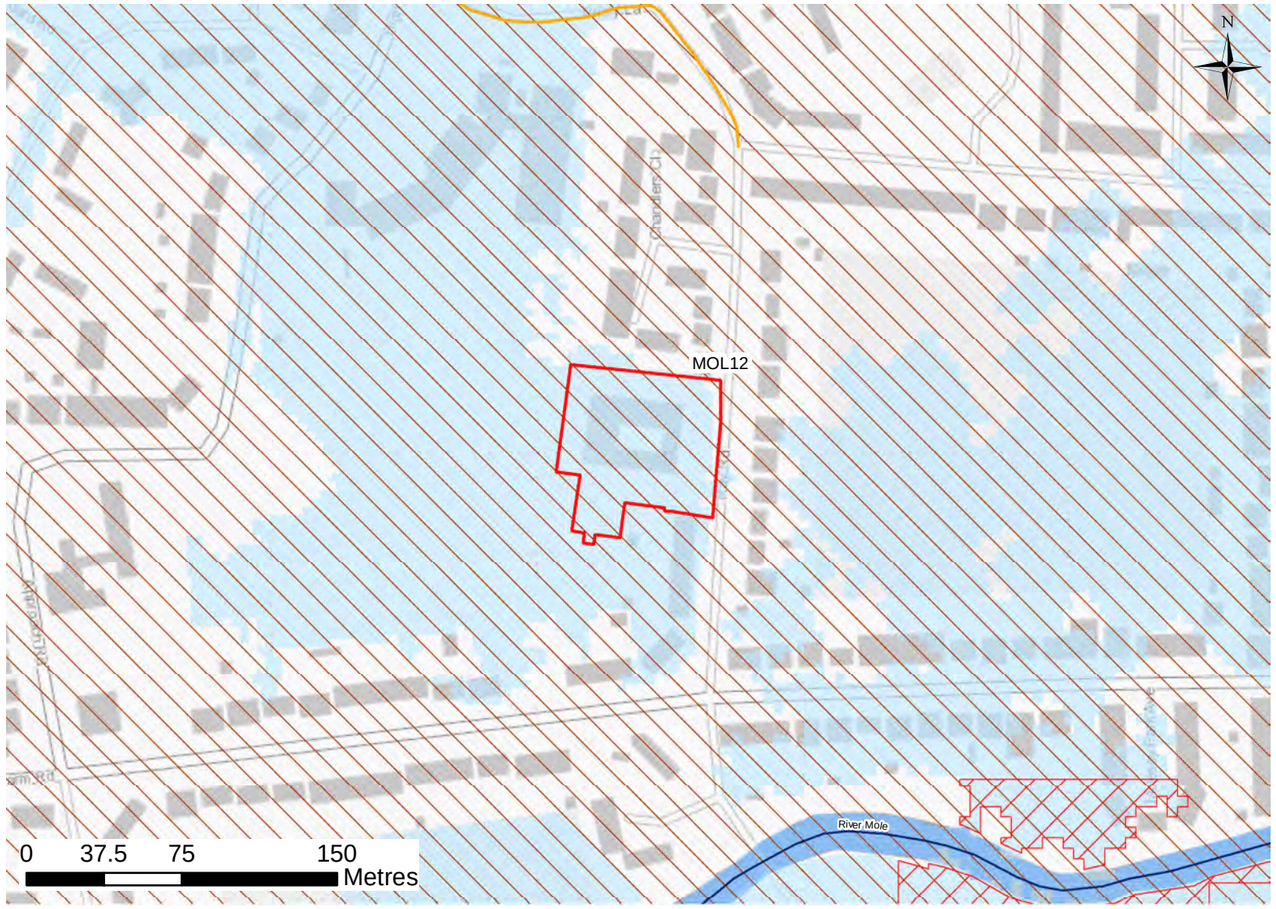
- The site is located within the 'River Mole at Esher and East Molesey' Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL12	SITE LAA REFERENCE: US312	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.51 ha
SITE NAME: Henrietta Parker Centre, Ray Road, West Molesey			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER, LOWER MOLE AND LOWER THAMES: TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 13 residential units and re- provision of community use

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	4%	Flood Zone 2 (0.1% AEP):	96%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 162m **MAIN RIVER NAME:** River Mole/Dead River

PROXIMITY TO NEAREST WATERCOURSE: 162m **WATERCOURSE NAME:** River Mole/Dead River

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 9 records in Postcode Area KT8 2

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	58%	Medium (1% AEP):	16%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL12
SITE ADDRESS	Henrietta Parker Centre, Ray Road, West Molesey

FLOOD RISK SUMMARY

The Dead River joins the River Mole approximately 162m south of the site. The majority of the site (96%) is defined as Flood Zone 2, and the remaining 4% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in September 1968. The site does not lie within a Flood Priority Area.

The site itself is not shown to be at risk from the fluvial watercourses during the design events. However, the local area and access routes are at risk. To the west of the site, there is the risk of flooding from the Dead River, south along Molesey Road. To the north east, there is the risk of flooding from the River Thames, affecting Walton Road, with Significant hazard rating between Seymour Road and Matham Road.

Ground levels across the site are approximately 9.2m AOD to 9.7m AOD.

The Risk of Flooding from Surface Water Map indicates that majority of the site is at low risk of flooding from surface water, with the south of the site at medium risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Thirteen residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable for the site north along High Street, west onto Walton Road, north along Rosemary Avenue, and then onto A3050 Hurst Road.

- The site is located within the 'River Mole at Esher and East Molesey' Warning Area. Given the risk of flooding in the local area, and the need to follow specific access routes, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas in not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL13	SITE LAA REFERENCE: US315	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.11 ha
SITE NAME: Parking/garages at Grove Court, Walton Road, East Molesey, KT8 0DG			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED AND TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 7 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	100%	Flood Zone 2 (0.1% AEP):	0%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: N/A

PROXIMITY TO MAIN RIVER: 114m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 59m **WATERCOURSE NAME:** Tributary of River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 5, 10 records in Postcode Area KT8 9, KT8 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 99% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL13
SITE ADDRESS	Parking /garages at Grove Court Walton Road East Molesey KT8 0DG

FLOOD RISK SUMMARY

The River Mole flows north east south of Walton Road and Bridge Road (to the south of the site). The site is entirely within Flood Zone 1, low probability of flooding from rivers. However, the local area and main access routes are shown to be at risk from the Thames during the design event (1 in 100 year including climate change).

Modelling for the River Thames (Thames dominated) for the 1 in 100 year plus 35% climate change allowance, shows that the area immediately to the west of the site along Walton Road is at risk of flooding, with hazard rating up to Significant. Modelling for the River Thames (Tributary dominated) for the 1 in 100 year plus 35% climate change allowance, shows that a section of Esher Road, to the south of the site, is at risk of flooding (with Low hazard rating). Mapping of these results for the wider area is available in Level 2 Appendix A Figures 4 and 5.

The Risk of Flooding from Surface Water Map indicates the local road network may be susceptible to surface water ponding.

The BGS Susceptibility to Groundwater Flooding dataset indicates there is potential for groundwater flooding of property below ground level in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Five residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 1 and the Exception Test is not required. Due to the risk of flooding to the wider area, the following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable for the site, south along Esher Road. This route is shown to be dry in the River Thames (Thames Dominated) model results, and Low hazard in the River Thames (Tributary Dominated) results. (Routes from the site to the west would include the part of Walton Road at Significant hazard (Thames Dominated scenario) and are therefore not suitable routes).

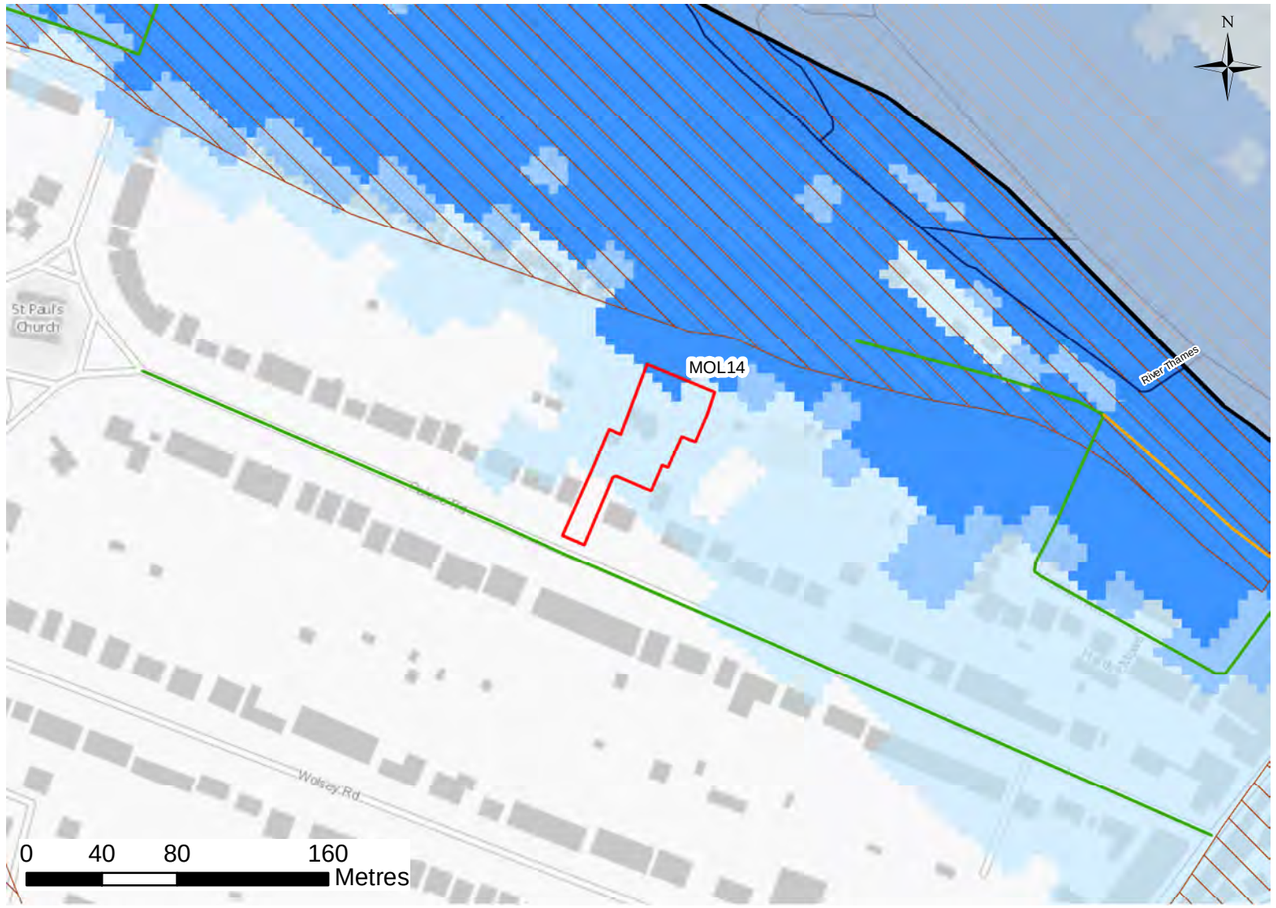
- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Given the risk of flooding from rivers in the wider area, it is recommended that Emergency Plans are developed for occupants of the site to set out the response in the event of flooding, including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL14	SITE LAA REFERENCE: US302	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.27 ha
SITE NAME: 43 Palace Road, East Molesey, KT8 9DN			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 18 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	16%	Flood Zone 2 (0.1% AEP):	77%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	7%

FLOOD WARNING AREA: River Thames at East and West Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: N/A

PROXIMITY TO MAIN RIVER: 137m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 137m **WATERCOURSE NAME:** River Thames

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 5 records in Postcode Area KT8 9

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury

RIVER OPERATIONAL CATCHMENT: Thames Lower

WATERBODY NAME: Thames (Egham to Teddington)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.4%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL14
SITE ADDRESS	43 Palace Road East Molesey KT8 9DN

FLOOD RISK SUMMARY

The River Thames is located approximately 137m north west of the site. The majority of the site (77%) is defined as Flood Zone 2, 16% is defined as Flood Zone 1 and the remaining 7% is defined as Flood Zone 3b from the Lower Thames (Thames Dominated Model). The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

No historic flood records are indicated across the site. Internal property flood records have been documented along Palace Road. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Thames Dominated) indicates the majority of the site to be at risk of flooding during the design event (1% AEP including 35% climate change allowance) and the entire site at risk during a 1% AEP plus an 81% climate change allowance event. Hazard mapping for the design event indicates no hazard in the south of the site, with 'Low' hazard to the centre and 'Moderate' to 'Significant' hazard moving towards the north. Ground levels are approximately 7.8m AOD in the north to 9m AOD in the south. Water levels across the site during the design event are approximately 8.9m AOD.

The Risk of Flooding from Surface Water Map indicates low to medium risk of flooding from surface water along the northern and southern site boundary.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

THIS SITE IS NO LONGER AVAILABLE AND WILL NOT BE TAKEN FORWARD IN THE LOCAL PLAN.

Eighteen residential units are proposed for the site. More Vulnerable development is not permitted in Flood Zone 3b. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development should not be permitted in Flood Zone 3b.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) may be achievable for the site, west along Palace Road, and then east onto either Wolsey Road or Arnison Road to turn south along Bridge Street and Esher Road. There is one section of Low hazard along this route. (Alternative routes along Palace Road to the east, or along the A3050 are at Significant and Extreme hazard from the Thames and not safe routes).

