Appendix A Areas of Focused Intensification

AFI3 North of Coulsdon District Centre

AFI4 Reedham station / North and West of Purley District Centre

AFI5 Brighton Road

AFI6 Forestdale

AFI7 London Road (West Croydon to Thornton Heath Pond)

Site Name: North of Coulsdon District Centre AFI

Site ID:	AFI 3	**Area (ha):**	23.34
Proposed Use:	Mixed use.	**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 3 (1% AEP):** 0%	**Flood Zone 3b (5% AEP):** 0%	**Area Benefiting from Defences:** 0%

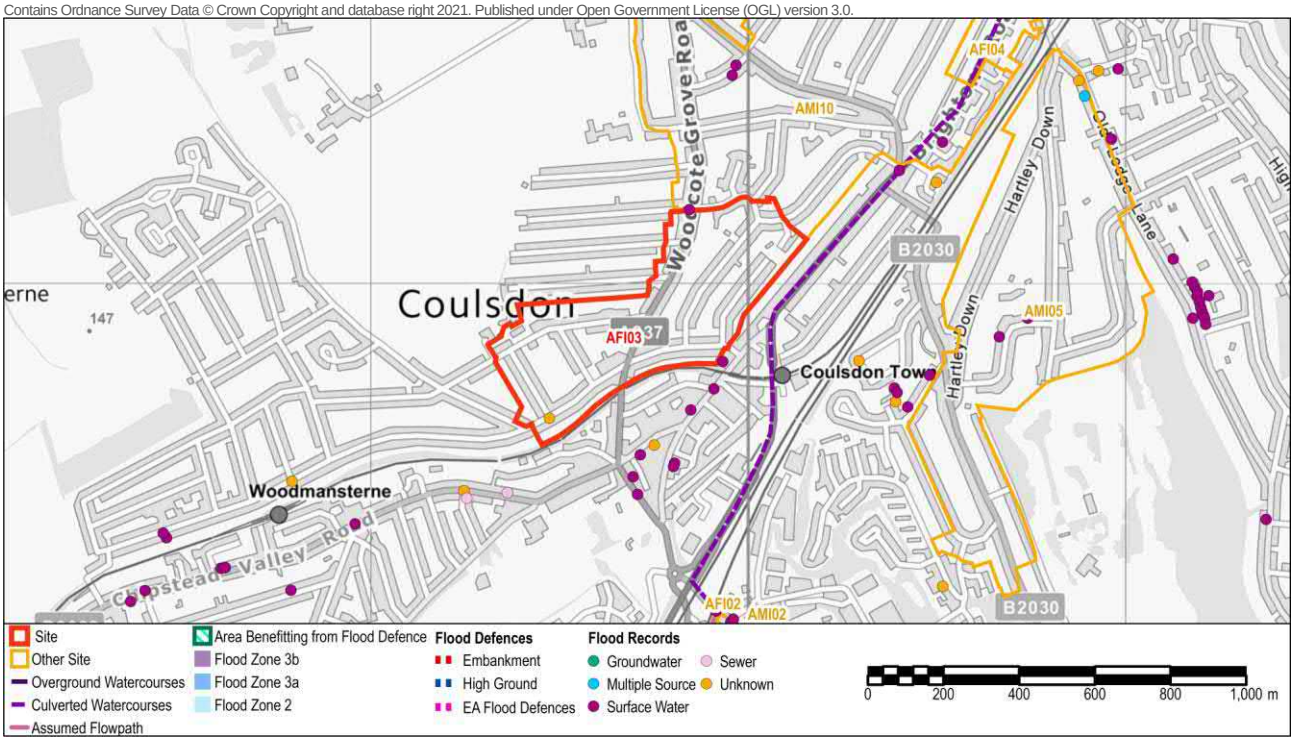


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 17; Groundwater 0; Sewer 2; Multiple source 0; Unknown source 6

River Flooding

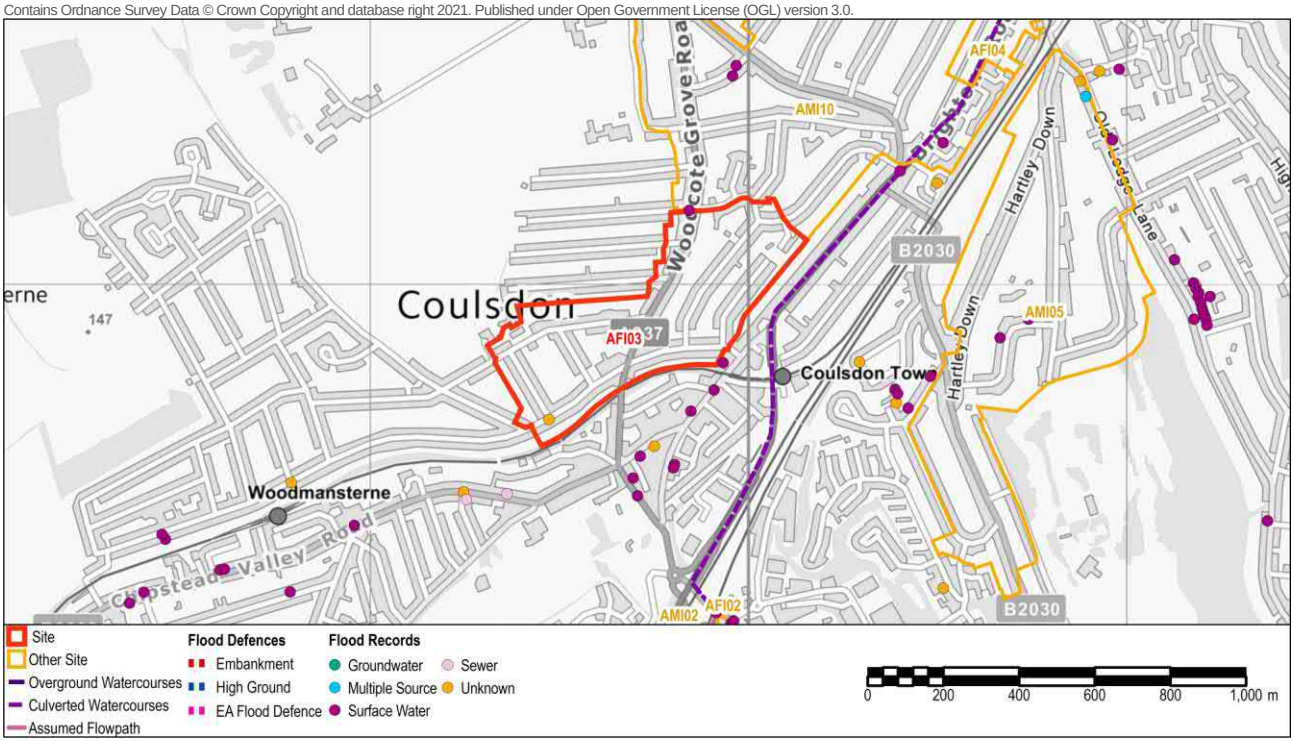


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: North of Coulsdon District Centre AFI

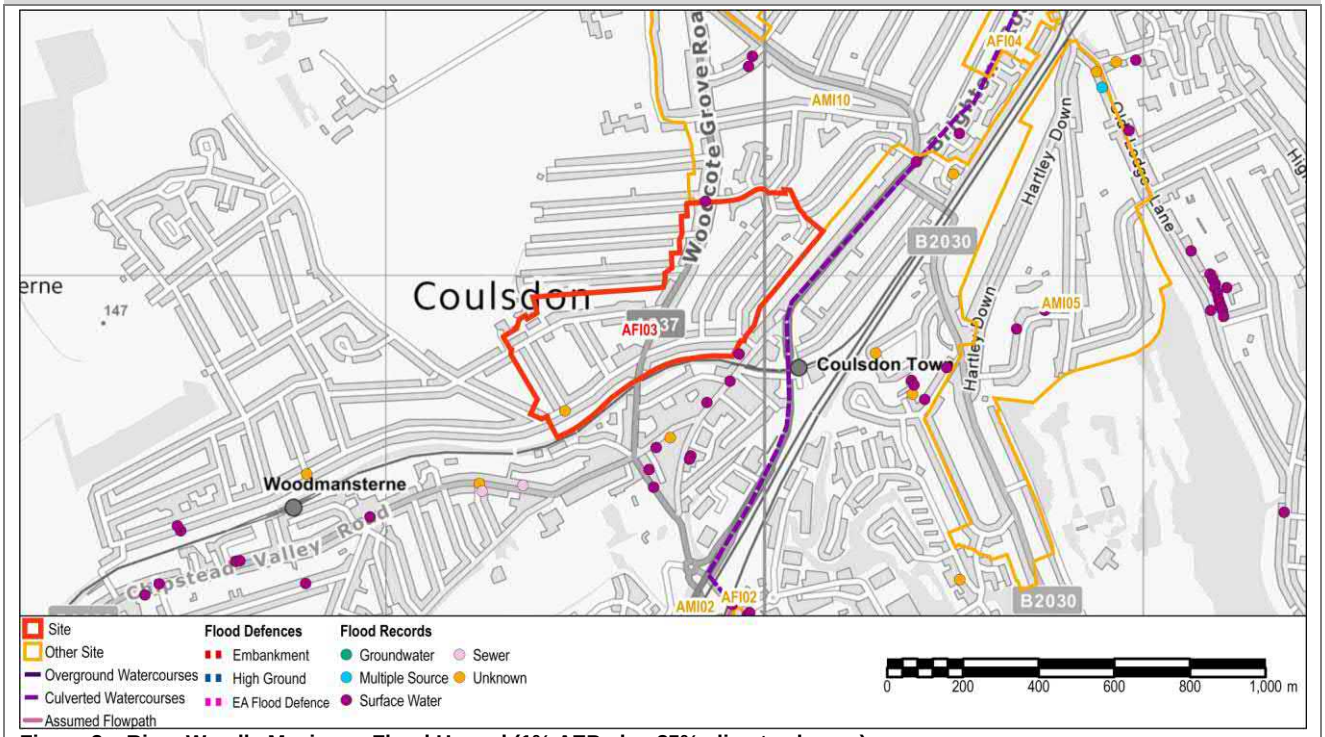


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Surface Water Flooding	
Critical Drainage Area	Group8_040 - Purley Cross [Croydon]
Drainage Catchment	DC39