- The site is located within the 'River Thames at East and West Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site (83%) is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint. As a result, the built footprint of the new development of the site should not exceed that of the existing development. This may limit the number of units that can be delivered on the site. Refer Level 1 SFRA Section 5.6 for details of Floodplain Compensation Storage.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL15	**SITE LAA REFERENCE:** US319	**DELIVERY PERIOD:** 11 to 15 years	**SITE AREA:** 0.34 ha
SITE NAME: Pavilion Sports Club Car Park, Hurst Lane, East Molesey, KT8 9DX			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED AND TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 9 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	**Flood Zone 2 (0.1% AEP):**	100%	**Flood Zone 3a (1% AEP):**	0%	**Flood Zone 3b (defined in SFRA report):**	0%

FLOOD WARNING AREA: River Thames at East and West Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 March 1947

PROXIMITY TO MAIN RIVER: 460m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 460m **WATERCOURSE NAME:** River Thames

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 5 records in Postcode Area KT8 9

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury, Mole

RIVER OPERATIONAL CATCHMENT: Thames Lower, Mole Lower and Rythe

WATERBODY NAME: Thames (Egham to Teddington), Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0%	**Medium (1% AEP):**	0%	**High (3.33% AEP):**	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group	**SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel
BEDROCK AQUIFER: Unproductive	**SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100%	**WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-18

SITE ALLOCATION REFERENCE	MOL15
SITE ADDRESS	Pavilion Sports Club car park Hurst Lane East Molesey KT8 9DX

FLOOD RISK SUMMARY

The River Thames is located approximately 460m north of the site. The site (100%) is defined as Flood Zone 2 from the 1947 historic flood outline. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Thames and Tributary Dominated) does not indicate the site to be at risk of flooding up to and including a 0.1% AEP event and therefore has not been assigned a hazard rating for the design event. However the area to the north and the south of the site is at risk from the River Thames (Thames Dominated) during the design event (1 in 100 year plus 35% climate change). Appendix A Figure 4 shows the risk of flooding to the wider area. The access to the site via Hurst Lane to the (to the south) and the A3050 (to the north) is shown to be at Significant and Extreme hazard.

Ground levels are approximately 10m AOD in the east of the site to 10.4m AOD in the west.

The Risk of Flooding from Surface Water Map indicates the site is not at risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Nine residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- The site is not shown to be at risk of flooding during the design event (1% AEP event including central climate change allowance), however the area to the north and the south of the site is at risk from the River Thames (Thames Dominated) during the design event. The main access to the site via Hurst Lane (to the south) and the A3050 (to the north) is shown to be at Significant and Extreme hazard (Appendix A Figure 4).

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) can only be achieved for the site using the pedestrian access through to Palace Road, and thereby to Arnison Road, and south onto Bridge Street and Esher Road. Consideration of whether a vehicular route can be provided through to Palace Road or Parsons Mead should be made as part of the development proposals for the site.

- The site is located within the 'River Thames at East and West Molesey' Flood Warning Area. Given the risk of flooding to the wider area, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL16	**SITE LAA REFERENCE:** US317	**DELIVERY PERIOD:** 11 to 15 years	**SITE AREA:** 0.21 ha
SITE NAME: Tesco Metro Car Park, Walton Road, East Molesey			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: THAMES DOMINATED AND TRIBUTARY DOMINATED MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 11 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	**Flood Zone 2 (0.1% AEP):**	100%	**Flood Zone 3a (1% AEP):**	0%	**Flood Zone 3b (defined in SFRA report):**	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 423m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 373m **WATERCOURSE NAME:** Tributary of River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 10 records in Postcode Area KT8 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	99%	**Medium (1% AEP):**	63%	**High (3.33% AEP):**	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL16
SITE ADDRESS	Tesco Metro car park, Walton Road, East Molesey

FLOOD RISK SUMMARY

A tributary of the River Mole is located approximately 373m south east of the site, and the River Mole runs approximately 423m south and east of the site. The entire site (100%) is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Thames Dominated) indicates the entire site to be at risk of flooding during a 1% AEP event including 35% climate change. Hazard mapping for the 1% AEP including central climate allowance indicates almost the entire site to be at 'Significant' hazard, with a small area to the east at 'Moderate' hazard. Ground levels are approximately 8.1m AOD in the west to 8.6m AOD in the west. Water levels across the site during the design event are approximately 9.1m AOD.

Modelling for the Lower Thames (Tributary Dominated) does not indicate the site to be at risk of flooding up to and including the design event (1% AEP plus a 35% climate change allowance) and therefore has not been assigned a hazard rating from the Tributary Dominated model for the design event. (The entire site is indicated to be at risk of flooding during a 1% AEP plus an 81% climate change allowance event).

The Risk of Flooding from Surface Water Map indicates the majority of the site to be at medium risk of flooding from surface water, with the east and south of the site indicated to be at low risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level and the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

THIS SITE IS NO LONGER AVAILABLE AND WILL NOT BE TAKEN FORWARD IN THE LOCAL PLAN.

Eleven residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is not achievable for the site. Elmbridge BC, in consultation with Emergency Planners, will need to determine whether reliance on evacuation prior to a flood event and the provision of places of safety are an appropriate approach to demonstrate safety of development.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint. As a result, the built footprint of the new development of the site should not exceed that of the existing development. This may limit the number of units that can be delivered on the site.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

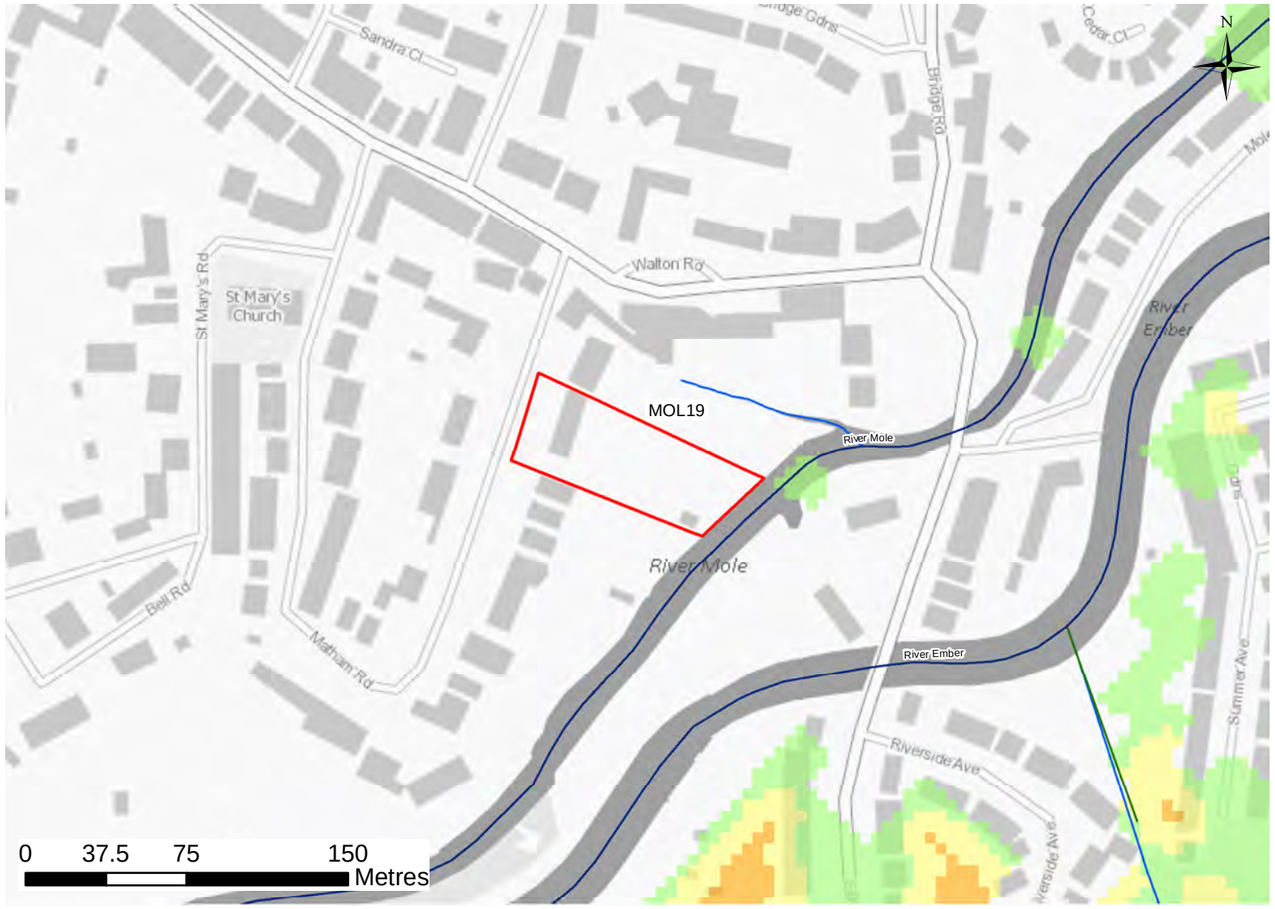
- The site is located within the 'River Thames at East and West Molesey' Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including evacuation prior to a flood event or reliance on a place of safety.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: MOL19	SITE LAA REFERENCE: US296	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.41 ha
SITE NAME: 5 Matham Road, East Molesey, KT8 0SX			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER THAMES: TRIBUTARY DOMINATED AND LOWER MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD

- FLOOD ZONES AND HISTORIC FLOOD RECORDS
- RISK OF FLOODING FROM SURFACE WATER
- SUSCEPTIBILITY TO GROUNDWATER FLOODING
- RISK OF FLOODING FROM RESERVOIRS
- MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Rythe, Dead River and Lower Wey
- HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole
- MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated
- HAZARD MAPPING Lower Thames: Thames Dominated
- MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated
- HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 23 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	50.2%	Flood Zone 2 (0.1% AEP):	48.6%	Flood Zone 3a (1% AEP):	0.5%	Flood Zone 3b (defined in SFRA report):	0.7%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968, December 2013

PROXIMITY TO MAIN RIVER: 8m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 8m **WATERCOURSE NAME:** River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 10 records in Postcode Area KT8 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.5%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Secondary (undifferentiated), Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level,
Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	MOL19
SITE ADDRESS	5 Matham Road East Molesey KT8 0SX

FLOOD RISK SUMMARY

The River Mole flows north 8m to the east of the site. 50% of the site is defined as Flood Zone 1, 48% is defined as Flood Zone 2 and 2% is defined as Flood Zone 3b. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced flooding in September 1968 and December 2013. The site does not lie within a Flood Priority Area.

Modelling for the Lower Thames (Tributary Dominated and Thames Dominated) indicates that the site is not at risk of flooding during the design event (1% AEP plus a 35% climate change allowance).

In the wider area, the route west along Walton Road is at risk of flooding from the Thames (Thames Dominated) with hazard rating of Low, Moderate and Significant. Routes south along Esher Road, south east of the site are at risk of flooding from the Thames (Tributary Dominated) with hazard rating Low. (Refer also Appendix A Figures 4 and 5).

Ground levels are approximately 9.5m AOD in the north west of the site to 7.7m AOD in the south east. Water levels and depths are not indicated to be present in the east of this site during the design event.

Modelling for the Lower Mole does not indicate the site to be at risk of flooding.

The Risk of Flooding from Surface Water Map indicates a low risk of flooding from surface water along the eastern site boundary.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level and the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Twenty-three residential units are proposed for this site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. More Vulnerable development is only permitted in Flood Zone 3a where it can be demonstrated that the Exception Test is satisfied i.e. (1) that the proposed development will provide wider sustainability benefits to the community that outweigh flood risk, and (2) that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. More Vulnerable development is not permitted within Flood Zone 3b. This part of the site should be retained as floodplain.

A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development should be avoided in Flood Zone 3b. An 8 metre wide undeveloped buffer strip should be retained alongside Main Rivers and opportunities taken for riverside restoration. New development within 8m of a Main River will require consent from the Environment Agency. (Guidance on Environment Agency Flood Risk Activity Permits is available online https://www.gov.uk/guidance/flood-risk-activities-environmental-permits).

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is likely to be achievable to the north along Matham Road, east onto Walton Road and then south along Esher Road.

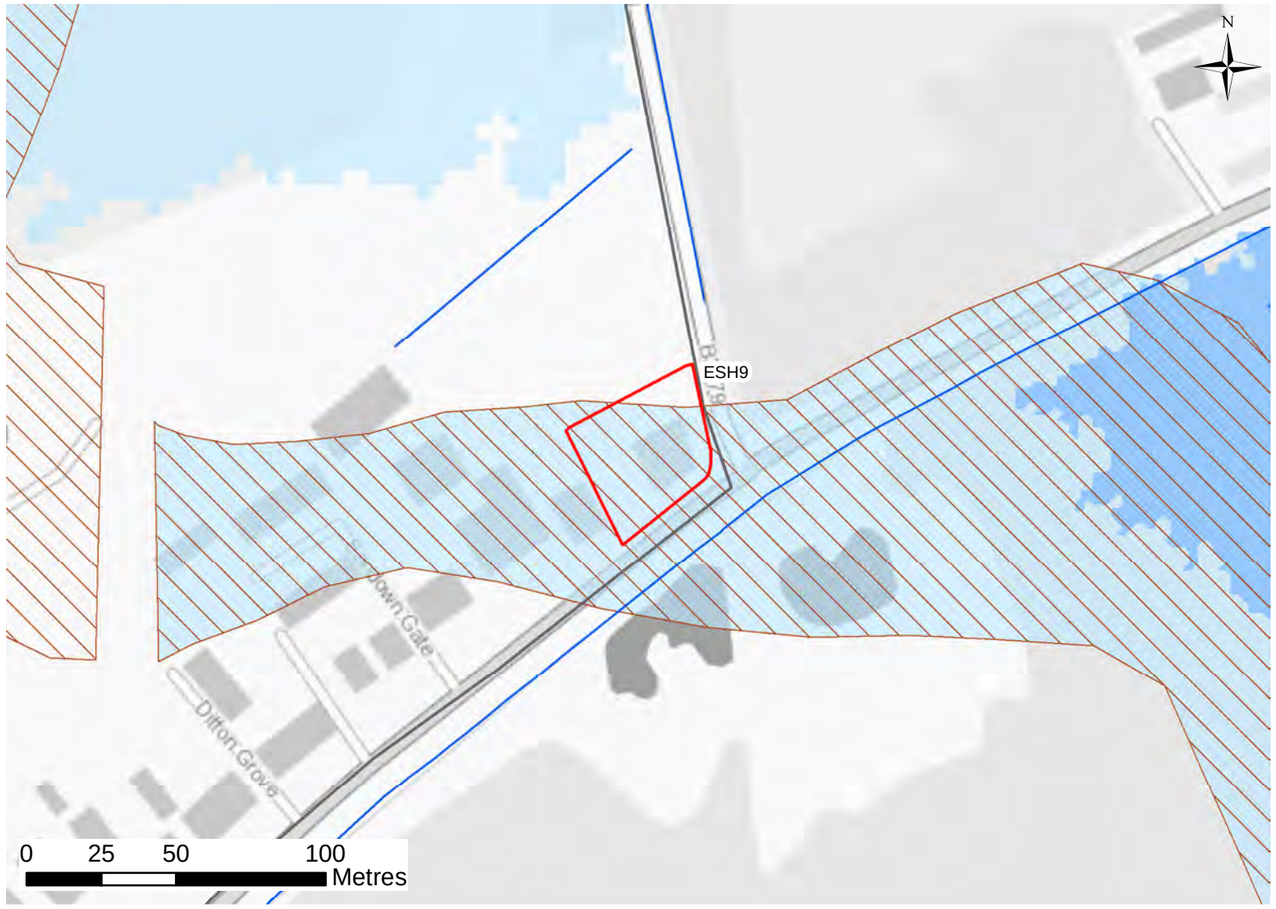
- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding, including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: ESH9	SITE LAA REFERENCE: US276	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.17 ha
SITE NAME: Cafe Rouge, Portsmouth Road, Esher, KT10 9AD			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE RIVER RYTHE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 20 residential units/mixed-use 117 sqm floorspace