Site Name: North of Coulsdon District Centre AFI

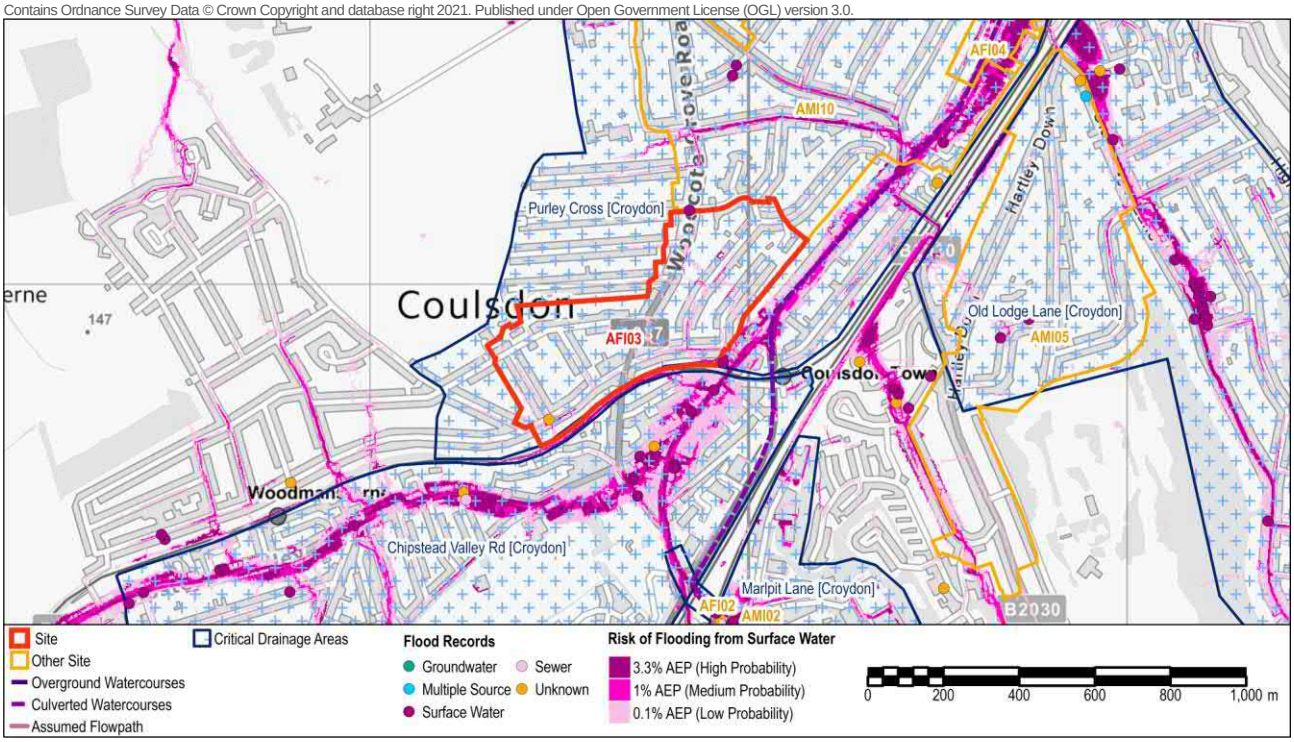


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

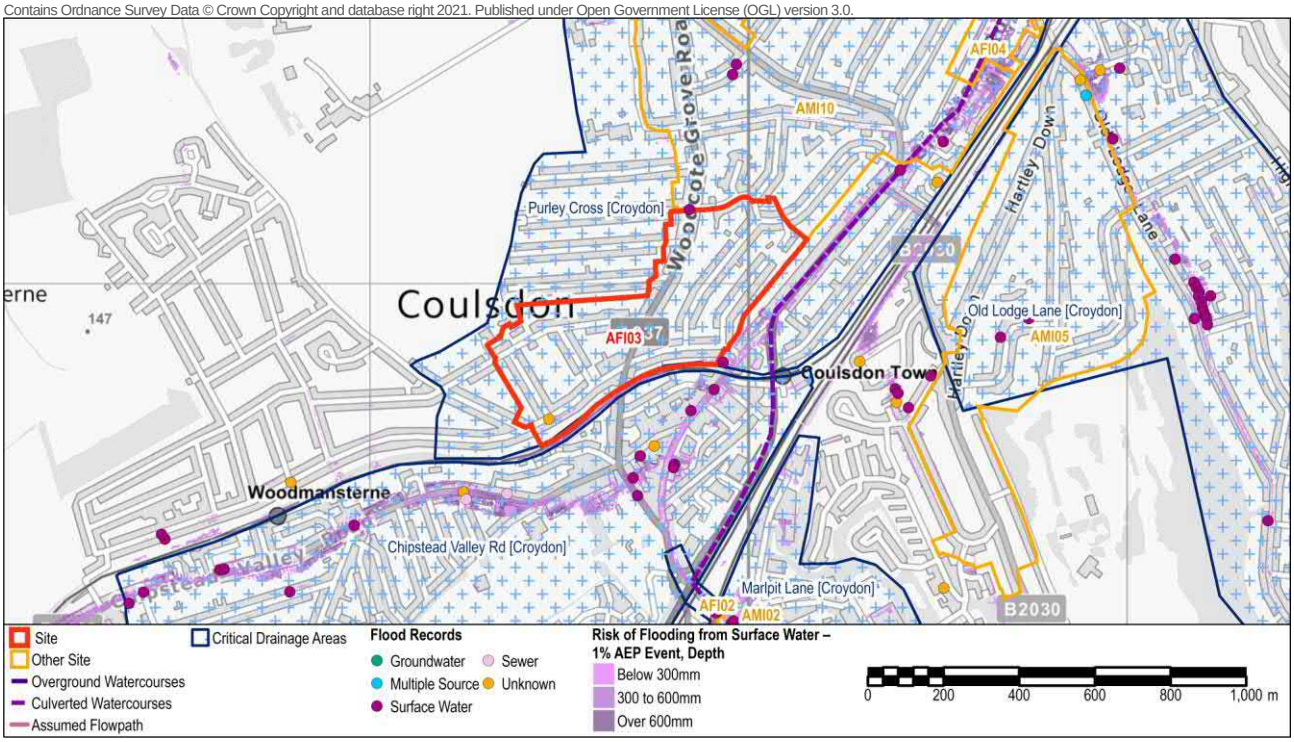


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: North of Coulsdon District Centre AFI

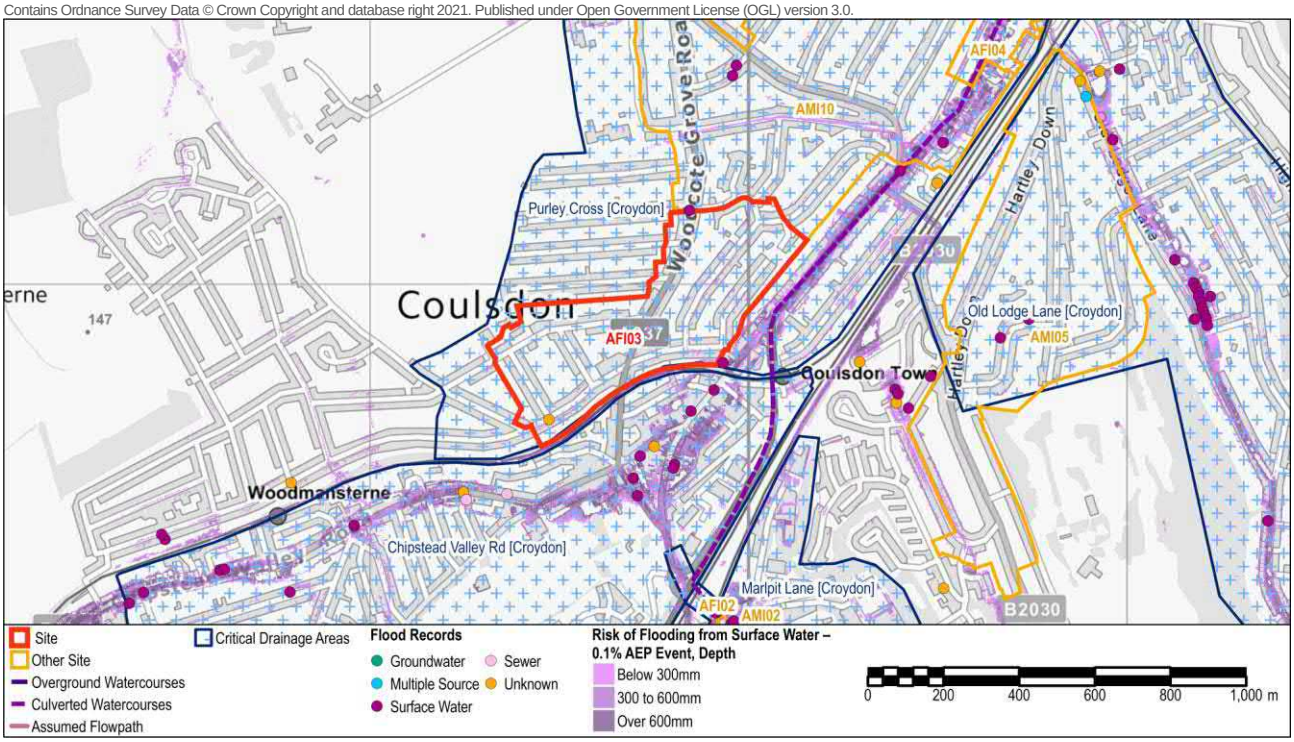


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

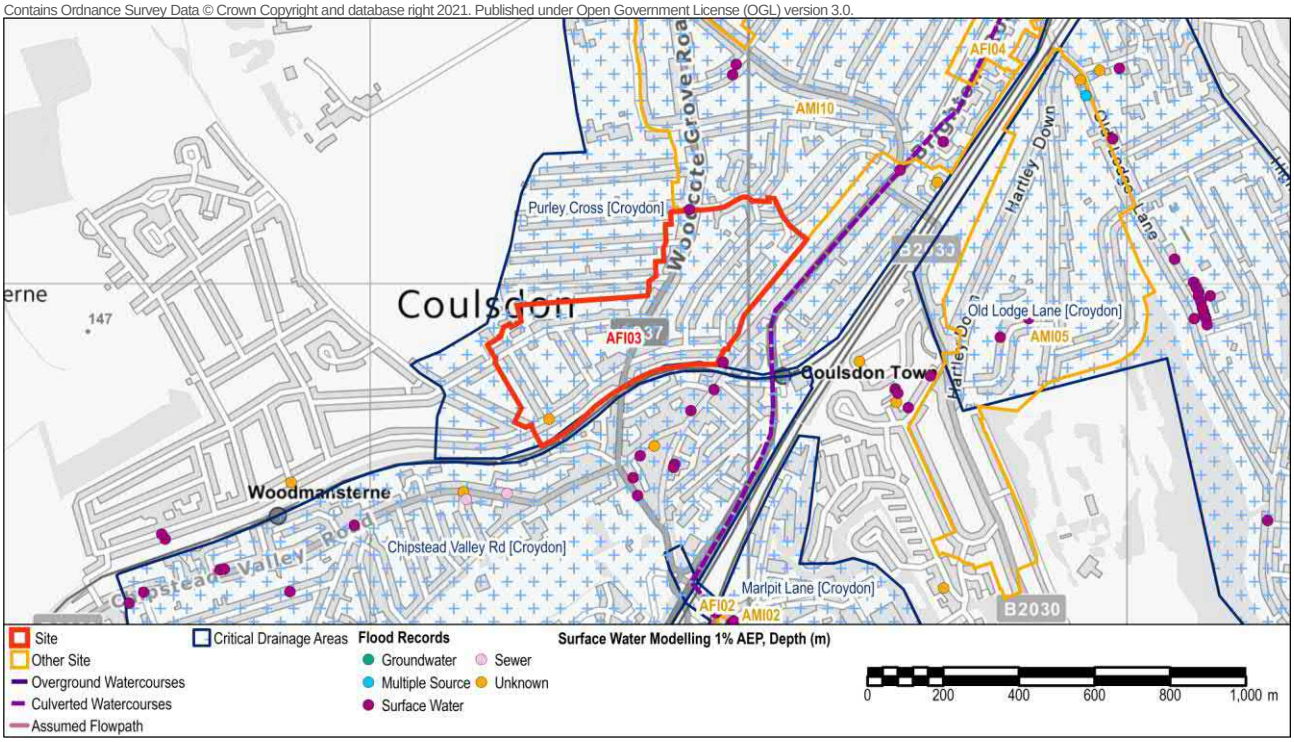


Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: North of Coulsdon District Centre AFI

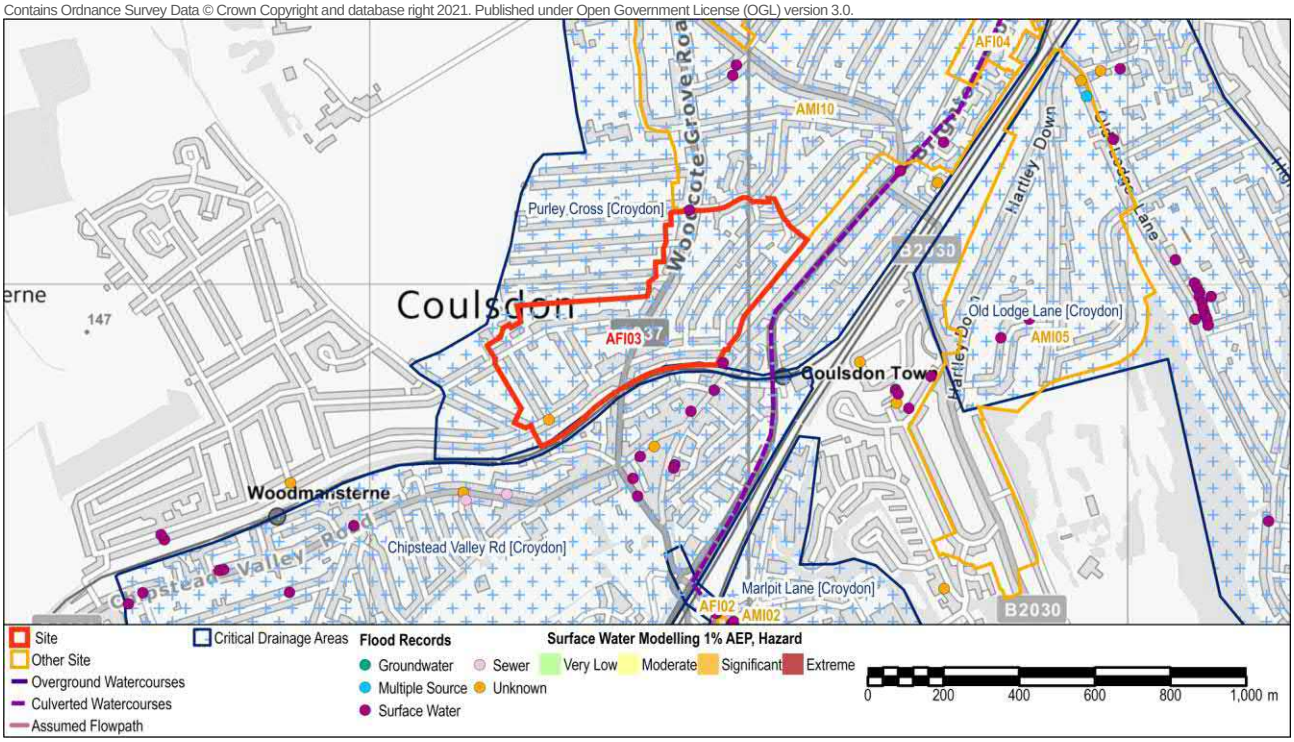


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

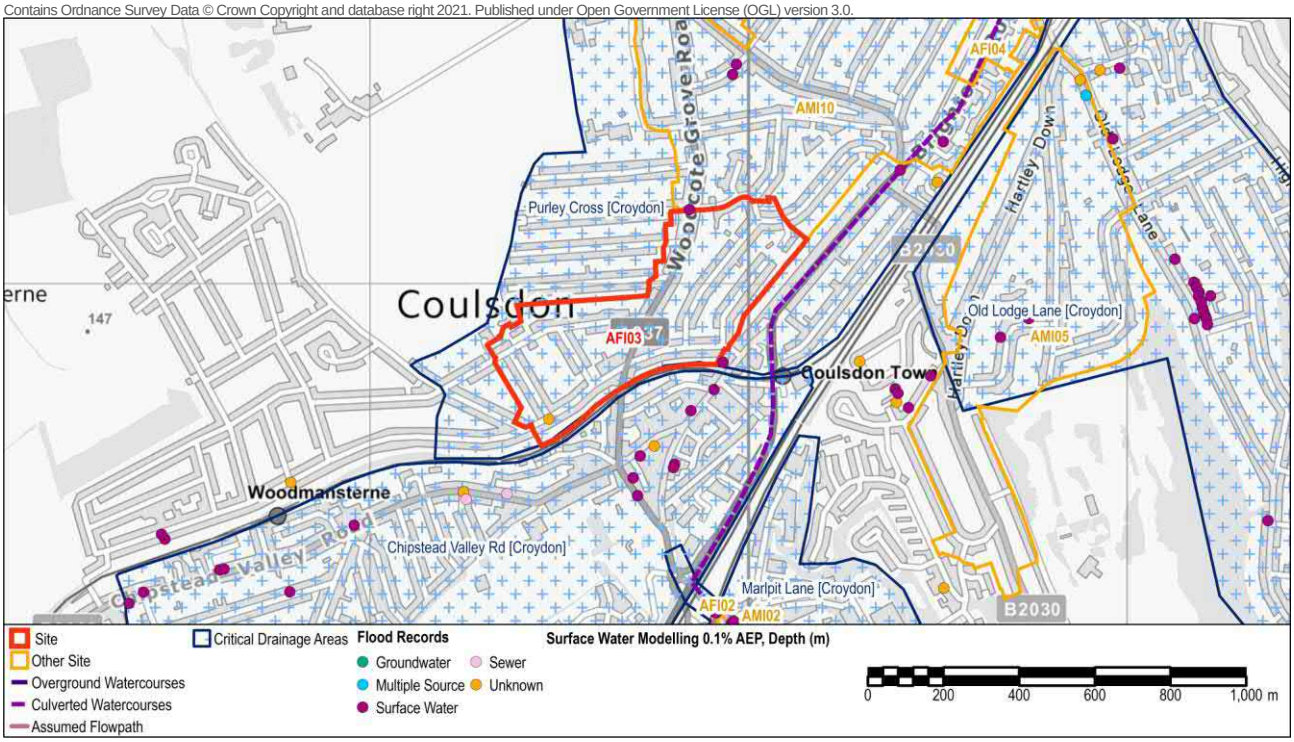


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: North of Coulsdon District Centre AFI

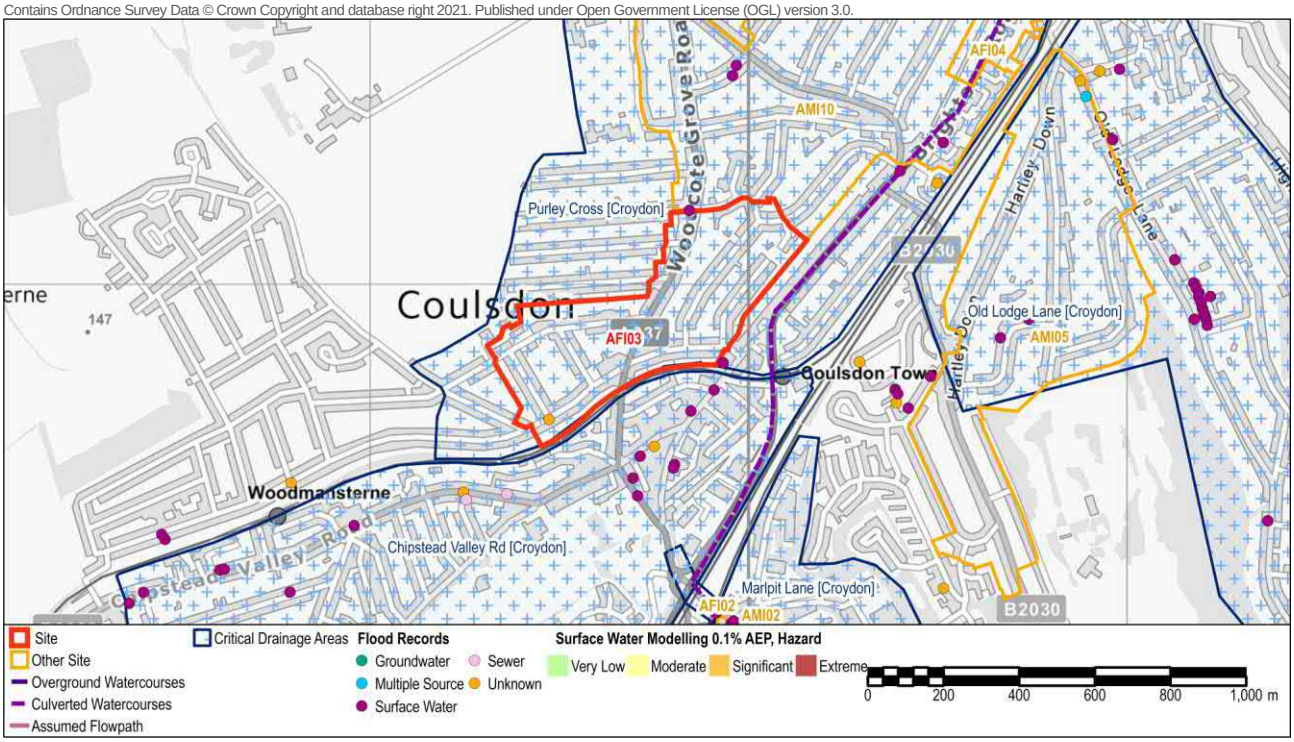


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		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	

Other Sources	
Risk of flooding from reservoirs	The Long Term Flood Risk Map shows that the site is not at risk of flooding, in the event of a breach or failure of a reservoir.

Summary

This AFI is located within Flood Zone 1, Low probability of river flooding.
The surface water sewer system in this area conveys the runoff generated by the surroundings.
A 1050mm diameter culvert runs in a northern direction along Brighton Road, conveying runoff generated in the surroundings including the ephemeral watercourses of the Merstham Bourne and Caterham Bourne.
One record of surface water flooding has been recorded in the north of the AFI. Another surface water flood event was recorded to the south east of the AFI and lies next to the boundary. An unknown flood event has been recorded on the south west boundary. The entire site lies within the Purley Cross Critical Drainage Area (CDA).
This AFI is not covered by the surface water modelling study (Arcadis July 2020). The Risk of Flooding from Surface Water (RoFSW) mapping (Figures 5 and 6) identifies that the AFI is not at widespread risk of surface water flooding, however flooding is shown to occur along the Brighton Road corridor along the eastern boundary of the AFI in both a 1% and 0.1% AEP event reaching depths over 600mm.

Site Specific Recommendations

A range of proposed uses may be considered across this AFI. Given the location within Flood Zone 1, development is not subject to the application of the Exception Test. However, given the potential for surface water flooding in this area, steps should be taken to ensure that development is safe for its lifetime considering the impact of climate change, will not increase flood risk elsewhere, and where possible will reduce flood risk overall. To this end, the following recommendations are made throughout the AFI:

- A sequential approach should be applied within the AFI, steering development towards those areas at lower risk of surface water flooding before consideration of areas at greater risk.
- Planning for the AFI should consider the need to temporarily store surface water runoff during heavy rainfall events to alleviate pressure further 'downstream' along the Brighton Road. Opportunities should be sought for providing strategic SuDS systems across multiple plots within the AFI.
- Development proposals should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water making use of SuDS including green roofs, rainwater harvesting and other innovative technologies; and incorporate soft landscaping, planting, and impermeable surfacing.
- The RoFSW mapping shows that Brighton Road is at risk of surface water flooding to depths of 300-600mm and over 600mm. Development proposals within the AFI should consider provision of safe access/egress using alternative routes to the north and west. Other routes that may be at risk of surface water flooding during the 0.1% AEP event include The Grove, The Avenue and South Drive.
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response.

Site Name: North of Coulsdon District Centre AFI

- This area is covered by the Environment Agency Flood Alert Area for Groundwater flooding in South East London (Areas at risk from Groundwater flooding including Caterham Bourne, Coulsdon Bourne, Beddington, Carshalton, Coulsdon, Kenley, Purley, South Croydon, Whyteleafe, Bromley, Bexley, and Lewisham). This service has a wide geographic coverage and does not give time-specific warnings.
- The risk of groundwater flooding and groundwater levels should be further assessed as part of a Site Investigation for specific development proposals within the AFI.

Site Name: Reedham station/ North and West of Purley District Centre AFI

Site ID:	AFI 4	**Area (ha):**	46.09
Proposed Use:	Mixed use.	**Vulnerability Classification:**	More Vulnerable

Flood Zones and Historic Flooding

Flood Zone 1 (<0.1% AEP): 91%	**Flood Zone 2 (0.1% AEP):** 1%	**Flood Zone 3 (1% AEP):** 8%	**Flood Zone 3b (5% AEP):** 0%	**Area Benefiting from Defences:** 0%

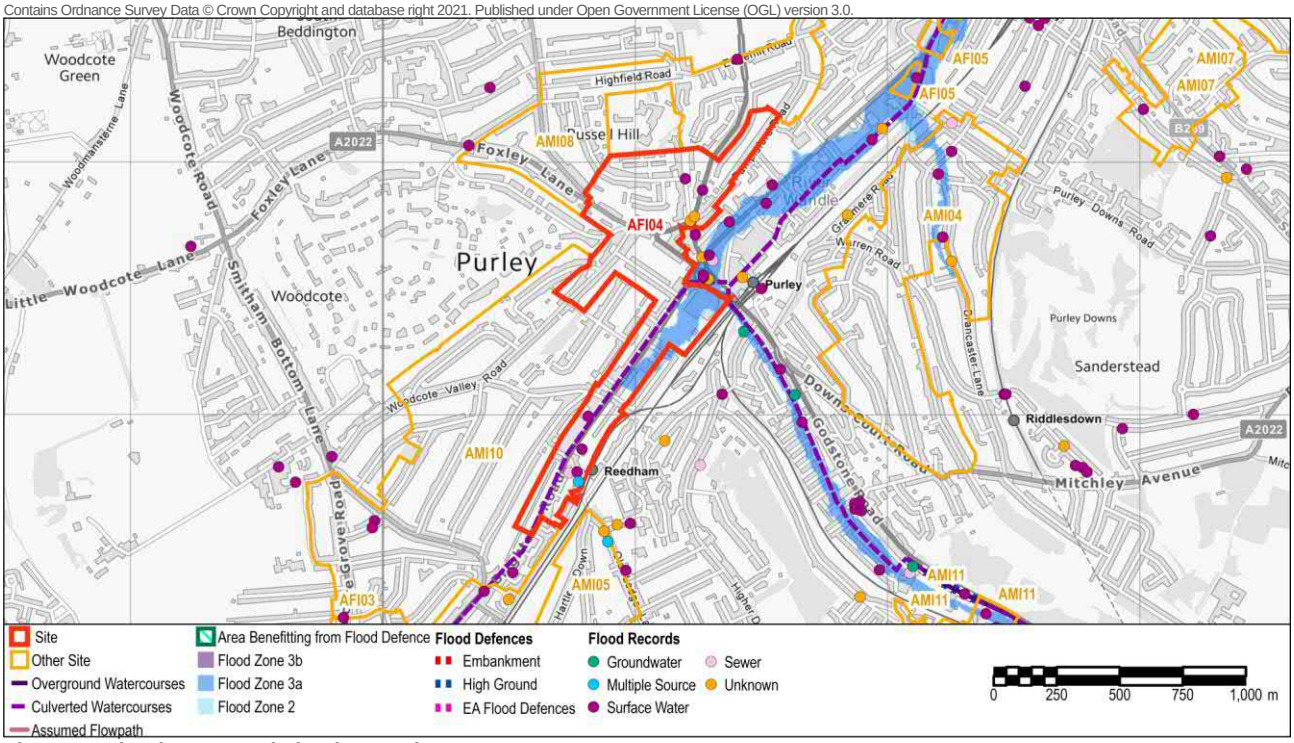


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 24; Groundwater 2; Sewer 5; Multiple source 2; Unknown source 12

River Flooding

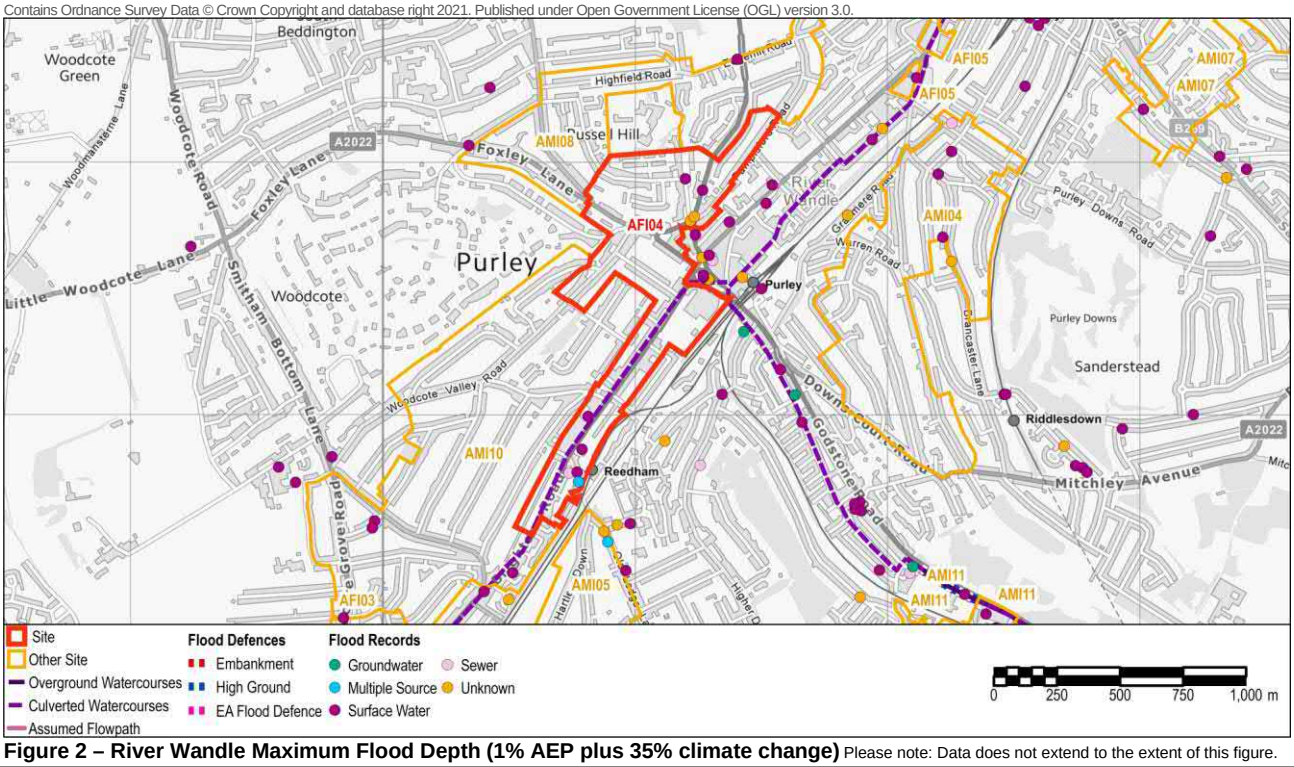


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: Reedham station/ North and West of Purley District Centre AFI