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	13%	Flood Zone 2 (0.1% AEP):	87%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Rythe between Oxshott and Thames Ditton and River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 456m **MAIN RIVER NAME:** River Rythe

PROXIMITY TO NEAREST WATERCOURSE: 17m **WATERCOURSE NAME:** Unnamed Watercourse

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 9 records in Postcode Area KT10 9

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Rythe

SURFACE WATER FLOODING

Low (0.1% AEP):	0.3%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Chobham Bagshot Beds

GROUNDWATER BODY: Chobham Bagshot Beds

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	0%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	0%

SITE ALLOCATION REFERENCE	ESH9
SITE ADDRESS	Cafe Rouge, Portsmouth Road, Esher, KT10 9AD

FLOOD RISK SUMMARY

The River Rythe runs east approximately 456m from the site and an un-named watercourse (tributary of the River Rythe) runs approximately 17m south of the site. The majority of the site (87%) is defined as Flood Zone 2 and the remaining 13% is defined as Flood Zone 1. Upon investigation, the site has been defined as Flood Zone 2 due to the 1968 historic flood outline. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area. The site does not lie within a Flood Priority Area.

Modelling for the River Rythe does not indicate the site to be at risk of flooding during the design event (1% AEP plus a 20% climate change allowance) and therefore the site has not been assigned a hazard rating. Ground levels are approximately 13.6m AOD in the north of the site to 14.8m AOD in the south.

The Risk of Flooding from Surface Water Map indicates low risk of surface water flooding along the southern site boundary.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The site is not indicated to be at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Twenty residential units and mixed use floorspace (117m2) are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable to the south of the site.

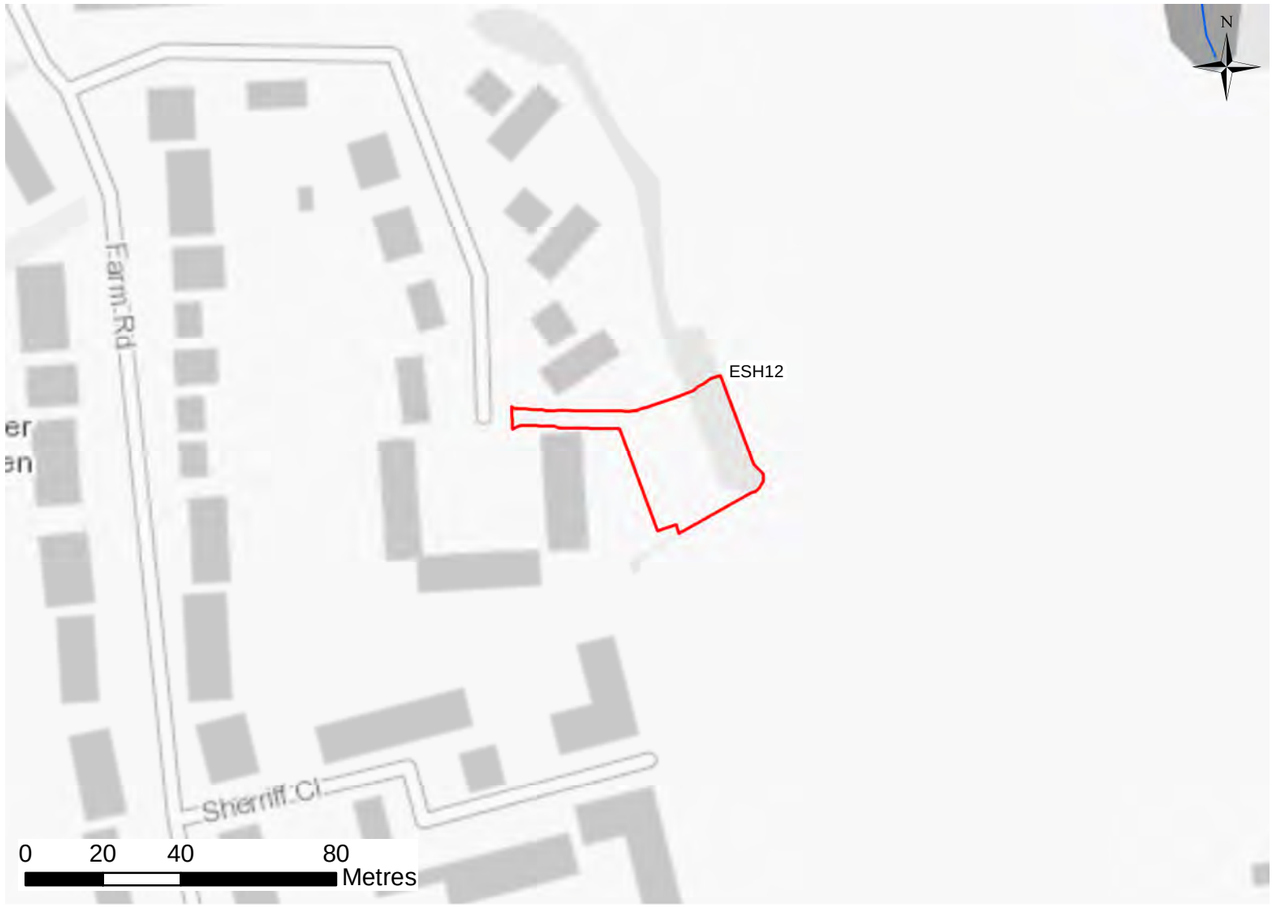
- The site is located within the 'River Rythe between Oxshott and Thames Ditton', and the 'River Mole at Esher and East Molesey' Flood Warning Areas. Given the risk of flooding in the local area, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

SITE ALLOCATION REFERENCE: ESH12	SITE LAA REFERENCE: US157	DELIVERY PERIOD: 6 to 10 years	SITE AREA: 0.1 ha
SITE NAME: Garages at Farm Road, Esher, KT10 8AX			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 3 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	2%	Flood Zone 2 (0.1% AEP):	98%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 453m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 151m **WATERCOURSE NAME:** Tributary of River Ember

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 7 records in Postcode Area KT10 8

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	1%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Secondary A **SUPERFICIAL AQUIFER:** Secondary (undifferentiated)

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: This information is not available for this site.

GROUNDWATER OPERATIONAL CATCHMENT: This information is not available for this site.

GROUNDWATER BODY: This information is not available for this site.

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-18

SITE ALLOCATION REFERENCE	ESH12
SITE ADDRESS	Garages at Farm Road, Esher, KT10 8AX

FLOOD RISK SUMMARY

A tributary of the River Ember is located approximately 151m north east of the site. The majority of the site (98%) is defined as Flood Zone 2, and the remaining 2% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in 1968. The site does not lie within a Flood Priority Area.

Modelling for the Lower Mole does not indicate the site to be at risk of flooding up to and including a 1% AEP event including a 20% climate change allowance and therefore has not been assigned a hazard rating for the design event.

Ground levels are approximately 11.6m AOD in the west of the site, with areas to the centre around 10.8m AOD and areas to the north 11.1m AOD.

The Risk of Flooding from Surface Water Map indicates the south of the site to be at low risk of flooding from surface water. Access routes along Farm Road may be susceptible to surface water flooding.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Three residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable within Lower Green. However, the routes out of Lower Green are at risk of flooding, i.e. More Lane south to Esher, and Douglas Road leading east. A section of More Lane has maximum flood depths of up to 0.1m and 0.15m; this is considered the preferred route. The route along Douglas Road is shown to be at risk of flooding along a longer extent and to greater depths. (Refer also Appendix A Figure 12 for detailed version colour palette for the Lower Mole maximum depth mapping).

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

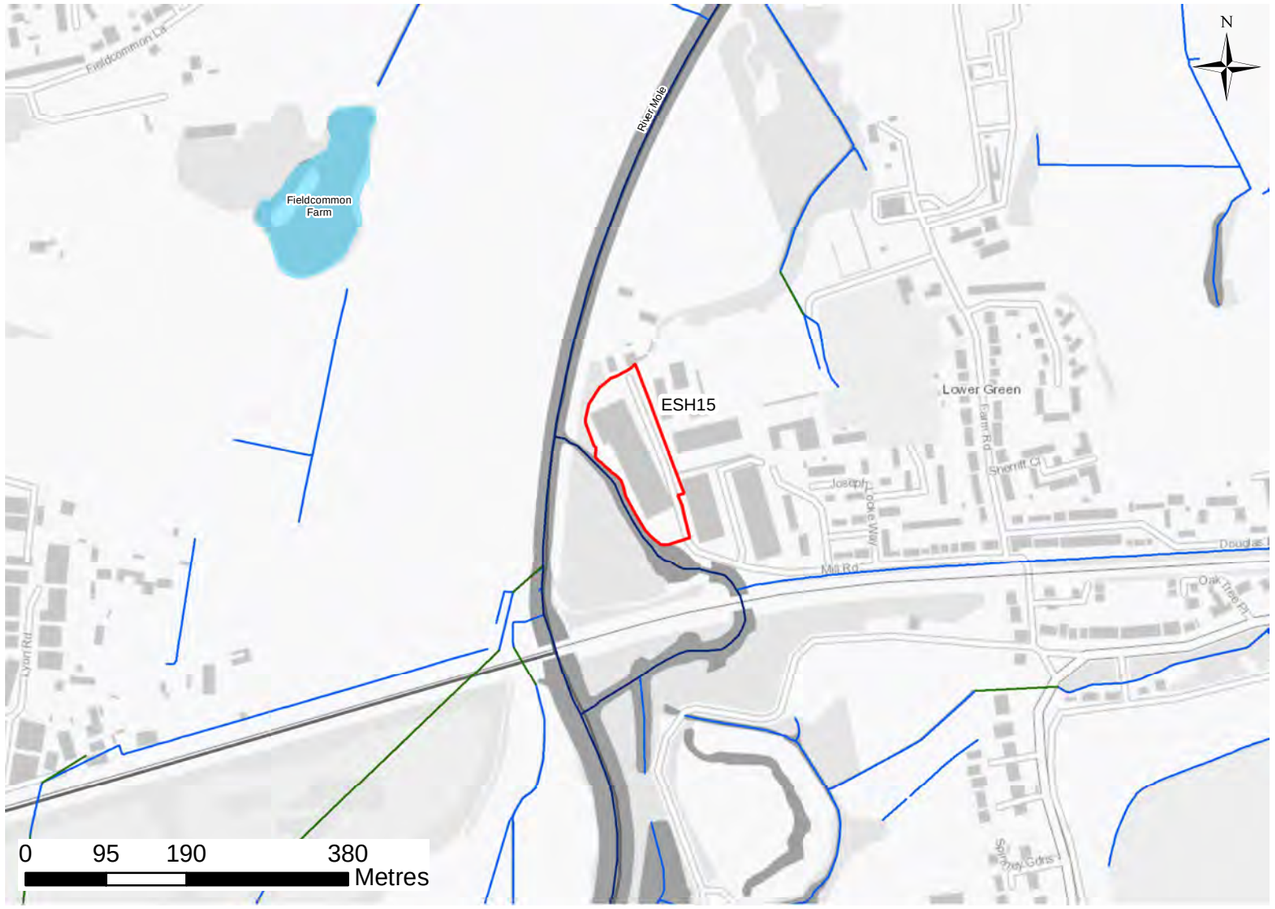
- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. As the site is not shown to be at risk of flooding from rivers during the design event, floodplain compensation storage will not be required.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: ESH15	SITE LAA REFERENCE: US39	DELIVERY PERIOD: 6 to 10 years	SITE AREA: 1.33 ha
SITE NAME: Unit A & B Sandown Industrial Park, Esher			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE MIDDLE MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 40 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	97.4%	Flood Zone 2 (0.1% AEP):	2.2%	Flood Zone 3a (1% AEP):	0.3%	Flood Zone 3b (defined in SFRA report):	0.1%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: Lower Mole Flood Alleviation **STATUS:** High

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 February 1979, 06 September 1968, December 2013

PROXIMITY TO MAIN RIVER: 5m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 5m **WATERCOURSE NAME:** River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 7 records in Postcode Area KT10 8

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.4%	Medium (1% AEP):	0.1%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Secondary A, Unproductive **SUPERFICIAL AQUIFER:** Secondary (undifferentiated)

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: This information is not available for this site.