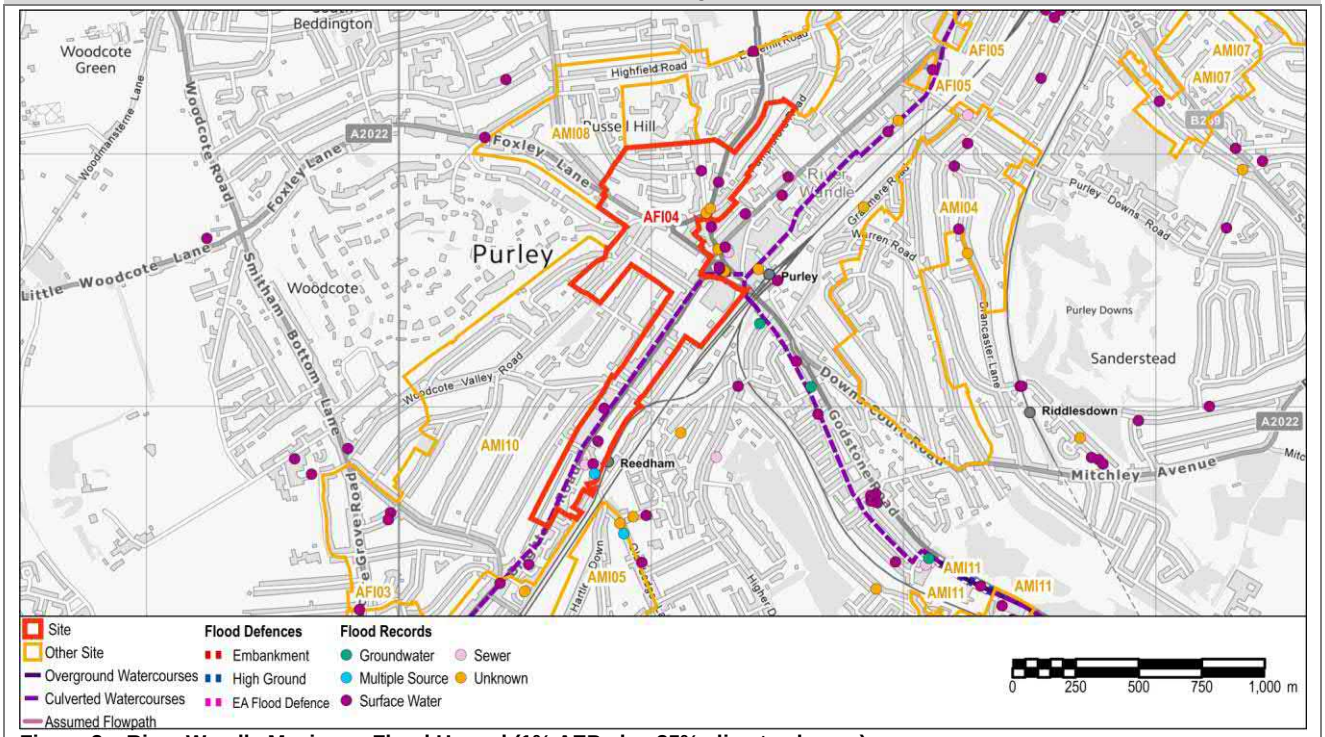


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Surface Water Flooding	
Critical Drainage Area	Group8_040, Group8_041 - Brighton Rd [Croydon], Purley Cross [Croydon]
Drainage Catchment	DC39, DC47

Site Name: Reedham station/ North and West of Purley District Centre AFI

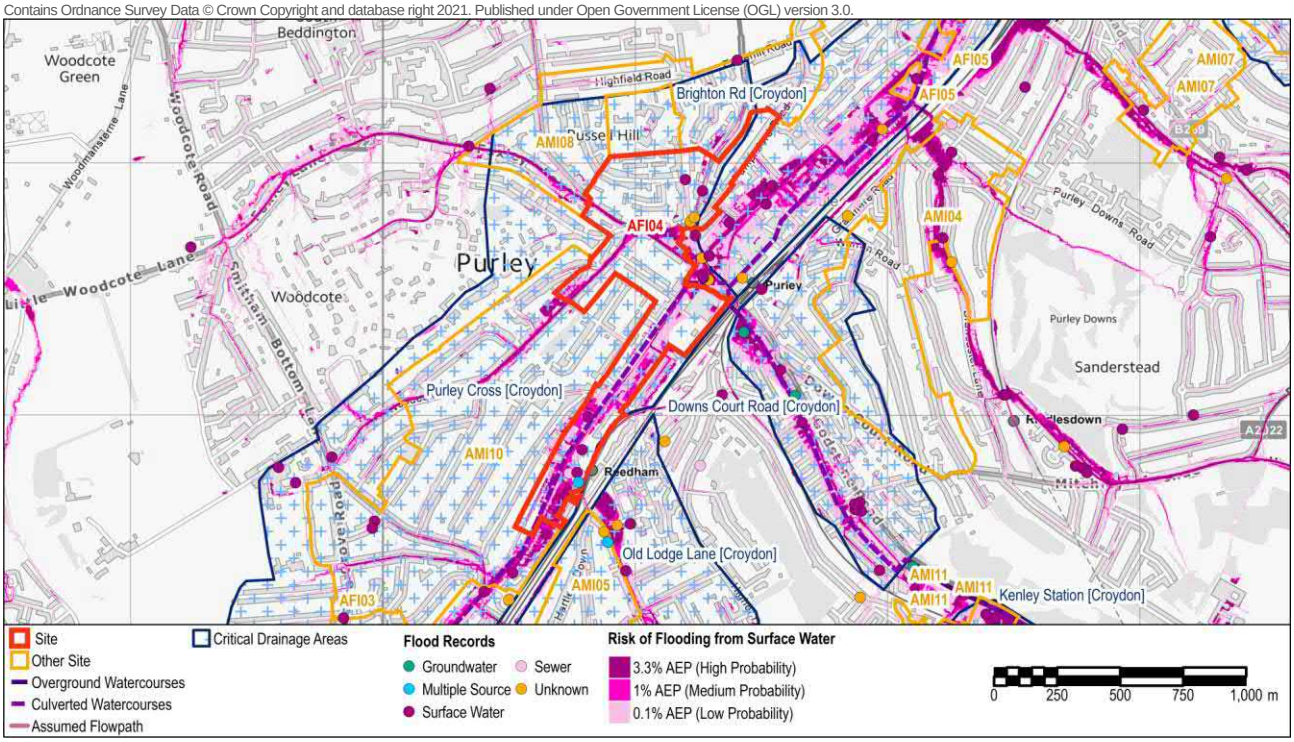


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

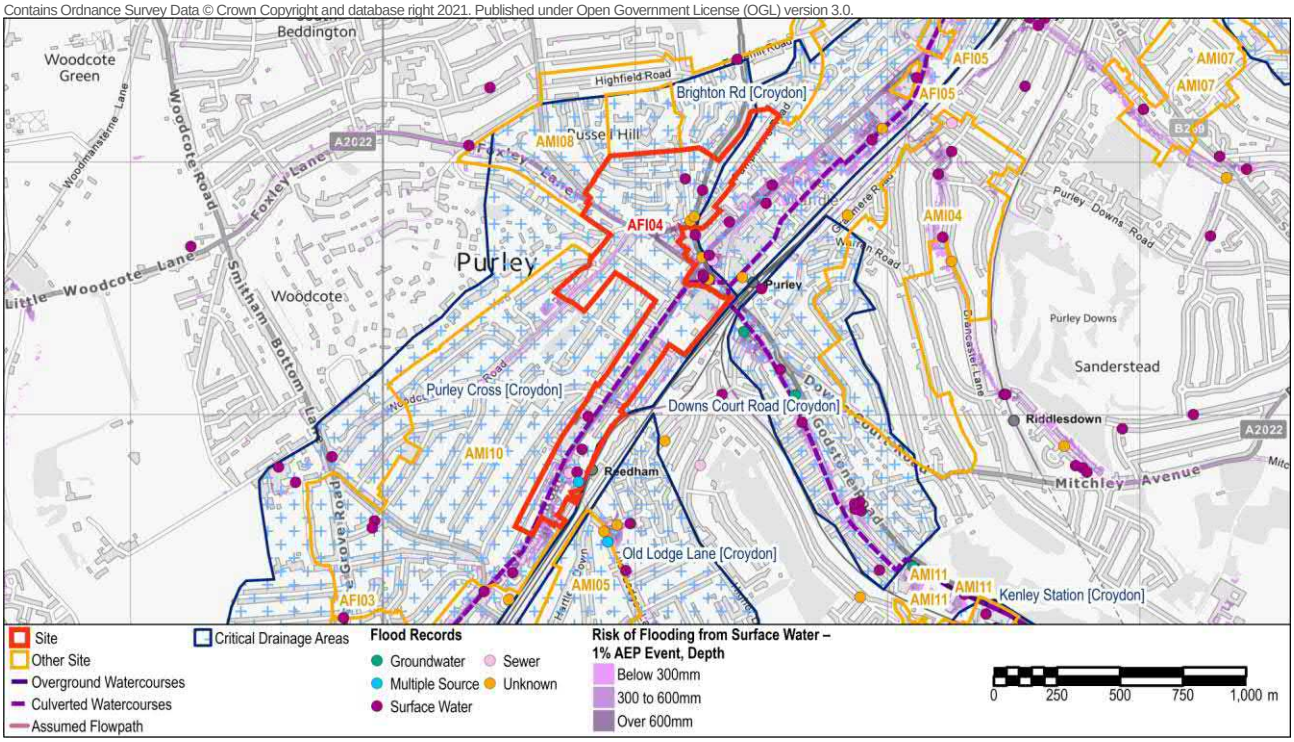


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Reedham station/ North and West of Purley District Centre AFI