GROUNDWATER OPERATIONAL CATCHMENT: This information is not available for this site.

GROUNDWATER BODY: This information is not available for this site.

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	100%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

SITE ALLOCATION REFERENCE	ESH15
SITE ADDRESS	Unit A & B Sandown Industrial Park, Esher

FLOOD RISK SUMMARY

The River Mole lies along the south and west of the site. The majority of the site (97.4%) is defined as Flood Zone 1, 2.2% is defined as Flood Zone 2, 0.3% is defined as Flood Zone 3a, and the remaining 0.1% is defined as Flood Zone 3b from the Middle Mole. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968, February 1979, and December 2013. The site lies within the 'Lower Mole Flood Alleviation' Flood Priority Area which has a status of High.

Modelling for the Middle Mole indicates the western site boundary to be at risk during the design event (1% AEP plus a 25% climate change allowance, but the rest of the site is not shown to be at risk. (This part of the Middle Mole model is 1D and therefore there is no corresponding hazard mapping in this location).

Modelling of the Lower Mole indicates that the site is not at risk during the design event, but the area local to the site is at risk, including access routes away from Lower Green along More Lane towards Esher, and to the east along Douglas Road parallel to the railway line.

Ground levels are approximately 13.1m AOD in the north of the site to 13.7m AOD in the west.

The Risk of Flooding from Surface Water Map indicates the western boundary of the site to be at low to medium risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

THIS SITE IS NO LONGER AVAILABLE AND WILL NOT BE TAKEN FORWARD IN THE LOCAL PLAN

Forty residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 (98% of the site). More Vulnerable development is only permitted in Flood Zone 3a where it can be demonstrated that the Exception Test is satisfied i.e. (1) that the proposed development will provide wider sustainability benefits to the community that outweigh flood risk, and (2) that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made:

- Development is not permitted within Flood Zone 3b. This part of the site should be retained as floodplain and steps taken to restore land to provide a more natural edge of the River Mole.

- Retain an 8 metre wide undeveloped buffer strip alongside Main Rivers and explore opportunities for riverside restoration. New development within 8m of a Main River will require consent from the Environment Agency. (Guidance on Environment Agency Flood Risk Activity Permits is available online https://www.gov.uk/guidance/flood-risk-activities-environmental-permits).

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable within Lower Green. However, the routes out of Lower Green are at risk of flooding, i.e. More Lane south to Esher, and Douglas Road leading east. A section of More Lane has maximum flood depths of up to 0.1m and 0.15m; this is considered the preferred route. The route along Douglas Road is shown to be at risk of flooding along a longer extent and to greater depths. (Refer also Appendix A Figure 12 for detailed version colour palette for the Lower Mole maximum depth mapping).

- A place of safe refuge should be defined within Lower Green.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

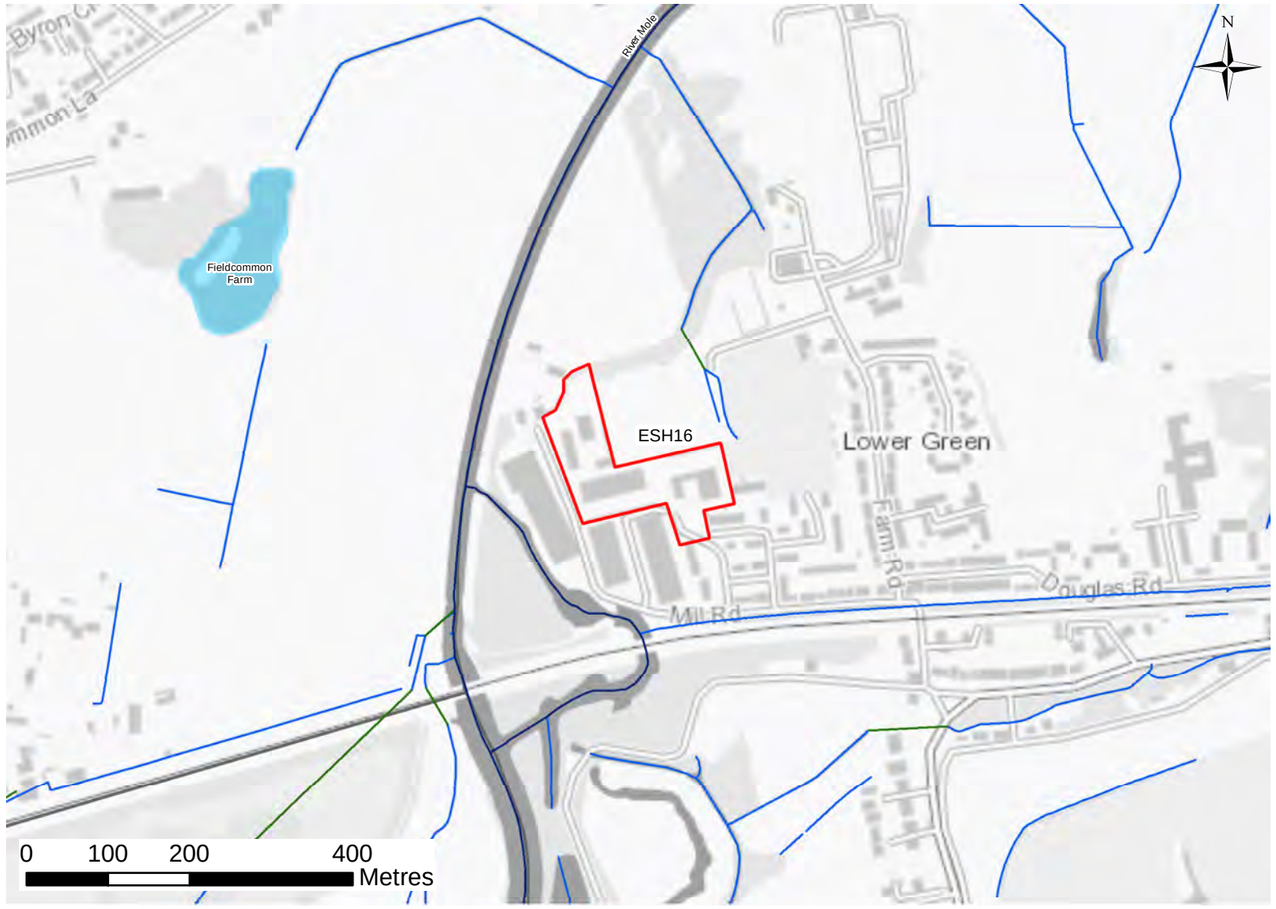
- The site is located within the 'Lower Mole Flood Alleviation' Flood Priority Area which has a status of High. Policies for this Flood Priority Area set out by Surrey County Council must be adhered to throughout the development of this site.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: ESH16	SITE LAA REFERENCE: US33	DELIVERY PERIOD: 6 to 10 years	SITE AREA: 2.1 ha
SITE NAME: River Mole Business Park, Mill Road, Esher			



*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE MIDDLE MOLE MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 200 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	98%	Flood Zone 2 (0.1% AEP):	2%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: Lower Mole Flood Alleviation **STATUS:** High

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 February 1979, 06 September 1968

PROXIMITY TO MAIN RIVER: 71m **MAIN RIVER NAME:** River Mole

PROXIMITY TO NEAREST WATERCOURSE: 19m **WATERCOURSE NAME:** Tributary of River Ember

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 7 records in Postcode Area KT10 8

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	17%	Medium (1% AEP):	3%	High (3.33% AEP):	1%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Secondary A, Unproductive **SUPERFICIAL AQUIFER:** Secondary (undifferentiated), Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding of property situated below ground level,
Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	100%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-17

SITE ALLOCATION REFERENCE	ESH16
SITE ADDRESS	River Mole Business Park, Mill Road, Esher

FLOOD RISK SUMMARY

A tributary of the River Ember is located approximately 19m north east of the site, while the River Mole is located approximately 71m to the west of the site. The majority of the site (98%) is defined as Flood Zone 1, and the remaining 2% is defined as Flood Zone 2 from the 1968 historic flood outline. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968 and February 1979. The site lies within the 'Lower Mole Flood Alleviation' Flood Priority Area which has a status of High.

Modelling for the Middle Mole does not indicate the site to be at risk of flooding up to and including a 0.1% AEP event. (This part of the Middle Mole model is 1D and therefore there is no corresponding hazard mapping in this location).

Modelling of the Lower Mole indicates that the site is not at risk during the design event, but the area local to the site is at risk, including access routes away from Lower Green along More Lane towards Esher, and to the east along Douglas Road parallel to the railway line.

Ground levels across the site range from approximately 12.1m AOD to 12.9m AOD.

The Risk of Flooding from Surface Water Map indicates the south and west of the site to be at low risk of flooding from surface water. The east of the site is indicated to be at low to high risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface and groundwater potential for groundwater flooding of property below ground level in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Two hundred residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable within Lower Green. However, the routes out of Lower Green are at risk of flooding, i.e. More Lane south to Esher, and Douglas Road leading east. A section of More Lane has maximum flood depths of up to 0.1m and 0.15m; this is considered the preferred route. The route along Douglas Road is shown to be at risk of flooding along a longer extent and to greater depths. (Refer also Appendix A Figure 12 for detailed version colour palette for the Lower Mole maximum depth mapping).

- A suitable place of safe refuge should be defined within Lower Green and/or the proposed development.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced.

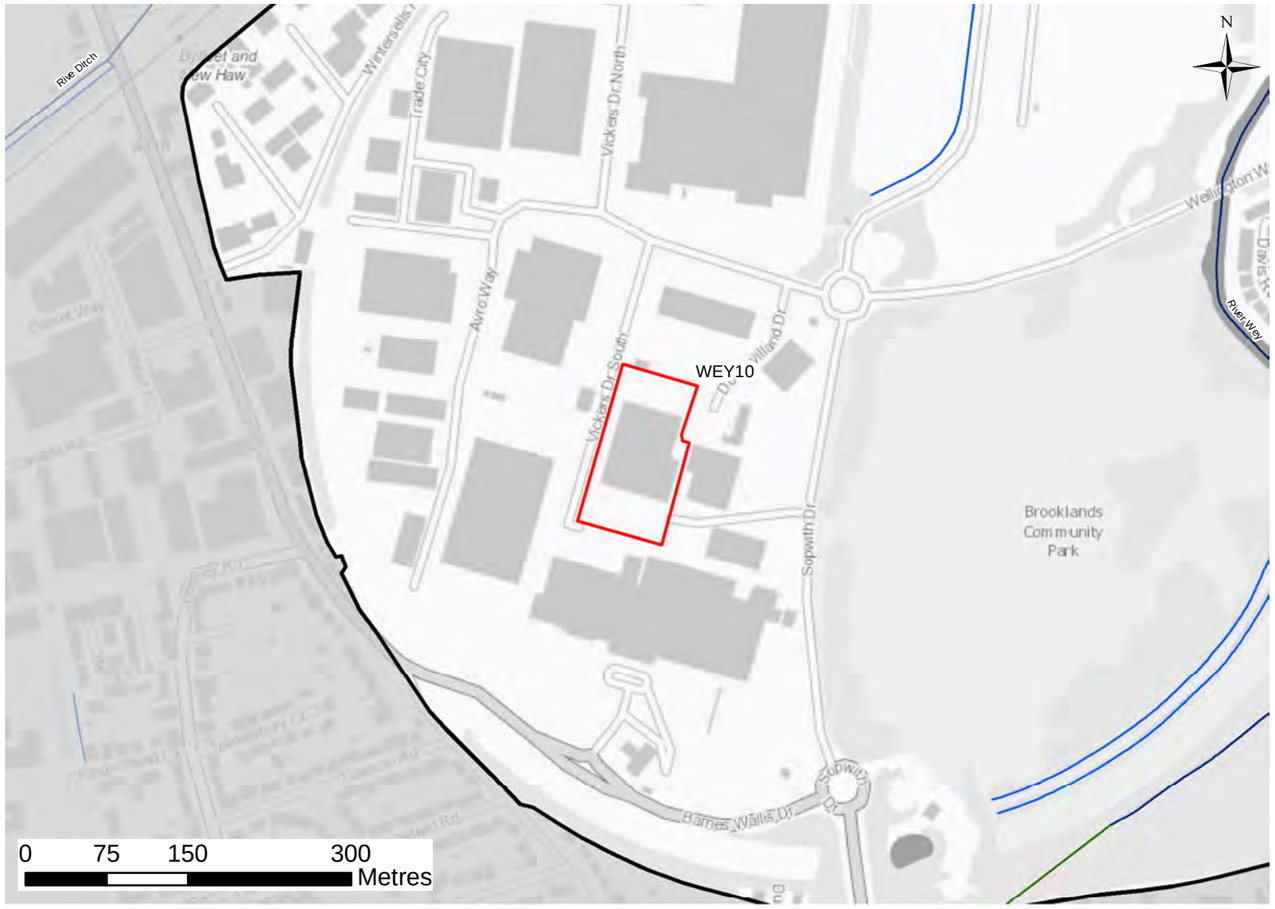
- The site is located within the 'Lower Mole Flood Alleviation' Flood Priority Area which has a status of High. Policies for this Flood Priority Area set out by Surrey County Council must be adhered to throughout the development of this site.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WEY10	SITE LAA REFERENCE: US525	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 1.14 ha
SITE NAME: 8 Sopwith Drive			



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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER WEY MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 1404sqm commercial

VULNERABILITY CLASSIFICATION: Less Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	27%	Flood Zone 3a (1% AEP):	73%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Wey at Wisley and Byfleet

FLOOD PRIORITY AREA: Brooklands and Parvis Road catchment **STATUS:** High

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: N/A

PROXIMITY TO MAIN RIVER: 485m **MAIN RIVER NAME:** River Wey

PROXIMITY TO NEAREST WATERCOURSE: 237m **WATERCOURSE NAME:** Tributary of River Wey

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 28 records in Postcode Area KT13 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Wey and Trib

RIVER OPERATIONAL CATCHMENT: Wey

WATERBODY NAME: Wey (Shalford to River Thames confluence at Weybridge)

SURFACE WATER FLOODING

Low (0.1% AEP):	45%	Medium (1% AEP):	11%	High (3.33% AEP):	2%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Secondary A **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Limited potential for groundwater flooding to occur

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Chobham Bagshot Beds

GROUNDWATER BODY: Chobham Bagshot Beds

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	0%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

SITE ALLOCATION REFERENCE	WEY10
SITE ADDRESS	8 Sopwith Drive

FLOOD RISK SUMMARY

A tributary of the River Wey is located approximately 237m east of the site. The majority of the site (73%) is defined as Flood Zone 3a, and the remaining 27% is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site has not experienced flooding. The site lies within the 'Brooklands and Parvis Road catchment' Flood Priority Area which has a status of High.

Modelling for the Lower Wey indicates the majority of the site to be at risk of flooding during a 1% AEP event and the entire site to be at risk of flooding during the design event (1% AEP plus a 25% climate change allowance). Hazard mapping for the design event indicates the majority of the site to be at 'Moderate' hazard, with areas to the north and south of the site at 'Significant' hazard.

Ground levels across the site are approximately 14.8m AOD to 15m AOD. Water levels across the site during the design event are approximately 15.3m AOD.

The Risk of Flooding from Surface Water Map indicates the south of the site to be at low risk of flooding from surface water, while the north section is at low to high risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates there is limited potential for groundwater flooding to occur in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Commercial floorspace (1404m2) is proposed for the site. Less Vulnerable development (e.g. offices and shops) is permitted within Flood Zones 1, 2 and 3a and the Exception Test is not required.

A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable away from the site via Vickers Drive South north to an area that is not at risk of flooding during the design event (a 'dry island'). The route along Wellington Way to the east, has a small section at Moderate/Significant hazard. Elmbridge BC, in consultation with Emergency Planners, will need to determine whether reliance on evacuation prior to a flood event and the provision of places of safety are an appropriate approach to demonstrate safety of this Less Vulnerable development.

- The site is located within the 'River Wey at Wisley and Byfleet' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of a flood warning and flood event, including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Given that the majority of the site is located within the flood extent for the design flood (1% AEP including central climate change allowance), it will not be possible to provide floodplain compensation storage within the site for any increase in building footprint. As a result, the built footprint of the new development of the site should not exceed that of the existing development. This may limit the number of units that can be delivered on the site. A review of the existing site by EBC shows that the majority of the site is already developed, and therefore the allocation of this site is not anticipated to increase the building footprint. As the site is proposed for Less Vulnerable development, proposals should consider options for flood resilience. Refer to Level 1 SFRA Section 5.8.

- Finished Floor Levels for Less Vulnerable development do not need to be set above the design flood (1% AEP including central climate change allowance) level, but steps should be taken to ensure that the development is appropriately flood resistant and resilient. Refer to Level 1 SFRA Section 5.8.

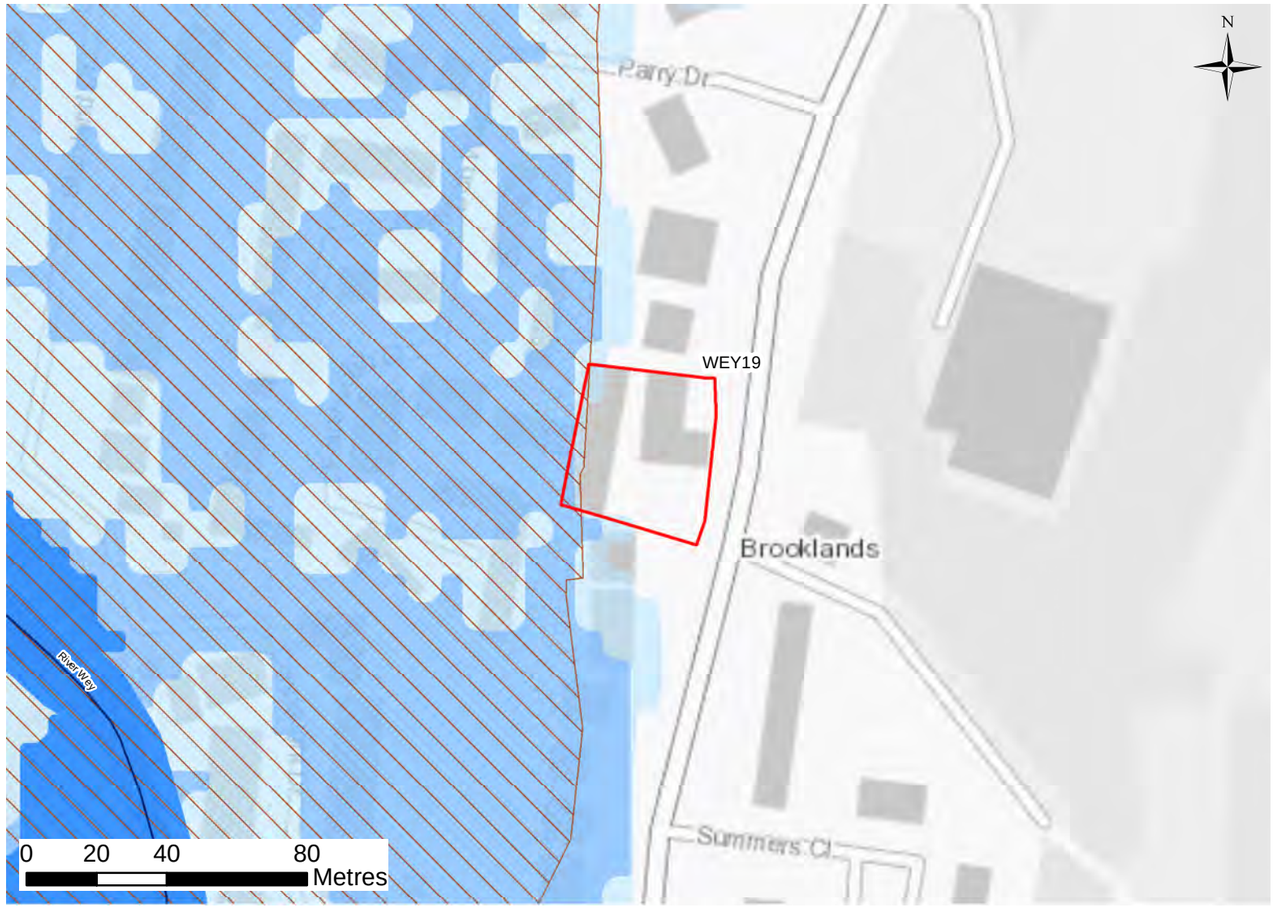
- The site is located within the 'Brooklands and Parvis Road catchment Flood Priority Area which has a status of High. Policies for this Flood Priority Area set out by Surrey County Council must be adhered to throughout the development of this site.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WEY19	SITE LAA REFERENCE: US431	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.18 ha
SITE NAME: Shell Petrol Filling Station, 95 Brooklands Road, Weybridge, KT13 0RP			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER WEY MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 5 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	89.3%	Flood Zone 2 (0.1% AEP):	8.3%	Flood Zone 3a (1% AEP):	2.4%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Wey at Wisley and Byfleet

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968, 06 December 1929

PROXIMITY TO MAIN RIVER: 142m **MAIN RIVER NAME:** River Wey

PROXIMITY TO NEAREST WATERCOURSE: 142m **WATERCOURSE NAME:** River Wey

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 28 records in Postcode Area KT13 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Wey and Trib

RIVER OPERATIONAL CATCHMENT: Wey

WATERBODY NAME: Wey (Shalford to River Thames confluence at Weybridge)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.2%	Medium (1% AEP):	0.1%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Secondary A **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Limited potential for groundwater flooding to occur

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Chobham Bagshot Beds

GROUNDWATER BODY: Chobham Bagshot Beds

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	0%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	19%

SITE ALLOCATION REFERENCE	WEY19
SITE ADDRESS	Shell Petrol Filling Station 95 Brooklands Road Weybridge KT13 0RP

FLOOD RISK SUMMARY

The River Wey is approximately 140m from the western boundary of the site. The majority of the site (89.3%) is defined as Flood Zone 1, 8.3% is defined as Flood Zone 2, and the remaining 2.4% is defined as Flood Zone 3a from the Lower Wey. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the south west corner of the site experienced flooding in December 1929 and September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Lower Wey indicates the south west corner of the site to be at risk of flooding during the design event (1% AEP event plus a 25% climate change allowance). The site is not indicated to be at risk of flooding during a 1% AEP event. Hazard mapping for the design event indicates the south west corner of the site to be at 'Low' to 'Moderate' hazard.

Ground levels are approximately 16.1m AOD in the north west of the site to 17m AOD in the south east. Water levels across the site during the design event are approximately 15.5m AOD.

The north west and south west of the site is indicated to be at risk of flooding during a 0.1% AEP event.

The Risk of Flooding from Surface Water Map indicates a low to high risk of flooding from surface water to the north west of the site boundary.

The BGS Susceptibility to Groundwater Flooding dataset indicates there is limited potential for groundwater flooding to occur in the area.

Part of the site (19%) is at risk of flooding from reservoirs in the event of a breach or failure when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Five residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2, however More Vulnerable development is only permitted in Flood Zone 3a where it can be demonstrated that the Exception Test is satisfied i.e. (1) that the proposed development will provide wider sustainability benefits to the community that outweigh flood risk, and (2) that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable north along Brooklands Road. (The route south is shown to be at risk of flooding with hazard rating Significant, and therefore not a suitable alternative).

- The site is located within the 'River Wey at Wisley and Byfleet' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. As the area of the site impacted during the design event is isolated to the south west corner, it is recommended that this area is not developed and used for landscaping or public space only.

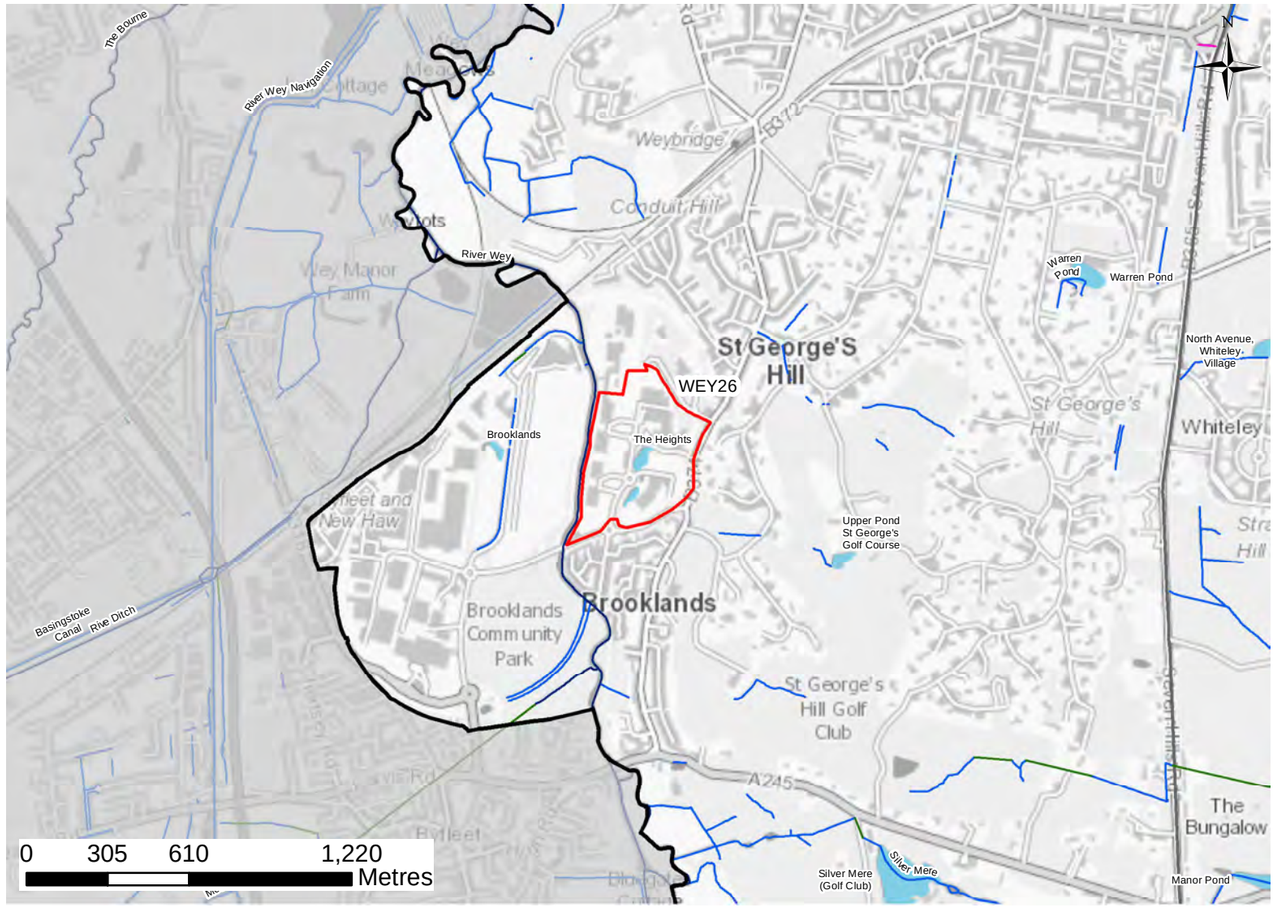
- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WEY26	SITE LAA REFERENCE: US110	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 20 ha
SITE NAME: The Heights, Weybridge			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER WEY MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

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FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 9500 sqm of employment floorspace

VULNERABILITY CLASSIFICATION: Less Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	23.7%	Flood Zone 2 (0.1% AEP):	33.7%	Flood Zone 3a (1% AEP):	39.7%	Flood Zone 3b (defined in SFRA report):	2.9%

FLOOD WARNING AREA: River Wey at Wisley and Byfleet and Properties closest to the River Wey between Walsham Meadow and Byfleet town

FLOOD PRIORITY AREA: Brooklands and Parvis Road catchment **STATUS:** High

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 February 1990, 06 January 2003, 06 September 1968, 06 December 1929

PROXIMITY TO MAIN RIVER: 9m **MAIN RIVER NAME:** River Wey

PROXIMITY TO NEAREST WATERCOURSE: 9m **WATERCOURSE NAME:** River Wey

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 28 records in Postcode Area KT13 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Wey and Trib

RIVER OPERATIONAL CATCHMENT: Wey

WATERBODY NAME: Wey (Shalford to River Thames confluence at Weybridge)

SURFACE WATER FLOODING

Low (0.1% AEP):	21%	Medium (1% AEP):	7%	High (3.33% AEP):	2%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Secondary A **SUPERFICIAL AQUIFER:** Secondary A

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Limited potential for groundwater flooding to occur,Potential for groundwater flooding of property situated below ground level, Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Chobham Bagshot Beds

GROUNDWATER BODY: Chobham Bagshot Beds

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	0%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	77%

SITE ALLOCATION REFERENCE	WEY26
SITE ADDRESS	The Heights, Weybridge

FLOOD RISK SUMMARY

The River Wey runs along the western boundary of the site at a distance of approximately 9m and joins the River Thames approximately 2.8km north of the site. Approximately 39.7% of the site area is defined as Flood Zone 3a, with 2.9% of the site defined as Flood Zone 3b from the Lower Wey. 33.7% of the site is defined as Flood Zone 2 and the remaining 23.7% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in December 1929, September 1968, February 1990 and January 2003. The site lies within the 'Brooklands and Parvis Road catchment' Flood Priority Area which has a status of High.