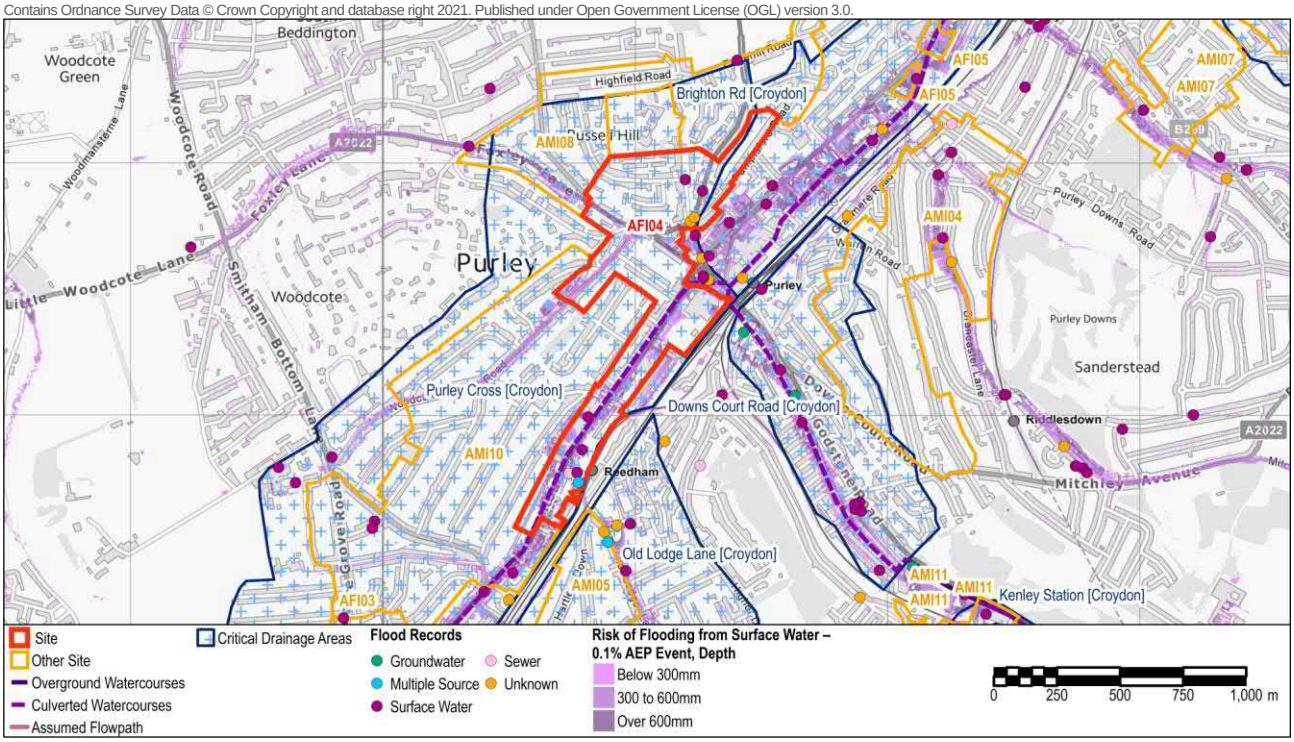


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

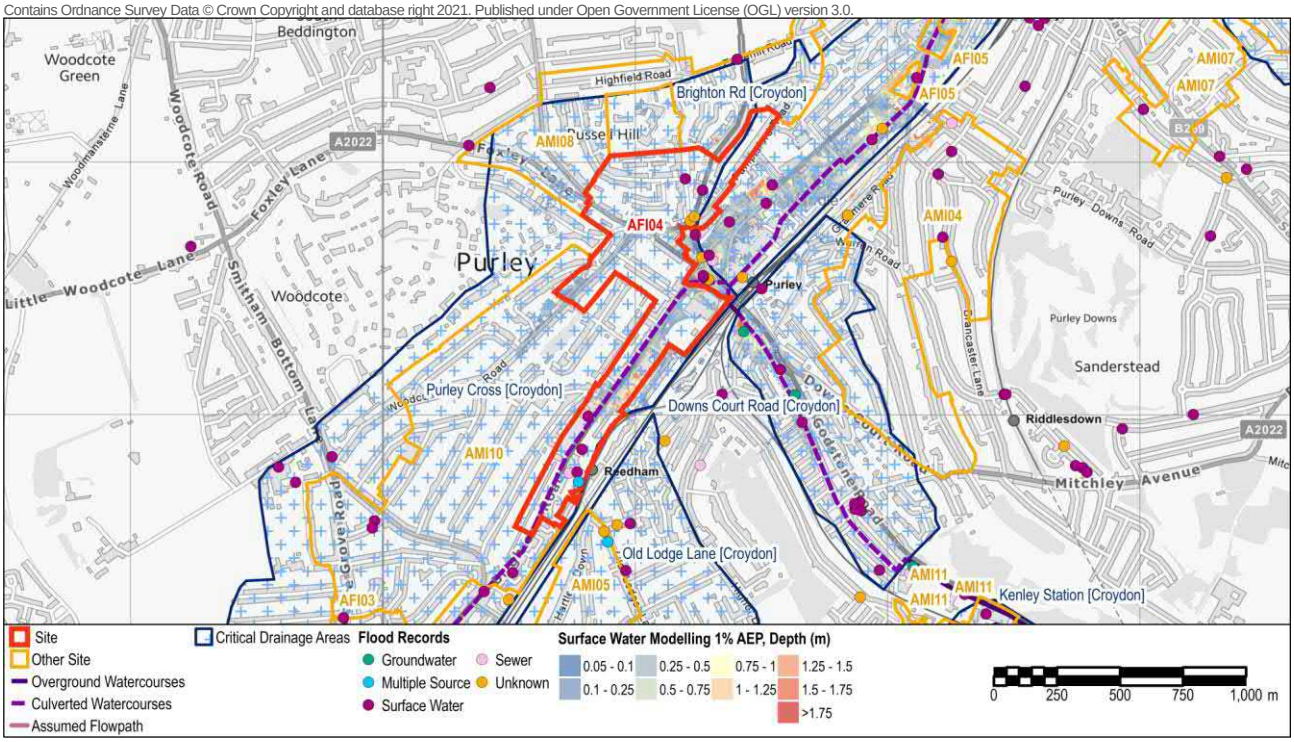


Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: Reedham station/ North and West of Purley District Centre AFI

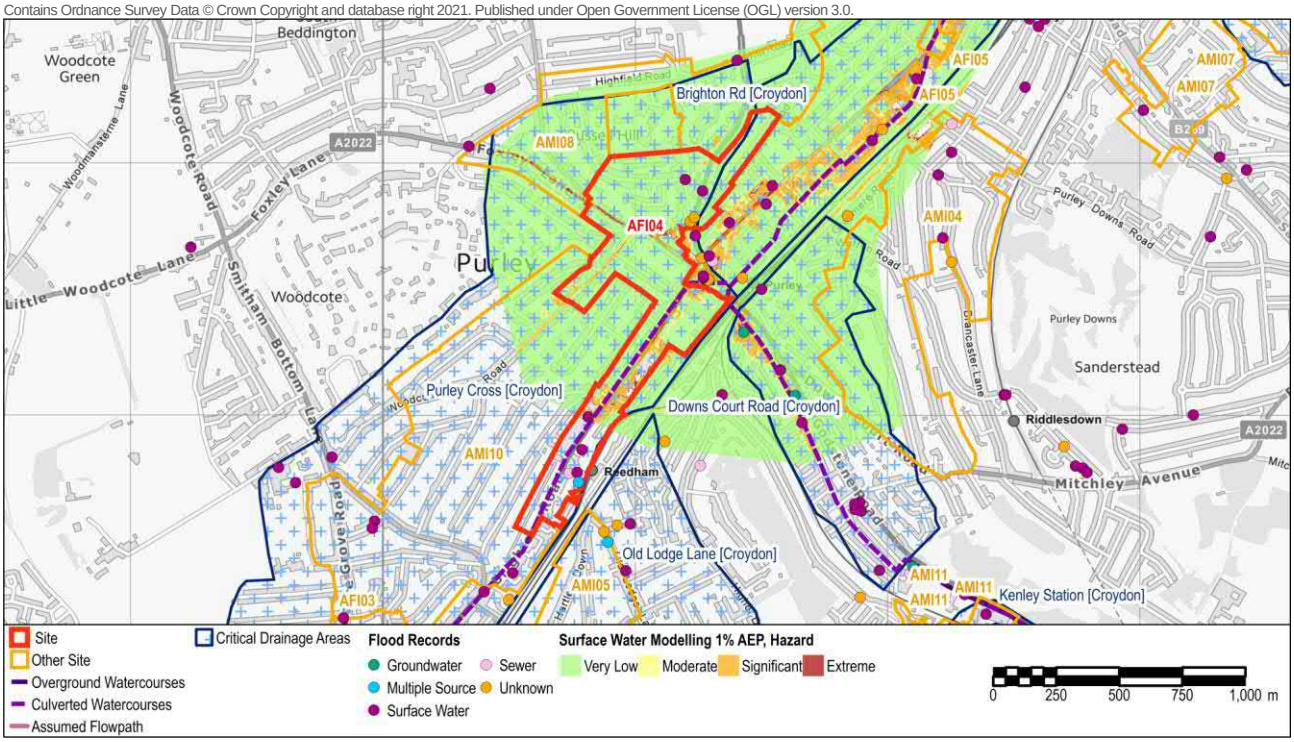


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

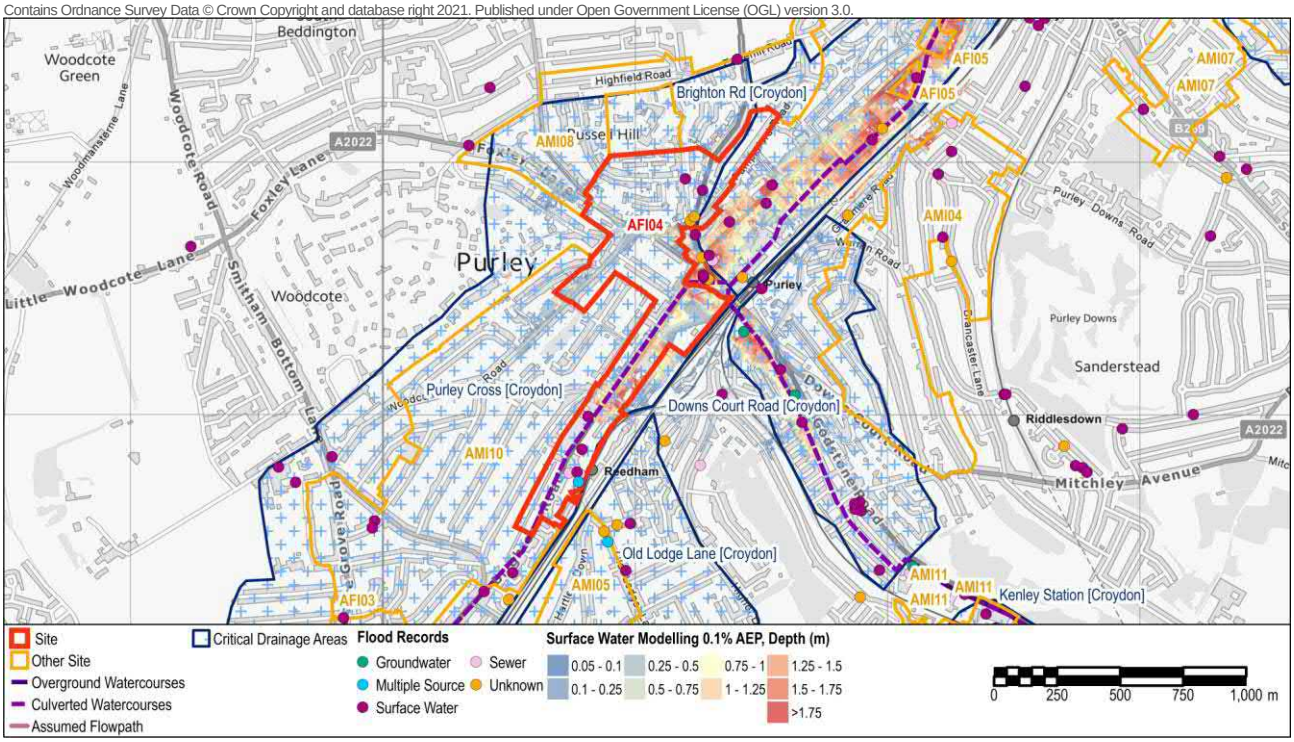


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: Reedham station/ North and West of Purley District Centre AFI

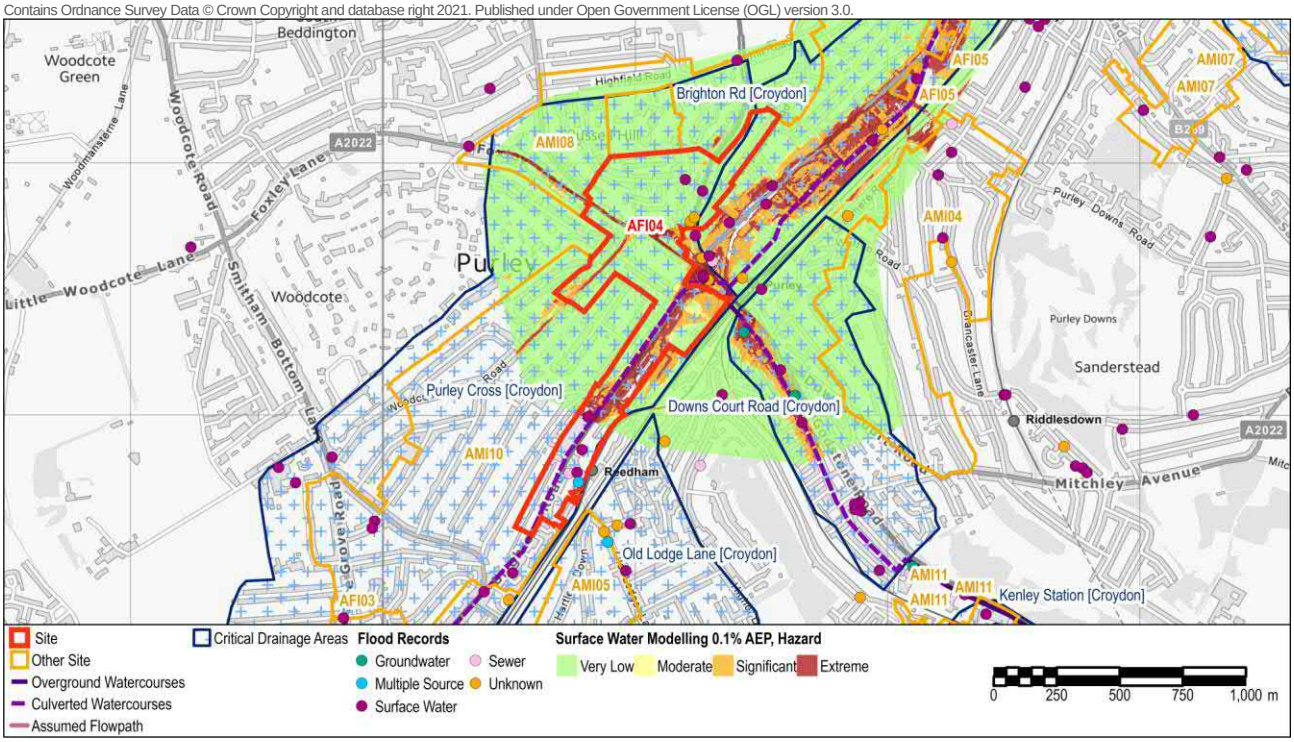


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		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	

Other Sources	
Risk of flooding from reservoirs	The Long Term Flood Risk Map shows that the site is not at risk of flooding, in the event of a breach or failure of a reservoir.

Summary

The majority of the AFI (91%) is defined as Flood Zone 1, Low probability of river flooding, and a small portion of the AFI is defined as Flood Zone 3 (8%), High probability of river flooding and Flood Zone 2 (1%), Medium probability flooding.
A 1050mm diameter culvert runs in a northern direction along Brighton Road, conveying one of the intermittent sources of the River Wandle and runoff generated in the surroundings. The Caterham Bourne, an ephemeral watercourse, flows from east to west to the east of the site, and joins the culvert beneath the Brighton Road.
There are records of flooding along Brighton Road recorded in the SFRA, SWMP and PFRA. There are records of flooding from a range of sources including surface water, groundwater, multiple sources, and unknown sources within 500m of the AFI. Six surface water flood events have been recorded across the AFI, three in the north and three in the south. Two unknown flood events have also been recorded in the north, along with a multiple source and a sewer flood record in the south. To the north eastern boundary more flood events have been recorded, there are either surface water or unknown. The AFI lies in both the Purley Cross and Brighton Road Critical Drainage Areas (CDAs).
This culverted part of the Wandle catchment was not included within the River Wandle modelling and therefore there are no modelling outputs for the 1% AEP fluvial flood event including 35% increase in peak river flows as a result of climate change (Figures 2 and 3). Surface water modelling undertaken by Arcadis (July 2020) is included in Figures 7-10. For the 1% AEP event, there is risk of surface water flooding between 0.1 -1.5m in the south east, these areas have a hazard rating of Significant with one small area at Extreme. The rest of the AFI has a Low hazard rating. During the 0.1% AEP event, flood depths of 0.75-1.25m are modelled to occur in the south east of the AFI with a corresponding hazard rating of Significant and Extreme.

Site Specific Recommendations

A range of proposed uses may be considered across this AFI. Where More Vulnerable development (such as residential) is proposed in areas of Flood Zone 3, the Exception Test will be required. Furthermore, even where the Exception Test is not required (in line with Table 3 of the PPG), in the light of the risk of surface water flooding in this area, steps should be taken to ensure that development is safe for its lifetime considering the impact of climate change, will not increase flood risk elsewhere, and where possible will reduce flood risk overall. To this end, the following recommendations are made throughout the AFI:

- A sequential approach should be applied within the AFI, steering development towards those areas in Flood Zone 1 and at lower risk of surface water flooding before consideration of areas at greater risk. Development should be avoided in Flood Zone 3a.
- Planning for the AFI should consider how it can 'make space for water' and consider the need to temporarily store surface water runoff during heavy rainfall events. Opportunities should be sought for providing strategic SuDS systems across multiple plots within the AFI.

Site Name: Reedham station/ North and West of Purley District Centre AFI

- Development proposals should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water making use of SuDS including green roofs, rainwater harvesting and other innovative technologies; and incorporate soft landscaping, planting, and impermeable surfacing.
- Finished floor levels for More Vulnerable development should be raised 600mm above ground levels. Where surface water modelling is available within the AFI, finished floor levels may be set above the modelled flood level for the 1% AEP event, including a 300mm freeboard. Flood depths for the modelled 1% AEP event are shown in Figure 7.
- Finished floor levels do not need to be raised for Less Vulnerable development, however flood resilience measures should be adopted within these developments to reduce potential damage during flooding and enable rapid re-occupancy.
- Surface water modelling shows that several of the main access routes through the AFI, (Brighton Road, Foxley Lane, Woodcote Valley Road) are at risk of flooding with a Significant or Extreme hazard rating during the 1% and 0.1% AEP events. Development proposals within the AFI should consider how safe access/egress can be provided during these events. In addition, given the potential for surface water to have rapid onset, a place of safe refuge should be provided within new developments above the modelled flood level for the 0.1% AEP event (Figure 9).
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response.
- This area is covered by the Environment Agency Flood Alert Area for Groundwater flooding in South East London (Areas at risk from Groundwater flooding including Caterham Bourne, Coulsdon Bourne, Beddington, Carshalton, Coulsdon, Kenley, Purley, South Croydon, Whyteleafe, Bromley, Bexley, and Lewisham). This service has a wide geographic coverage and does not give time-specific warnings.
- The risk of groundwater flooding and groundwater levels should be further assessed as part of a Site Investigation for specific development proposals within the AFI.

Site Name: Brighton Road AFI

Site ID:	AFI 5	**Area (ha):**	11.85
Proposed Use:	Mixed use.	**Vulnerability Classification:**	More Vulnerable

Flood Zones and Historic Flooding

Flood Zone 1 (<0.1% AEP): 55%	**Flood Zone 2 (0.1% AEP):** 1%	**Flood Zone 3 (1% AEP):** 44%	**Flood Zone 3b (5% AEP):** 0%	**Area Benefiting from Defences:** 0%

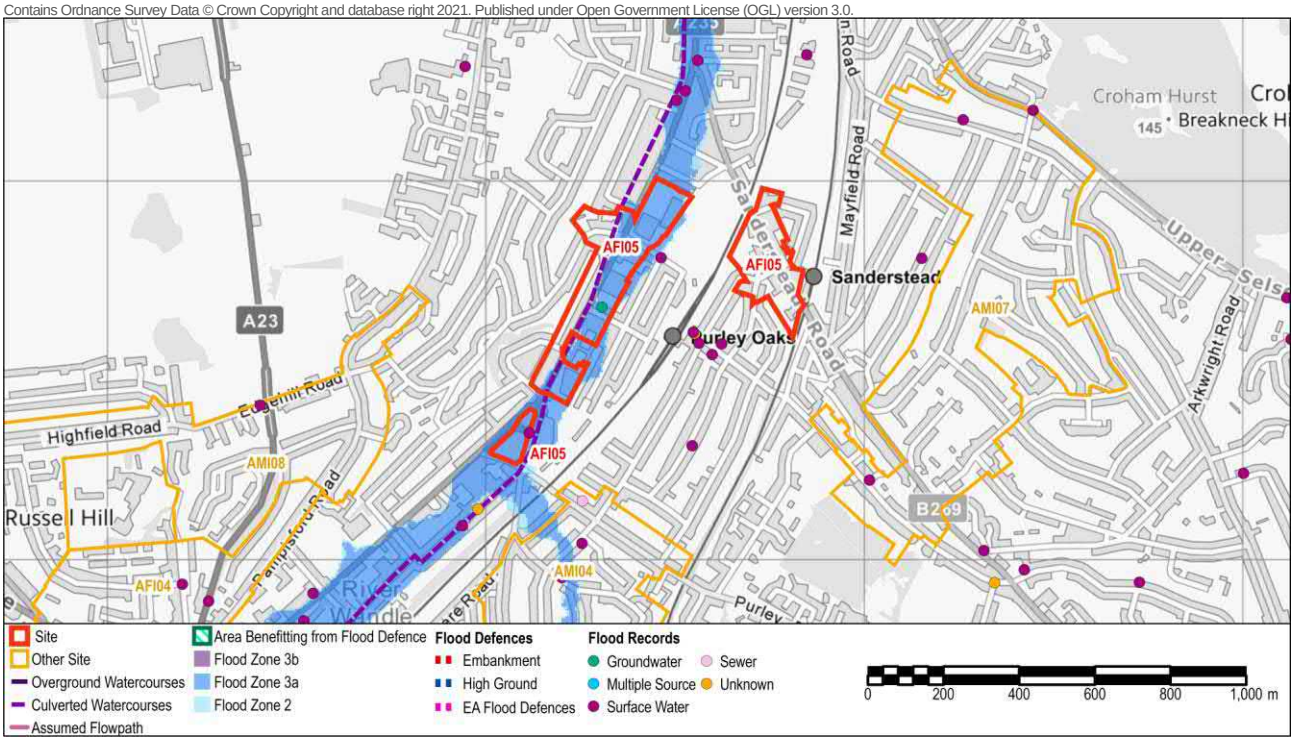


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 17; Groundwater 1; Sewer 1; Multiple source 0; Unknown source 2