Modelling for the Lower Wey indicates the west of the site to be at risk of flooding up to and including a 0.1% AEP event. Hazard mapping for the design event (1% AEP plus a 25% climate change allowance) indicates the west of the site to be at 'Low' to 'Significant' hazard, with the western boundary of the site at 'Extreme' hazard.

Ground levels vary greatly on the site and vary from approximately 14m AOD in the north, south and west to 31m AOD in the east. Water levels across the site during the design event are approximately 14.9m AOD.

The Risk of Flooding from Surface Water Map indicates the majority of the site to be at very low risk of surface water flooding, however ponding of low to high risk surface water flooding is indicated on existing roads across the site.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding of property situated below ground level and the potential for groundwater flooding to occur at surface in the area.

The majority of the site (77%) is at risk of flooding from reservoirs in the event of a breach or failure when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Employment floorspace (9,500m2) is proposed for this site. Less Vulnerable development (e.g. offices and shops) is not permitted within Flood Zone 3b. This part of the site should be retained as floodplain and steps taken to restore land to provide a more natural edge of the River Wey. Less Vulnerable development is permitted within Flood Zones 1, 2 and 3a, and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Retain an 8 metre wide undeveloped buffer strip alongside Main Rivers and explore opportunities for riverside restoration. New development within 8m of a Main River will require consent from the Environment Agency. (Guidance on Environment Agency Flood Risk Activity Permits is available online https://www.gov.uk/guidance/flood-risk-activities-environmental-permits).

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible is reduced. 58% of the site is indicated to be at risk of flooding during the design event (1% AEP plus 25% climate change event). Any increase in built footprint within the design flood extent will need to be compensated for, on a level for level volume for volume basis within the site. (Refer to Level 1 SFRA Section 5.6 for details of Floodplain Compensation Storage). A review of the existing site by EBC shows that the majority of the site is already developed, and therefore the allocation of this site is not anticipated to increase the building footprint. As the site is proposed for Less Vulnerable development, proposals should consider options for flood resilience for parts of the scheme. Refer to Level 1 SFRA Section 5.8.

- Finished Floor Levels for Less Vulnerable development do not need to be set above the design flood (1% AEP including central climate change allowance) level, but steps should be taken to ensure that the development is appropriately flood resistant and resilient. Refer to Level 1 SFRA Section 5.8.

- Safe access/egress (i.e. that is dry of Low hazard during the 1% AEP event including central climate change allowance) is achievable west along Wellington Way and the north along Brooklands Road. (Routes west along Wellington Way, or south along Brooklands Road are shown to be at Significant hazard and are therefore not safe routes).

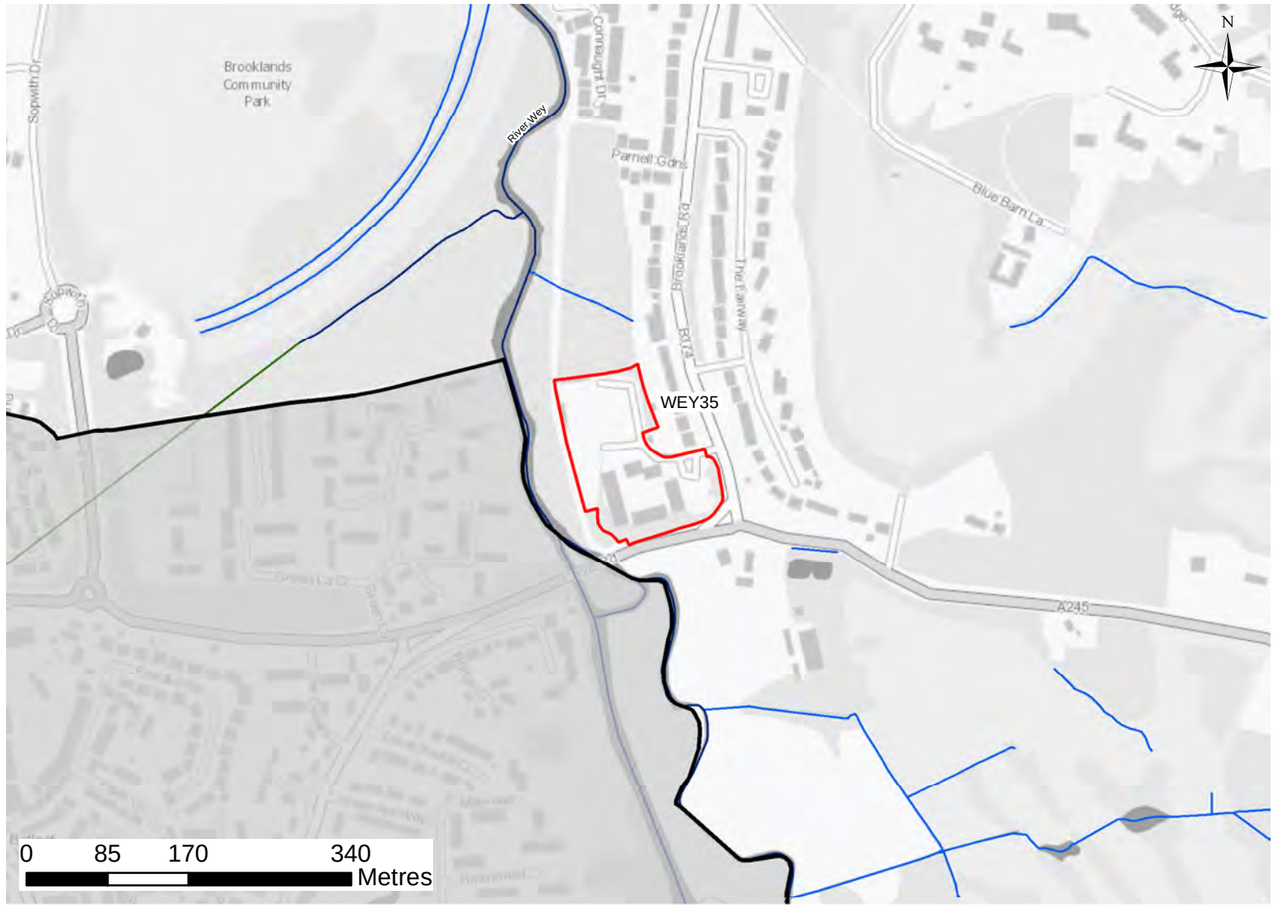
- The site is located within the 'River Wey at Wisley and Byfleet' and ‘Properties closest to the River Wey between Walsham Meadow and Byfleet town’ Flood Warning Areas. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- The site is located within the ''Brooklands and Parvis Road catchment' Flood Priority Area which has a status of High. Policies for this Flood Priority Area set out by Surrey County Council must be adhered to throughout the development of this site.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

SITE ALLOCATION REFERENCE: WEY35	SITE LAA REFERENCE: US93	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 1.92 ha
SITE NAME: Horizon Business Village			



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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE LOWER WEY MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 6000 sqm of employment floorspace

VULNERABILITY CLASSIFICATION: Less Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	14.5%	Flood Zone 3a (1% AEP):	77.6%	Flood Zone 3b (defined in SFRA report):	7.9%

FLOOD WARNING AREA: River Wey at Wisley and Byfleet and Properties closest to the River Wey between Walsham Meadow and Byfleet town

FLOOD PRIORITY AREA: Brooklands and Parvis Road catchment, A245 Junction **STATUS:** High, Medium

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 December 1954, 06 February 1990, 06 January 2003, 06 December 1929, 06 September 1968

PROXIMITY TO MAIN RIVER: 27m **MAIN RIVER NAME:** River Wey

PROXIMITY TO NEAREST WATERCOURSE: 27m **WATERCOURSE NAME:** River Wey

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 28 records in Postcode Area KT13 0

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Wey and Trib

RIVER OPERATIONAL CATCHMENT: Wey

WATERBODY NAME: Wey (Shalford to River Thames confluence at Weybridge)

SURFACE WATER FLOODING

Low (0.1% AEP):	30%	Medium (1% AEP):	19%	High (3.33% AEP):	15%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Alluvial Deposits - Clay, Silt And Sand

BEDROCK AQUIFER: Secondary A **SUPERFICIAL AQUIFER:** Principal, Secondary A

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Limited potential for groundwater flooding to occur

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Chobham Bagshot Beds

GROUNDWATER BODY: Chobham Bagshot Beds

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	0%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

SITE ALLOCATION REFERENCE	WEY35
SITE ADDRESS	Horizon Business Village

FLOOD RISK SUMMARY

The River Wey runs along the west boundary of the site at a distance of approximately 27m. 14.5% of the site is defined as Flood Zone 2, 77.6% is Flood Zone 3a, and the remaining 7.9% is within Flood Zone 3b. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in December 1929, December 1954, September 1968, December 1990, and January 2003. The site lies within the 'Brooklands and Parvis Road catchment' and 'A245 Junction' Flood Priority Areas which have a status of High and Medium respectively.

Modelling for the Lower Wey indicates the majority of the site to be at risk of flooding during a 1% AEP and 1% AEP including 25% climate change event. Hazard mapping for the design event (1% AEP plus a 25% climate change allowance) indicates the majority of the site to be at 'Significant' hazard with an area to the centre with no hazard. Areas to the east and west of the site are at 'Extreme' hazard.

Ground levels are approximately 15.5m AOD in the north to 14.7m AOD in the south. Water levels across the site during the design event are approximately 15.9m AOD.

The entire site is indicated to be at risk of flooding during a 0.1% AEP event.

The Risk of Flooding from Surface Water Map indicates a low risk of flooding from surface water to the north of the site, and low to high risk in the south of the site.

The BGS Susceptibility to Groundwater Flooding dataset indicates that there is limited potential for groundwater flooding to occur in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Employment floorspace (6000m2) is proposed for this site. Less Vulnerable development (e.g. offices and shops) is not permitted within Flood Zone 3b. This part of the site should be retained as floodplain and steps taken to restore land to provide a more natural edge of the River Wey. Less Vulnerable development is permitted within Flood Zones 1, 2 and 3a and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible is reduced. 58% of the site is indicated to be at risk of flooding during the design event (1% AEP plus 25% climate change event). Any increase in built footprint within the design flood extent will need to be compensated for, on a level for level volume for volume basis within the site. (Refer to Level 1 SFRA Section 5.6 for details of Floodplain Compensation Storage). A review of the existing site by EBC shows that the majority of the site is already developed, and therefore the allocation of this site is not anticipated to increase the building footprint. As the site is proposed for Less Vulnerable development, proposals should consider options for flood resilience for parts of the scheme. Refer to Level 1 SFRA Section 5.8.

- Finished Floor Levels for Less Vulnerable development do not need to be set above the design flood (1% AEP including central climate change allowance) level, but steps should be taken to ensure that the development is appropriately flood resistant and resilient. Refer to Level 1 SFRA Section 5.8.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is not currently achievable for the site. The A245 junction is shown to be at Significant hazard (Danger for Most), but the remainder of the route north along Sopwith Drive is dry during the design event. Improvements to the A245 junction, or identification of alternative routes from the site should be provided to demonstrate safe access for the site.

- The site is located within the River Wey at Wisely and Byfleet and Properties closest to the River Wey behind Walsham Meadow and Byfleet town Flood Warning Areas. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- The site is located within the Brooklands and Parvis Road catchment and A245 Junction Flood Priority Areas which have a status of High and Medium respectively. Policies for this Flood Priority Area set out by Surrey County Council must be adhered to throughout the development of this site.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WOT2	**SITE LAA REFERENCE:** US350	**DELIVERY PERIOD:** 1 to 5 years	**SITE AREA:** 0.31 ha
SITE NAME: Leylands House, Molesey Road, Walton-on-Thames			

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS | RISK OF FLOODING FROM SURFACE WATER | SUSCEPTIBILITY TO GROUNDWATER FLOODING | RISK OF FLOODING FROM RESERVOIRS | MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey | HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole | MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated | HAZARD MAPPING Lower Thames: Thames Dominated | MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated | HAZARD MAPPING Lower Thames: Tributary Dominated

PROPOSED USE: 56 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	28%	**Flood Zone 2 (0.1% AEP):**	72%	**Flood Zone 3a (1% AEP):**	0%	**Flood Zone 3b (defined in SFRA report):**	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 36m **MAIN RIVER NAME:** Dead River

PROXIMITY TO NEAREST WATERCOURSE: 36m **WATERCOURSE NAME:** Dead River

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 43 records in Postcode Area KT12 3

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0%	**Medium (1% AEP):**	0%	**High (3.33% AEP):**	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Unknown Deposits

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100%	**WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	WOT2
SITE ADDRESS	Leylands House, Molesey Road, Walton-on-Thames

FLOOD RISK SUMMARY

The Dead River runs along the eastern boundary of the site, at a distance of approximately 36m. The majority of the site (72%) is defined as Flood Zone 2, and the remaining 28% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Dead River does not indicate the site to be at risk of flooding up to and including a 1% AEP event including 70% climate change and therefore the site has not been assigned a hazard rating for the design event (1% AEP plus a 20% climate change allowance). The majority of the site is indicated to be at risk of flooding during a 0.1% AEP event.

Ground levels across the site are approximately 11.8m AOD.

The Risk of Flooding from Surface Water Map indicates the site is not at risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Fifty six residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable to the east, via Fernbank Avenue south on to Field Common Lane, west to Molesey Road and then south.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access routes and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas in not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WOT6	**SITE LAA REFERENCE:** US166	**DELIVERY PERIOD:** 1 to 5 years	**SITE AREA:** 0.08 ha
SITE NAME: Garages to the rear of 17-27 Field Common Lane, Walton-On-Thames, KT12 3QH			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

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FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Rythe, Dead River and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 3 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	0%	**Flood Zone 2 (0.1% AEP):**	100%	**Flood Zone 3a (1% AEP):**	0%	**Flood Zone 3b (defined in SFRA report):**	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 150m **MAIN RIVER NAME:** Dead River

PROXIMITY TO NEAREST WATERCOURSE: 150m **WATERCOURSE NAME:** Dead River

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 43 records in Postcode Area KT12 3

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	0%	**Medium (1% AEP):**	0%	**High (3.33% AEP):**	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** Unknown Deposits

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100%	**WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	WOT6
SITE ADDRESS	Garages to the rear of 17-27 Field Common Lane Walton-On-Thames KT12 3QH

FLOOD RISK SUMMARY

The Dead River runs along the west of the site at a distance of approximately 150m. The site (100%) is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Dead River does not indicate the site to be at risk of flooding up to and including a 1% AEP event including 70% climate change and therefore the site has not been assigned a hazard rating for the design event (1% AEP plus a 20% climate change allowance). Access routes to the north along Molesey Road are shown to be at risk with hazard rating Low to Significant. The entire site is indicated to be at risk of flooding during a 0.1% AEP event. Ground levels are approximately 11.6m AOD across the site.

The Risk of Flooding from Surface Water Map does not indicate the site to be at risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Three residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zone 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable to the north via Byron Close, leading to Fieldcommon Lane and then Molesey Road, providing a dry route southbound. Access routes to the north along Molesey Road are at risk of flooding and do not provide a safe route.

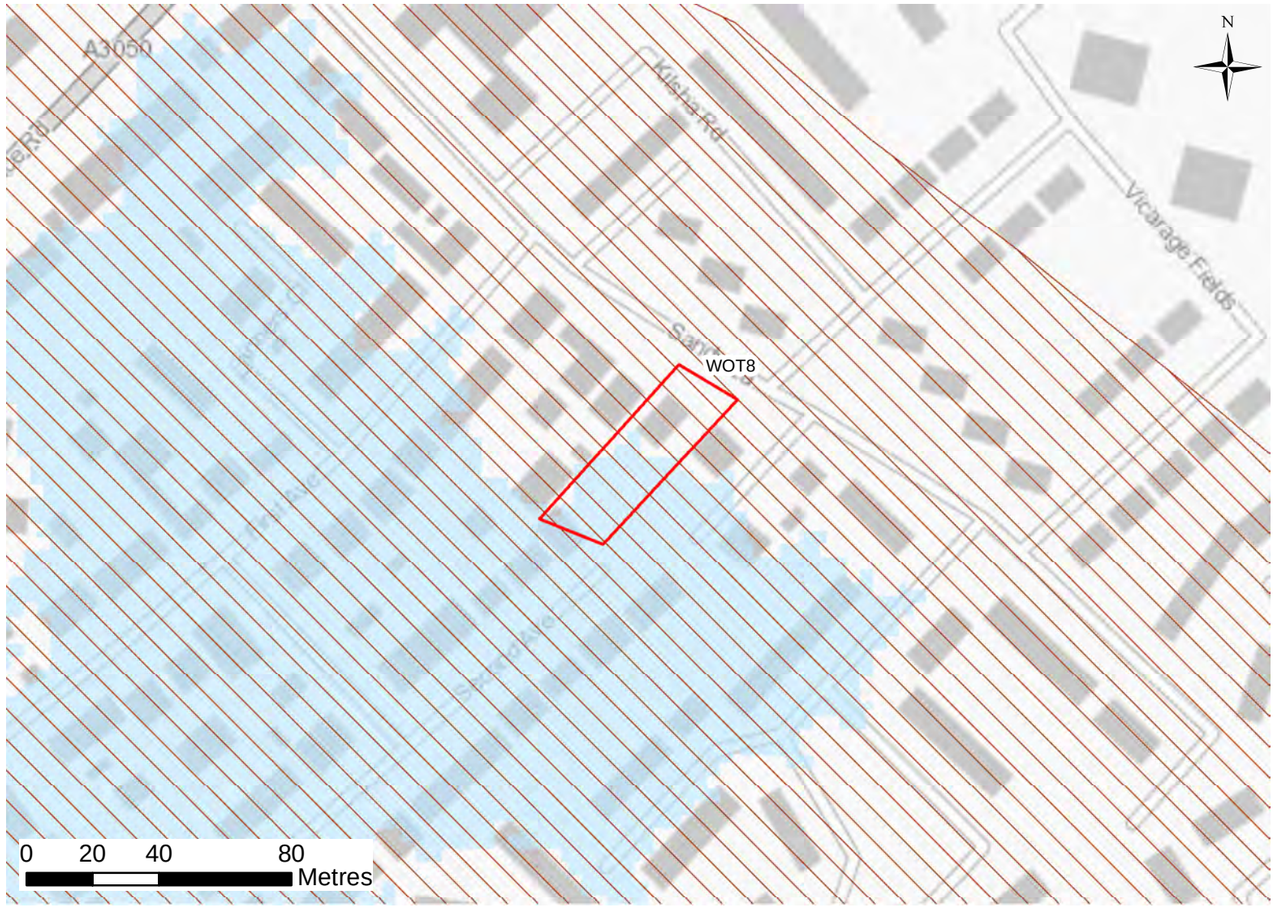
- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WOT8	SITE LAA REFERENCE: US487	DELIVERY PERIOD: 1 to 5 years	SITE AREA: 0.11 ha
SITE NAME: 16-18 Sandy Lane, KT12 2EQ			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

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FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 7 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	50%	Flood Zone 2 (0.1% AEP):	50%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 855m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 656m **WATERCOURSE NAME:** Tributary of Dead River

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 8 records in Postcode Area KT12 2

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury

RIVER OPERATIONAL CATCHMENT: Thames Lower

WATERBODY NAME: Thames (Egham to Teddington)

SURFACE WATER FLOODING

Low (0.1% AEP):	39%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	100%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-17

SITE ALLOCATION REFERENCE	WOT8
SITE ADDRESS	16-18 Sandy Lane, KT12 2EQ

FLOOD RISK SUMMARY

A tributary of the Dead River is located approximately 656m south east of the site, and the River Thames is located 855m west of the site. The south of the site (50%) is defined as Flood Zone 2, and the remaining 50% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Dead River does not indicate the site to be at risk of flooding up to and including the 1% AEP plus a 35% climate change allowance and therefore the site has not been assigned a hazard rating for the design event (1% AEP plus a 20% climate change allowance). A small area to the south of the site is indicated to be at risk of flooding during a 1% AEP event including 70% climate change. The southern half of the site is indicated to be at risk of flooding during a 0.1% AEP event.

Ground levels are approximately 11m AOD in the south of the site to 11.8m AOD in the north of the site.

The Risk of Flooding from Surface Water Map indicates the south of the site is at low risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the e potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Seven residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable via Sandy Lane towards the A3050 Terrace Road.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Given the risk of flooding from rivers to the local area, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WOT14	**SITE LAA REFERENCE:** US112	**DELIVERY PERIOD:** 6 to 10 years	**SITE AREA:** 0.1 ha
SITE NAME: 20 Sandy Lane, Walton-on-Thames, KT12 2EQ			

Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

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FLOOD ZONES AND HISTORIC FLOOD RECORDS | RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING | RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey | HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated | HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated | HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 7 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	45%	**Flood Zone 2 (0.1% AEP):**	55%	**Flood Zone 3a (1% AEP):**	0%	**Flood Zone 3b (defined in SFRA report):**	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 863m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 641m **WATERCOURSE NAME:** Tributary of Dead River

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 8 records in Postcode Area KT12 2

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury

RIVER OPERATIONAL CATCHMENT: Thames Lower

WATERBODY NAME: Thames (Egham to Teddington)

SURFACE WATER FLOODING

Low (0.1% AEP):	44%	**Medium (1% AEP):**	0.3%	**High (3.33% AEP):**	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

SITE ALLOCATION REFERENCE	WOT14
SITE ADDRESS	20 Sandy Lane, Walton-on-Thames, KT12 2EQ

FLOOD RISK SUMMARY

A tributary of the Dead River is located approximately 641m north east of the site, and the River Thames is located 863m west of the site. The south of the site (55%) is defined as Flood Zone 2, and the remaining 45% is defined as Flood Zone 1. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate that the site experienced flooding in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Dead River does not indicate the site to be at risk of flooding during the design event (1% AEP event including 20% climate change) and therefore has not been assigned a hazard rating for the design event.

The south of the site is indicated to be at risk of flooding during a 1% AEP plus a 70% climate change allowance and 0.1% AEP event.

Ground levels across the site are approximately 11m AOD in the south to 11.6m AOD in the north.

The Risk of Flooding from Surface Water Map indicates the south of the site to be at low risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Seven residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable via Sandy Lane towards the A3050 Terrace Road.

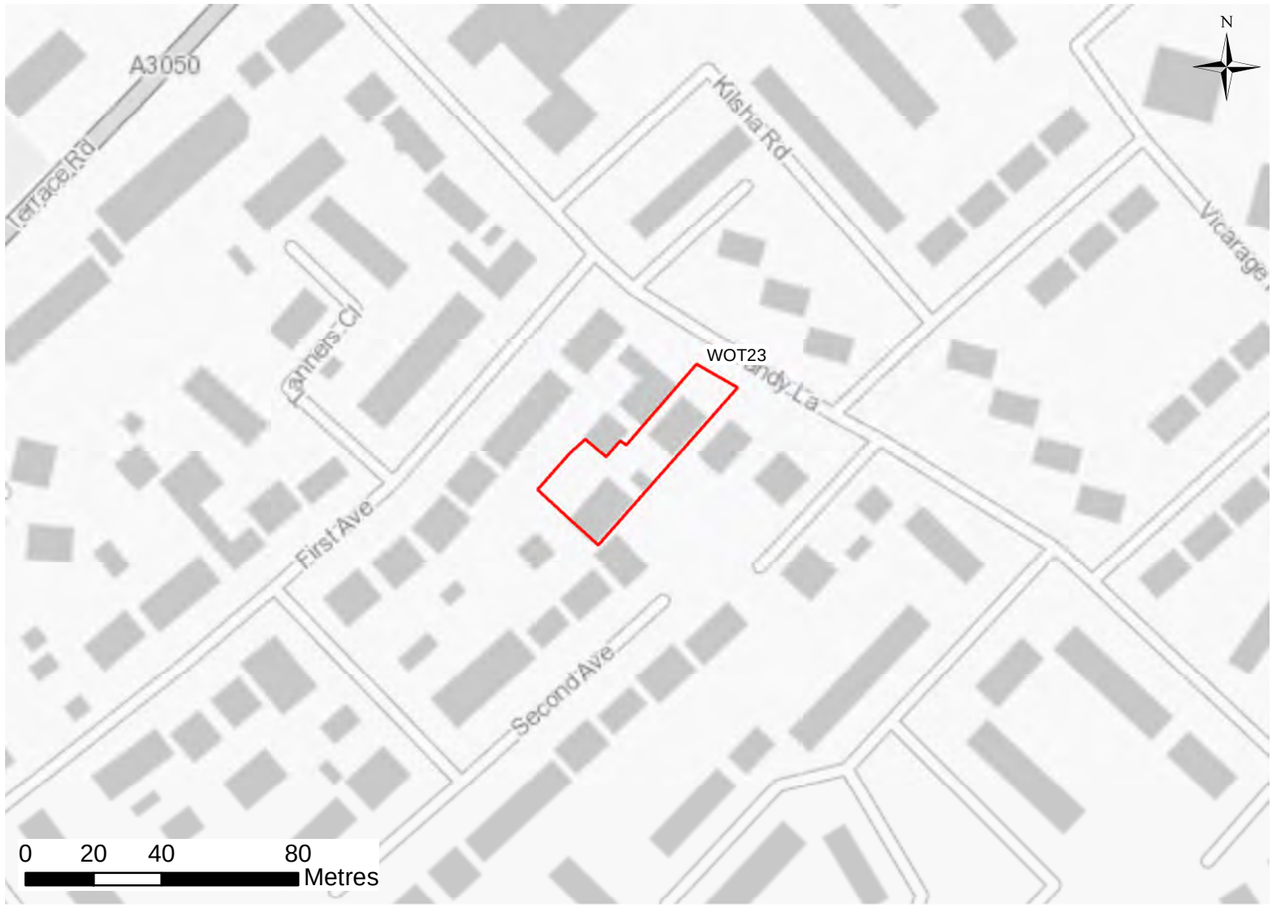
- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Given the risk of flooding from rivers to the local area, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WOT23	SITE LAA REFERENCE: US363	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.11 ha
SITE NAME: Unit Rear of and 12-14 Sandy Lane, Walton-On-Thames, KT12 2EQ			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

THESE MAPS ARE INTERACTIVE AND REQUIRE THE USE OF ADOBE ACROBAT TO BE ABLE TO CLICK ON THE INDIVIDUAL TABS TO LOAD THE LAYERS. PLEASE USE THE BUTTONS BELOW TO DISPLAY / HIDE DIFFERENT SOURCES OF FLOOD RISK TO THE SITE.

FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 9 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	97%	Flood Zone 2 (0.1% AEP):	3%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 832m **MAIN RIVER NAME:** River Thames

PROXIMITY TO NEAREST WATERCOURSE: 674m **WATERCOURSE NAME:** Tributary of Dead River

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 8 records in Postcode Area KT12 2

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Maidenhead and Sunbury

RIVER OPERATIONAL CATCHMENT: Thames Lower

WATERBODY NAME: Thames (Egham to Teddington)

SURFACE WATER FLOODING

Low (0.1% AEP):	0.6%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL:	100%	WHEN THERE IS ALSO FLOODING FROM RIVERS:	100%

SITE ALLOCATION REFERENCE	WOT23
SITE ADDRESS	Unit Rear of and 12-14 Sandy Lane Walton-On-Thames KT12 2EQ

FLOOD RISK SUMMARY

A tributary of the Dead River lies to the south east of the site at a distance of approximately 674m. The Thames is located approximately 832m north west of the site. Most of the site (97%) is defined as Flood Zone 1, and the remaining 3% is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Dead River does not indicate the site to be at risk of flooding up to and including a 1% AEP event including 70% climate change and therefore has not been assigned a hazard rating for the design event (1% AEP plus a 20% climate change allowance). The southern site boundary is indicated to be at risk of flooding during a 0.1% AEP.

Ground levels are approximately 10m AOD in the north to 11.4m AOD in the south.

The Risk of Flooding from Surface Water Map indicates a low risk of surface water flooding along the south west boundary.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Nine residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable via Sandy Lane towards the A3050 Terrace Road.

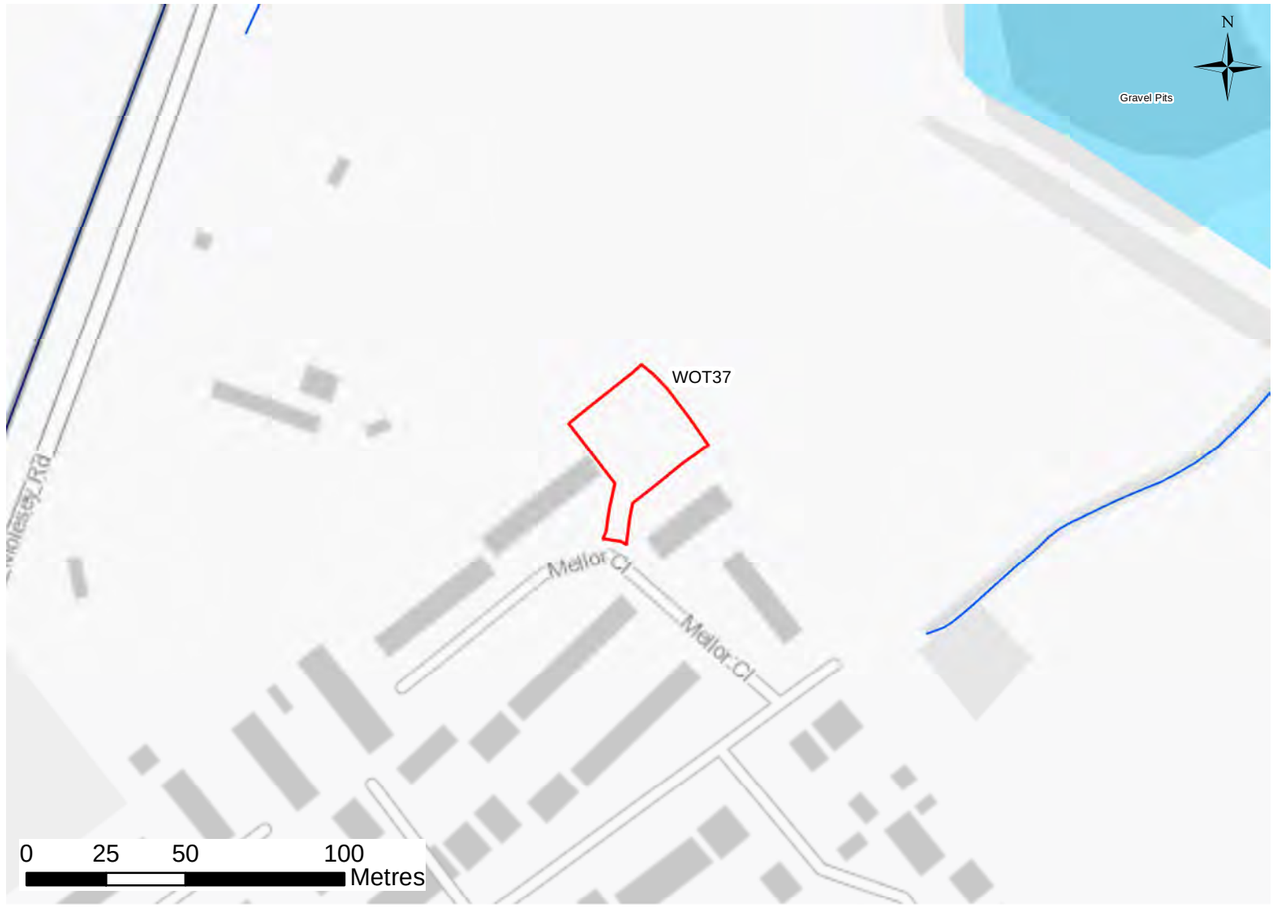
- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Given the risk of flooding from rivers to the local area, Emergency Plans would need to be developed for occupants of the site to set out the response in the event of flooding including access and places of safety.

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.

SITE ALLOCATION REFERENCE: WOT37	SITE LAA REFERENCE: US351	DELIVERY PERIOD: 11 to 15 years	SITE AREA: 0.2 ha
SITE NAME: Land north of Mellor Close, Walton-on-Thames, KT12-3RX			



Legend

- Elmbridge Borough Council Boundary
- Allocation Site
- Settlement Areas
- EA Main River
- Open Ordinary Watercourses
- Culverted Ordinary Watercourse
- Surrey County Council Highways Ditch
- Surface Water Bodies
- Reduction in Risk of Flooding from Rivers and Sea due to Defences

Flood Zones

- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

Historic Flood Records

- Historic Flood Outlines

Property Flood Roads

- Internal
- External
- Unknown

OUTPUTS FROM THE DEAD RIVER MODEL(S) HAVE BEEN USED TO ASSESS THIS SITE.

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FLOOD ZONES AND HISTORIC FLOOD RECORDS

RISK OF FLOODING FROM SURFACE WATER

SUSCEPTIBILITY TO GROUNDWATER FLOODING

RISK OF FLOODING FROM RESERVOIRS

MODELLED FLOOD EXTENTS Lower Mole, Middle Mole, Dead River, Rythe and Lower Wey

HAZARD/DEPTH MAPPING*** Middle Mole, Rythe, Dead River and Lower Wey / Lower Mole

MODELLED FLOOD EXTENTS Lower Thames: Thames Dominated

HAZARD MAPPING Lower Thames: Thames Dominated

MODELLED FLOOD EXTENTS Lower Thames: Tributary Dominated

HAZARD MAPPING Lower Thames: Tributary Dominated

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*Modelled Flood Extents marked with an asterick in the legend identify the design flood event including a central climate change allowance, or the closest scenario available. Please refer to the SFRA Report for further detail on modelling scenarios used.
**Modelled Flood Extents for the Lower Mole 1% AEP event do not indicate out of bank flooding and therefore cannot be shown.
***This map shows the design event hazard for the Middle Mole, River Rythe, Dead River and Lower Wey and the design event depth for the Lower Mole.

PROPOSED USE: 5 residential units

VULNERABILITY CLASSIFICATION: More Vulnerable

FLOOD ZONES AND HISTORIC FLOODING

Flood Zone 1 (<0.1% AEP):	55%	Flood Zone 2 (0.1% AEP):	45%	Flood Zone 3a (1% AEP):	0%	Flood Zone 3b (defined in SFRA report):	0%

FLOOD WARNING AREA: River Mole at Esher and East Molesey

FLOOD PRIORITY AREA: N/A **STATUS:** N/A

RECORDED FLOOD OUTLINES IN WHICH THE SITE IS LOCATED: 06 September 1968

PROXIMITY TO MAIN RIVER: 165m **MAIN RIVER NAME:** Dead River

PROXIMITY TO NEAREST WATERCOURSE: 91m **WATERCOURSE NAME:** Tributary of River Mole

THAMES WATER DG5 RECORDED FLOOD INCIDENTS BASED ON POSTCODE AREA: 43 records in Postcode Area KT12 3

WATER FRAMEWORK DIRECTIVE - FLUVIAL INFORMATION

RIVER MANAGEMENT CATCHMENT: Mole

RIVER OPERATIONAL CATCHMENT: Mole Lower and Rythe

WATERBODY NAME: Mole (Hersham to R. Thames conf at East Molesey)

SURFACE WATER FLOODING

Low (0.1% AEP):	2%	Medium (1% AEP):	0%	High (3.33% AEP):	0%

GROUNDWATER FLOODING

BEDROCK GEOLOGY: Thames Group **SUPERFICIAL GEOLOGY:** River-Terrace Deposits - Sand And Gravel

BEDROCK AQUIFER: Unproductive **SUPERFICIAL AQUIFER:** Principal, Unproductive

BGS SUSCEPTIBILITY TO GROUNDWATER FLOODING

Potential for groundwater flooding to occur at surface

WATER FRAMEWORK DIRECTIVE - GROUNDWATER INFORMATION

GROUNDWATER MANAGEMENT CATCHMENT: Thames GW

GROUNDWATER OPERATIONAL CATCHMENT: Colne GW

GROUNDWATER BODY: Lower Thames Gravels

RISK OF FLOODING FROM RESERVOIRS

PERCENTAGE OF SITE AT RISK OF FLOODING FROM RESERVOIRS:

WHEN RIVER LEVELS ARE NORMAL: 100% **WHEN THERE IS ALSO FLOODING FROM RIVERS:** 100%

Revision: 1 Drawn: LL Checked: JS Approved: SL Date: 2024-04-17

SITE ALLOCATION REFERENCE	WOT37
SITE ADDRESS	Land north of Mellor Close, Walton-on-Thames, KT12-3RX

FLOOD RISK SUMMARY

A tributary of the River Mole is located approximately 91m east of the site, while the Dead River is located approximately 165m to the west of the site. Most of the site (55%) is defined as Flood Zone 1, and the remaining 45% is defined as Flood Zone 2. The site does not lie within the Reduction in Risk of Flooding from Rivers and Sea due to Defences area.

Historic flood records indicate the site experienced a flood event in September 1968. The site does not lie within a Flood Priority Area.

Modelling for the Dead River indicates the southern tip of the site to be at risk of flooding during the 1% AEP event including 70% climate change. The site is not indicated to be at risk of flooding during the design event (1% AEP plus a 20% climate change allowance) and therefore the site has not been assigned a hazard rating for the design event. The east, south and west of the site are indicated to be at risk of flooding during a 0.1% AEP event.

Ground levels are approximately 11.4m AOD in the north to 11m AOD in the south.

The Risk of Flooding from Surface Water Map indicates the south of the site to be at low risk of flooding from surface water.

The BGS Susceptibility to Groundwater Flooding dataset indicates the potential for groundwater flooding to occur at surface in the area.

The entire site (100%) is at risk of flooding from reservoirs in the event of a breach or failure when both river levels are normal or when there is also flooding from rivers.

SITE SPECIFIC RECOMMENDATIONS

Five residential units are proposed for the site. More Vulnerable development (e.g. residential) is permitted in Flood Zones 1 and 2 and the Exception Test is not required. A site-specific FRA will be required to demonstrate that the proposed development will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall. The following recommendations are made for this site:

- Development of the site must ensure that the risk of flooding to surrounding areas is not increased, and where possible reduced. The site is shown to be at risk of flooding during a 0.1% AEP event.

- Finished Floor Levels for residential accommodation must be above the design flood event (1% AEP including central climate change allowance) plus a minimum 300mm freeboard.

- Safe access/egress (i.e. that is dry or Low hazard during the 1% AEP event including central climate change allowance) is achievable via Mellor Close to the south which leads to Molesey Road, providing dry roads southbound.

- Places of safe refuge should be designed into the development above the extreme flood event (0.1% AEP) including an allowance for climate change. In this instance, this is likely to be at a first floor level.

- The site is located within the 'River Mole at Esher and East Molesey' Flood Warning Area. Evacuation Plans would need to be developed for occupants of the site to set out the response in the event of flooding.

- Development proposals for the site should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water in accordance with the drainage hierarchy; make use of SuDS (including green/blue roofs, permeable paving, downpipe planters, attenuating tree pits, rain gardens and other innovative technologies); and incorporate soft landscaping, planting and permeable surfacing.

- A Site Investigation should be undertaken to determine ground conditions and groundwater levels in proximity to the site. Consideration should be made of whether the proposed development will impact on groundwater, either from subsurface construction or changes to surface water drainage. Should the initial assessment identify potential for impact, a detailed Hydrogeological Impact Assessment should be prepared to identify proposed mitigation measures.

- The site is within an area that has been shown from modelling to be potentially affected in the event of a reservoir breach or failure. This should be assessed appropriately to inform the development strategy and ensure that the masterplan includes appropriate measures to manage the potential for inundation within the site.