River Flooding

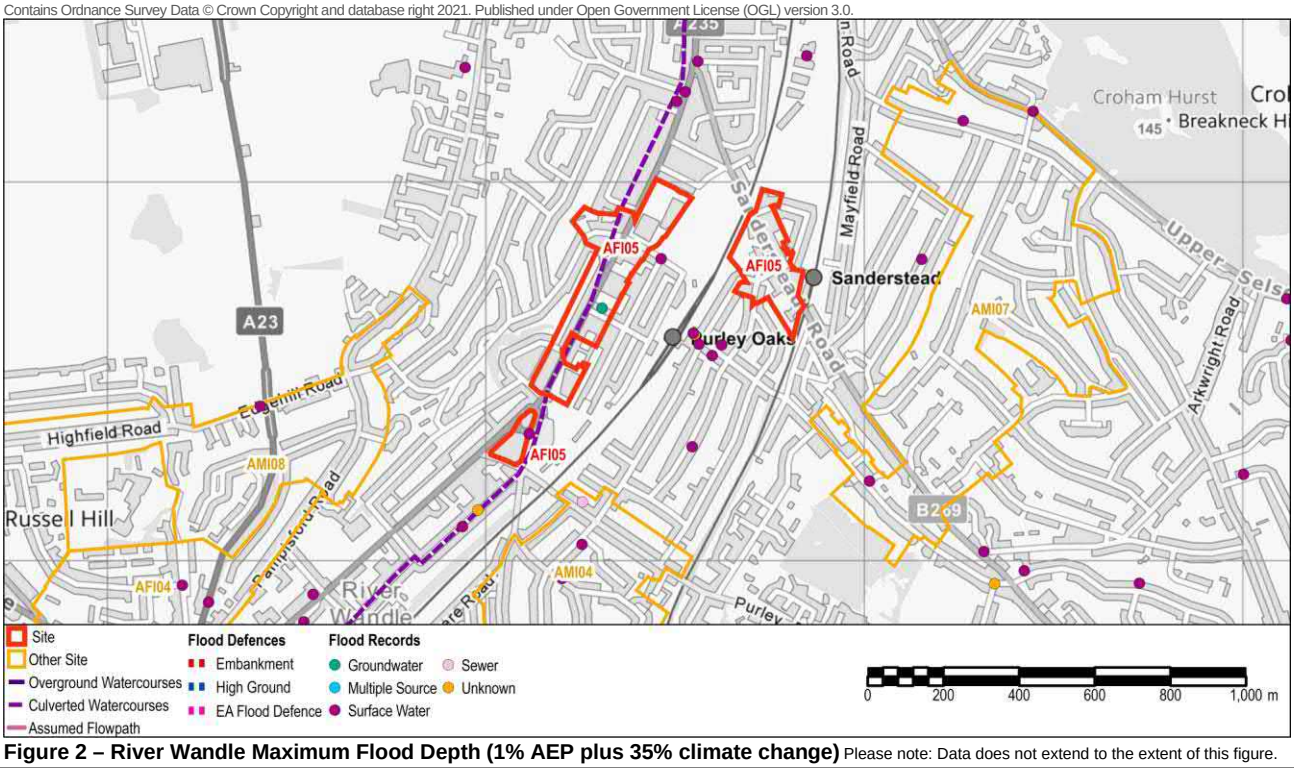


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: Brighton Road AFI

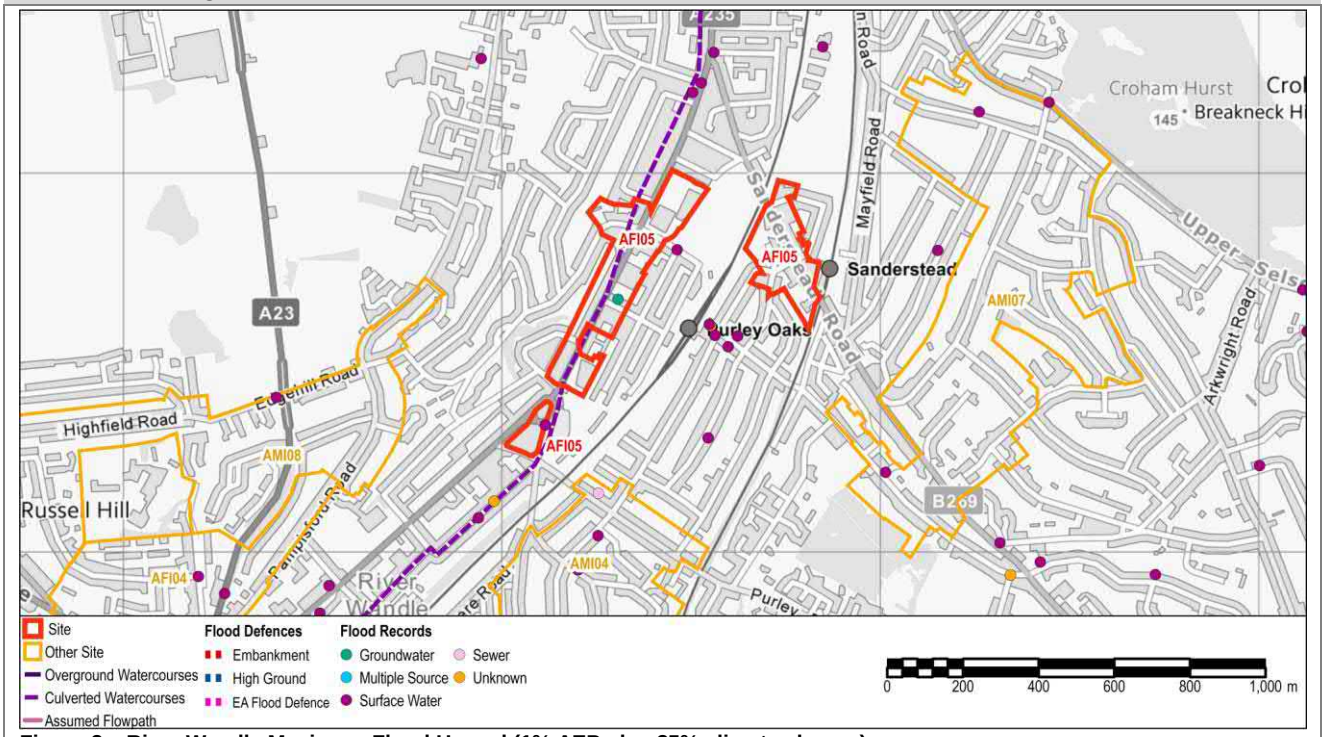
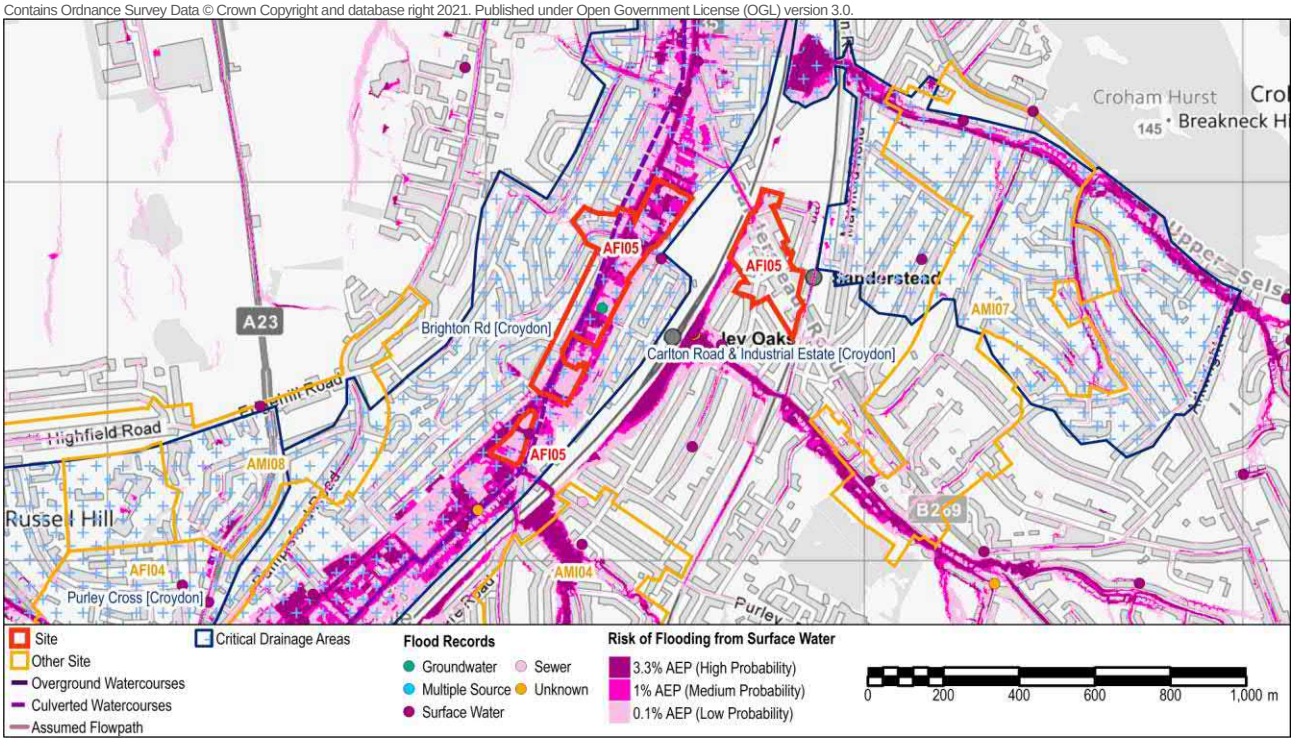


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Surface Water Flooding	
Critical Drainage Area	Group8_041 - Brighton Rd [Croydon]
Drainage Catchment	DC39, DC45, DC46

Site Name: Brighton Road AFI



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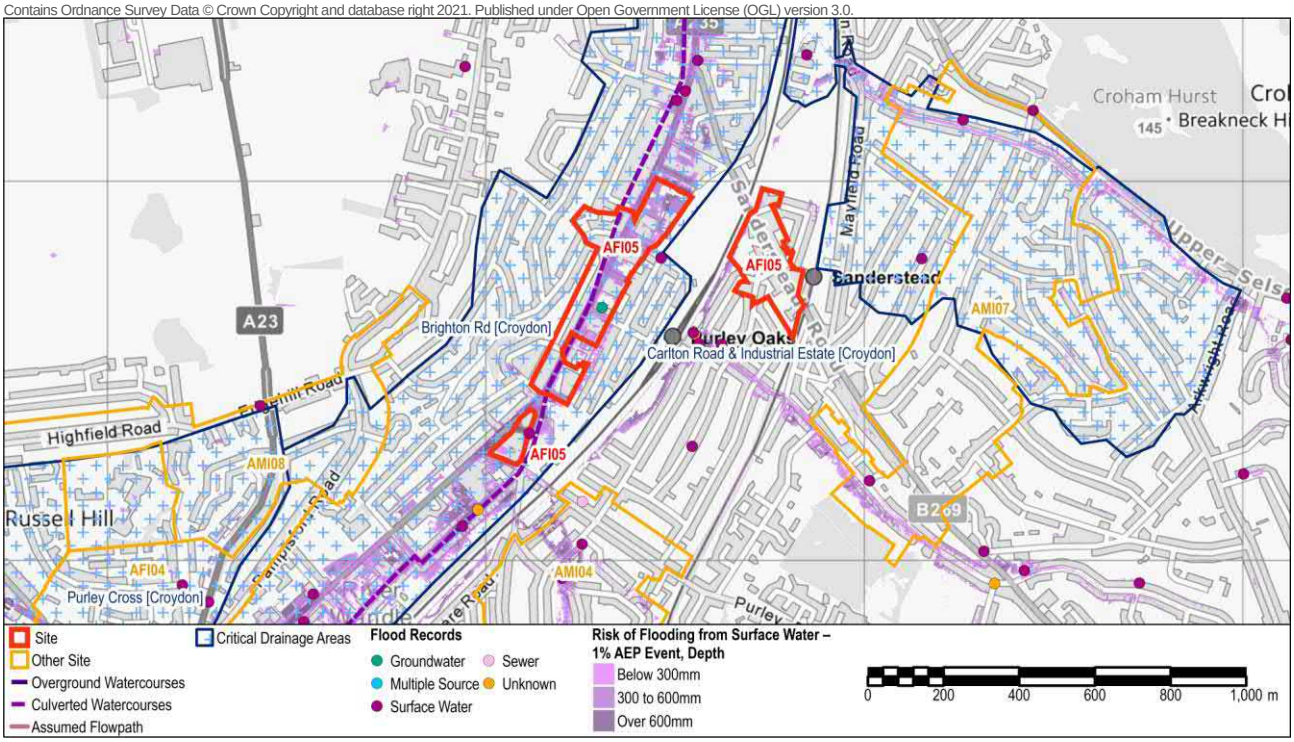

Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Brighton Road AFI

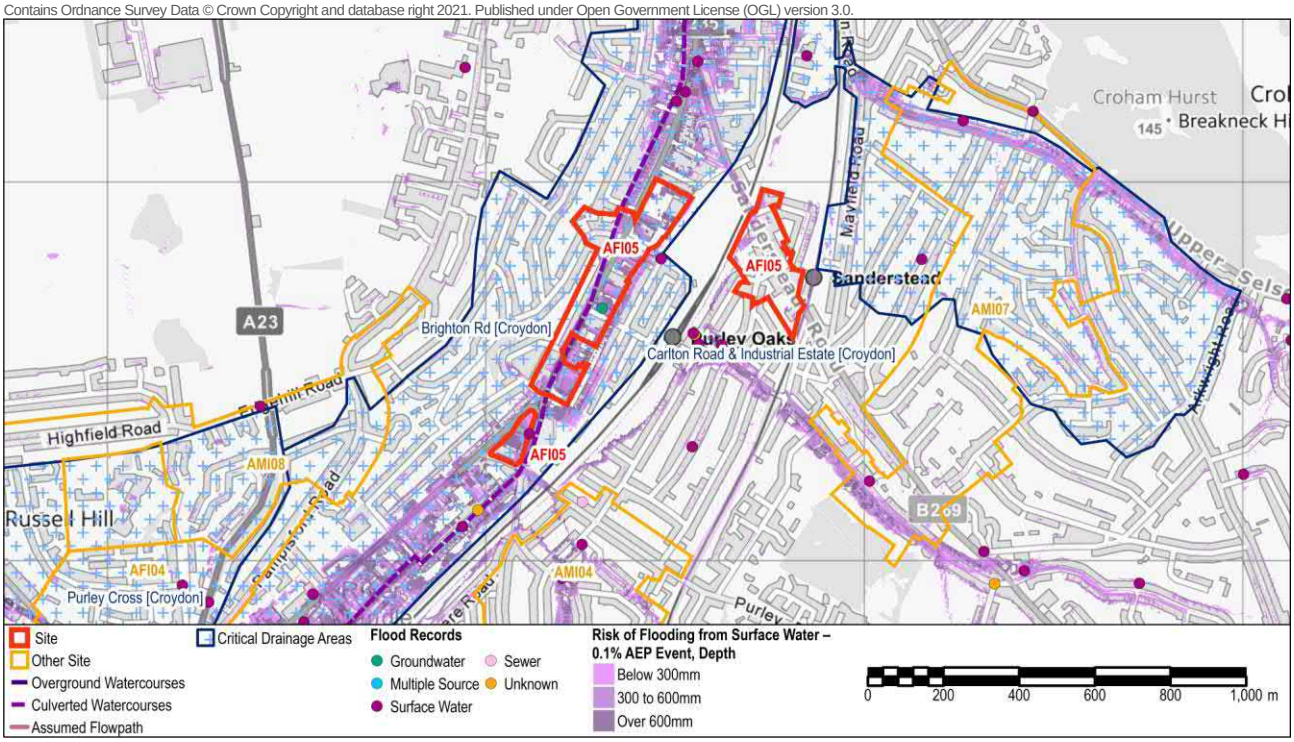

Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

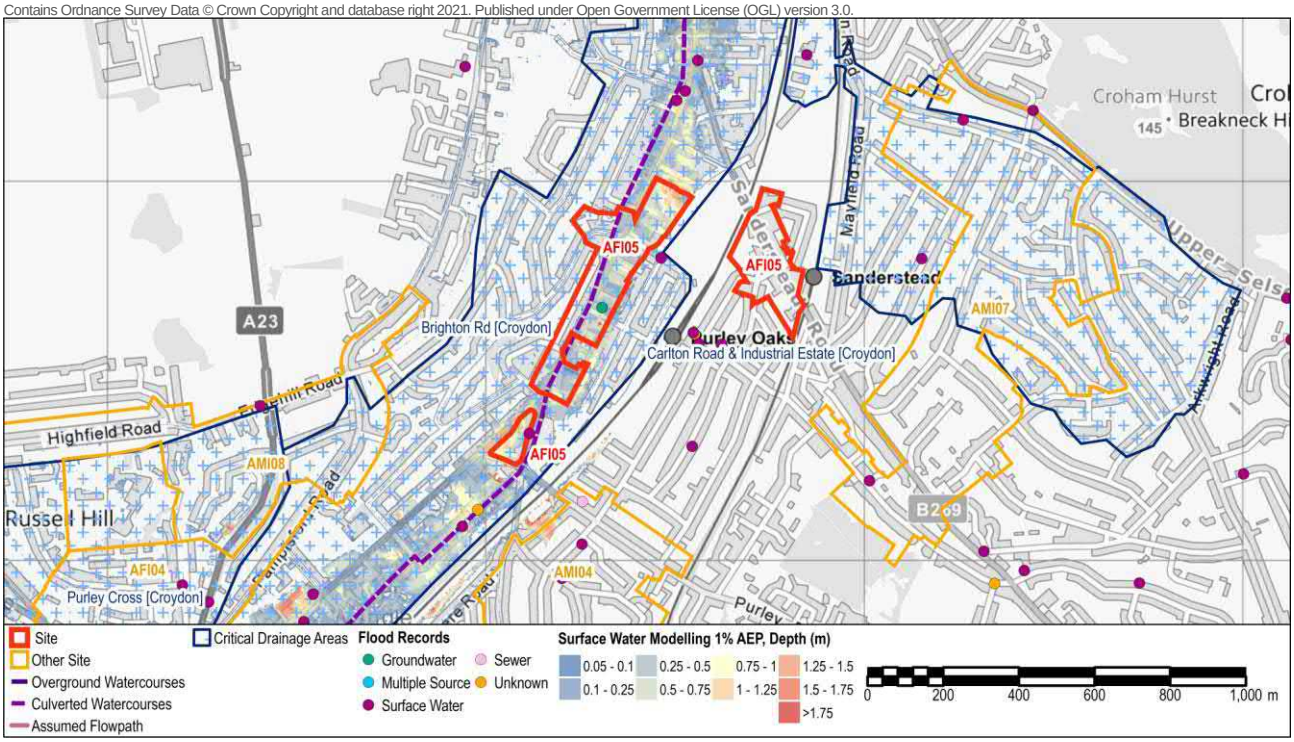

Figure 7 - Surface Water Modelling 1% AEP Flood Depth

Site Name: Brighton Road AFI

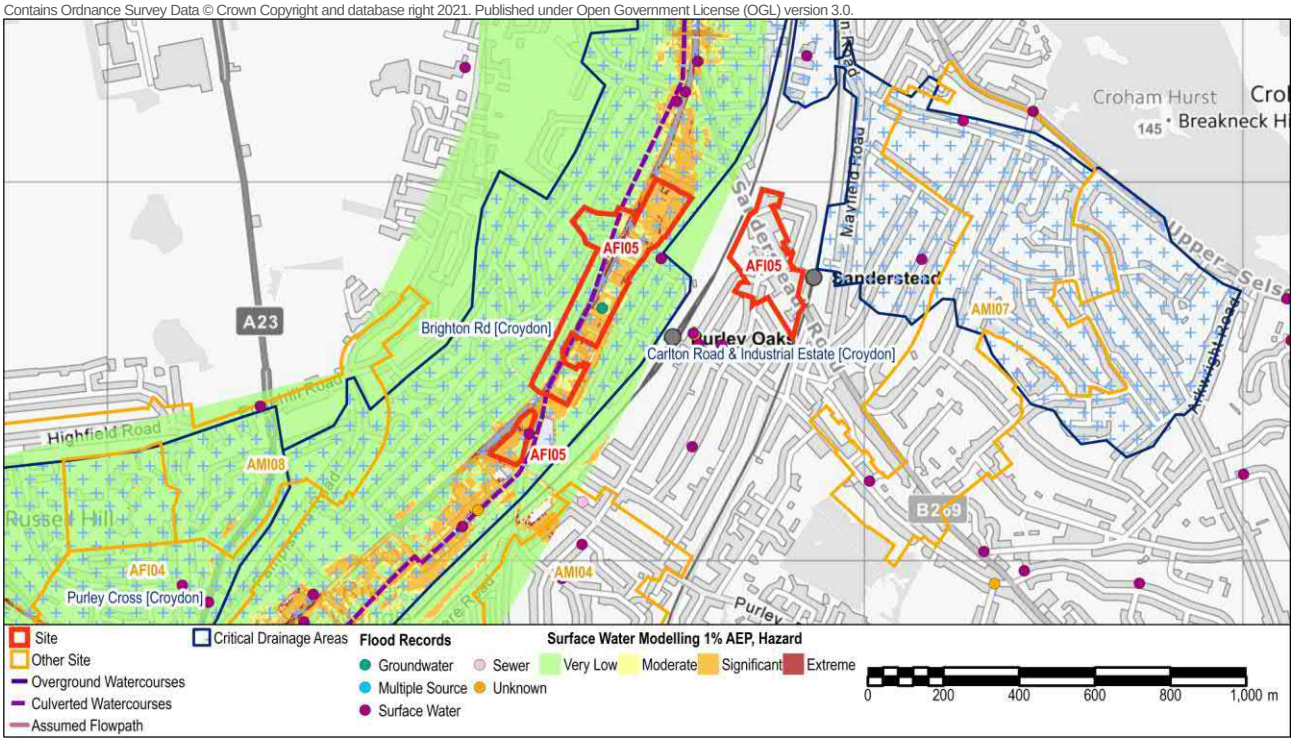

Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

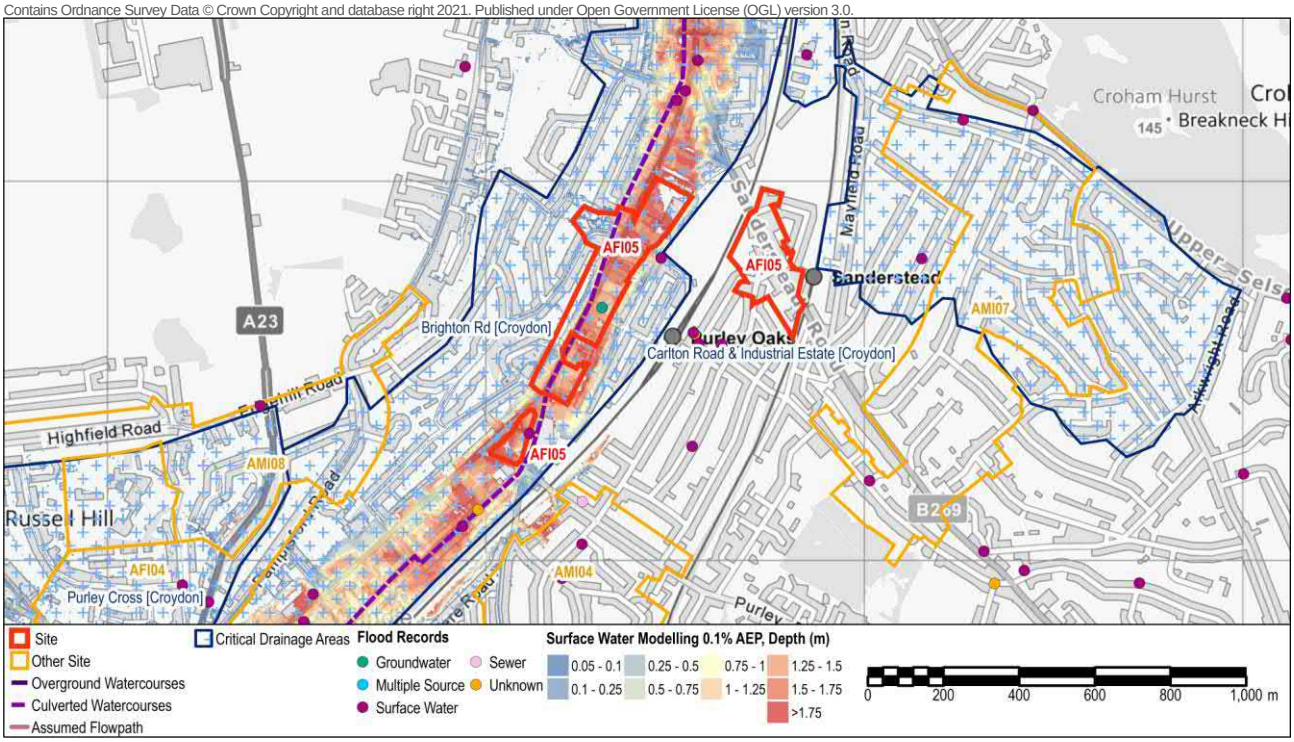

Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: Brighton Road AFI

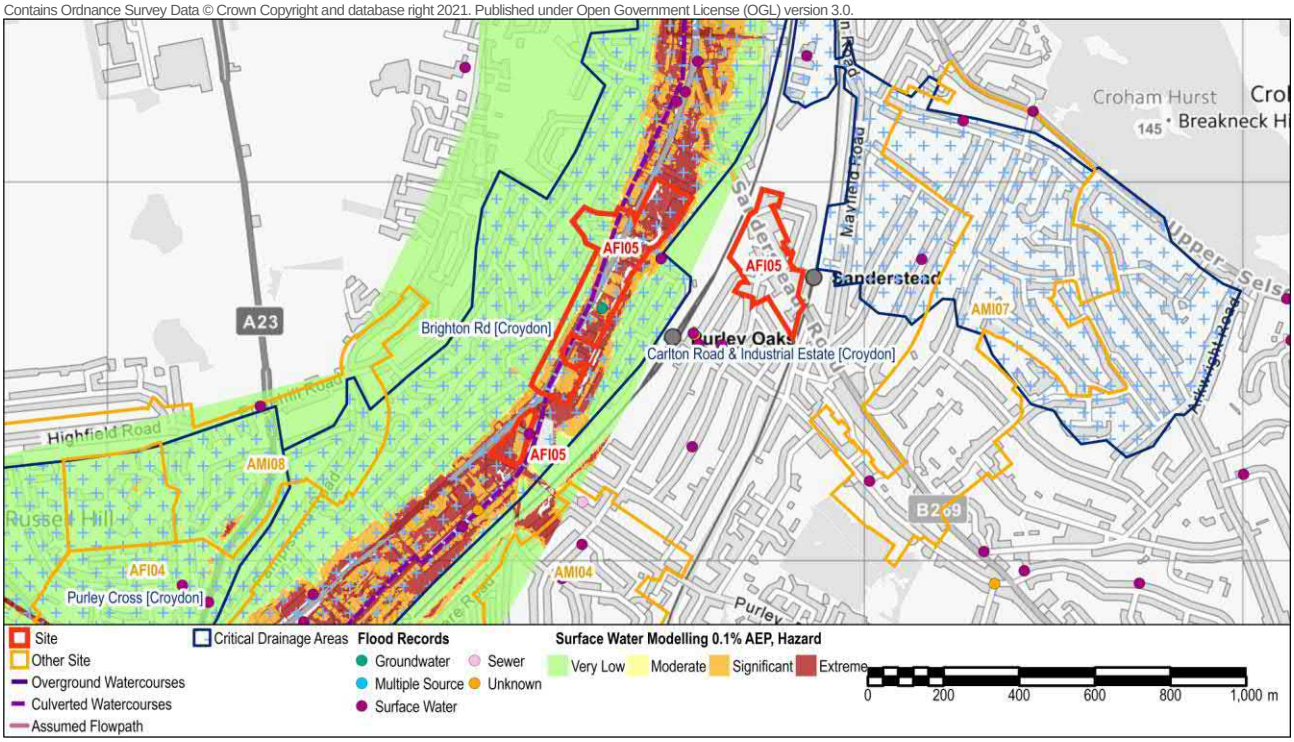

Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	Sand And Gravel
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		Potential for groundwater flooding to occur at surface	

Other Sources	
Risk of flooding from reservoirs	The Long Term Flood Risk Map shows that the site is not at risk of flooding, in the event of a breach or failure of a reservoir.

Summary

This AFI comprises three separate areas; two located on the west side of the railway line on Brighton Road, and one on the east on Sanderstead Road. Considered collectively, almost half of this AFI (44%) is defined as Flood Zone 3 High probability of river flooding; 55% is defined as Flood Zone 1, Low probability and 1% is defined as Flood Zone 2, Medium Probability.
A 1050mm diameter culvert runs in a northern direction along Brighton Road, conveying runoff generated in the surroundings and flows from the intermittent watercourses of the Merstham Bourne and Caterham Bourne.
There are records of flooding along Brighton Road recorded in the SFRA, SWMP and PFRA. There is one record of groundwater flooding within the AFI; two records of surface water flooding. Part of the AFI lies within the Brighton Road Critical Drainage Area (CDA). This culverted part of the Wandle catchment was not included within the River Wandle modelling and therefore there are no modelling outputs for the 1% AEP fluvial flood event including 35% increase in peak river flows as a result of climate change (Figures 2 and 3).
Surface water modelling undertaken by Arcadis (July 2020) is included in Figures 7-10 and covers the two western portions of this AFI. For the 1% AEP event, there is risk of surface water flooding reaching depths of 0.75m – 1.5m, with a corresponding hazard rating ranging from Low in the north west to Extreme on the eastern edge. During the 0.1% AEP event, flood depths are identified from 0.75m to >1.75m in some places along Brighton Road, with a corresponding hazard rating of Significant and Extreme.
The eastern part of the AFI is not covered by the surface water modelling study (Arcadis July 2020). The Risk of Flooding from Surface Water (RoFSW) mapping (Figures 5 and 6) identifies that this part of the AFI is not at widespread risk of surface water flooding, however flooding is shown to occur in the north west in the 0.1% AEP event reaching depths of 300-600mm.

Site Specific Recommendations

A range of proposed uses may be considered across this AFI. Where More Vulnerable development (such as residential) is proposed in areas of Flood Zone 3, the Exception Test will be required. Furthermore, even where the Exception Test is not required (in line with Table 3 of the PPG), in the light of the risk of surface water flooding in this area, steps should be taken to ensure that development is safe for its lifetime considering the impact of climate change, will not increase flood risk elsewhere, and where possible will reduce flood risk overall. To this end, the following recommendations are made throughout the AFI:

- A sequential approach should be applied within the AFI, steering development towards those areas in Flood Zone 1 and at lower risk of surface water flooding before consideration of areas at greater risk. Development should be avoided in Flood Zone 3a.
- Planning for the AFI should consider how it can 'make space for water' and consider the need to temporarily store surface water runoff during heavy rainfall events. Opportunities should be sought for providing strategic SuDS systems across multiple plots within the AFI.
- Development proposals should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water making use of SuDS including green roofs, rainwater harvesting and other innovative technologies; and incorporate soft landscaping, planting, and impermeable surfacing.
- In areas of Flood Zone 2 and 3, finished floor levels for More Vulnerable development should be raised 600mm above ground levels. Where surface water modelling is available within the AFI, finished floor levels may be set above the modelled flood

Site Name: Brighton Road AFI

level for the 1% AEP event, including a 300mm freeboard. Flood depths for the modelled 1% AEP event are shown in Figure 7.

- Finished floor levels do not need to be raised for Less Vulnerable development, however flood resilience measures should be adopted within these developments to reduce potential damage during flooding and enable rapid re-occupancy.
- Surface water modelling shows that the main access routes for the two western parts of the AFI along Brighton Road are at risk of flooding with a Significant or Extreme hazard rating during the 1% and 0.1% AEP events. Development proposals within the AFI should consider how safe access/egress can be provided during these events. In addition, given the potential for surface water to have rapid onset, a place of safe refuge should be provided within new developments above the modelled flood level for the 0.1% AEP event (Figure 9).
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response.
- This area is covered by the Environment Agency Flood Alert Area for Groundwater flooding in South East London (Areas at risk from Groundwater flooding including Caterham Bourne, Coulsdon Bourne, Beddington, Carshalton, Coulsdon, Kenley, Purley, South Croydon, Whyteleafe, Bromley, Bexley, and Lewisham). This service has a wide geographic coverage and does not give time-specific warnings.
- The risk of groundwater flooding and groundwater levels should be further assessed as part of a Site Investigation for specific development proposals within the AFI.

Site Name: Forestdale AFI

Site ID:	AFI 6	**Area (ha):**	8.54
Proposed Use:	Mixed use.	**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 3 (1% AEP):** 0%	**Flood Zone 3b (5% AEP):** 0%	**Area Benefiting from Defences:** 0%

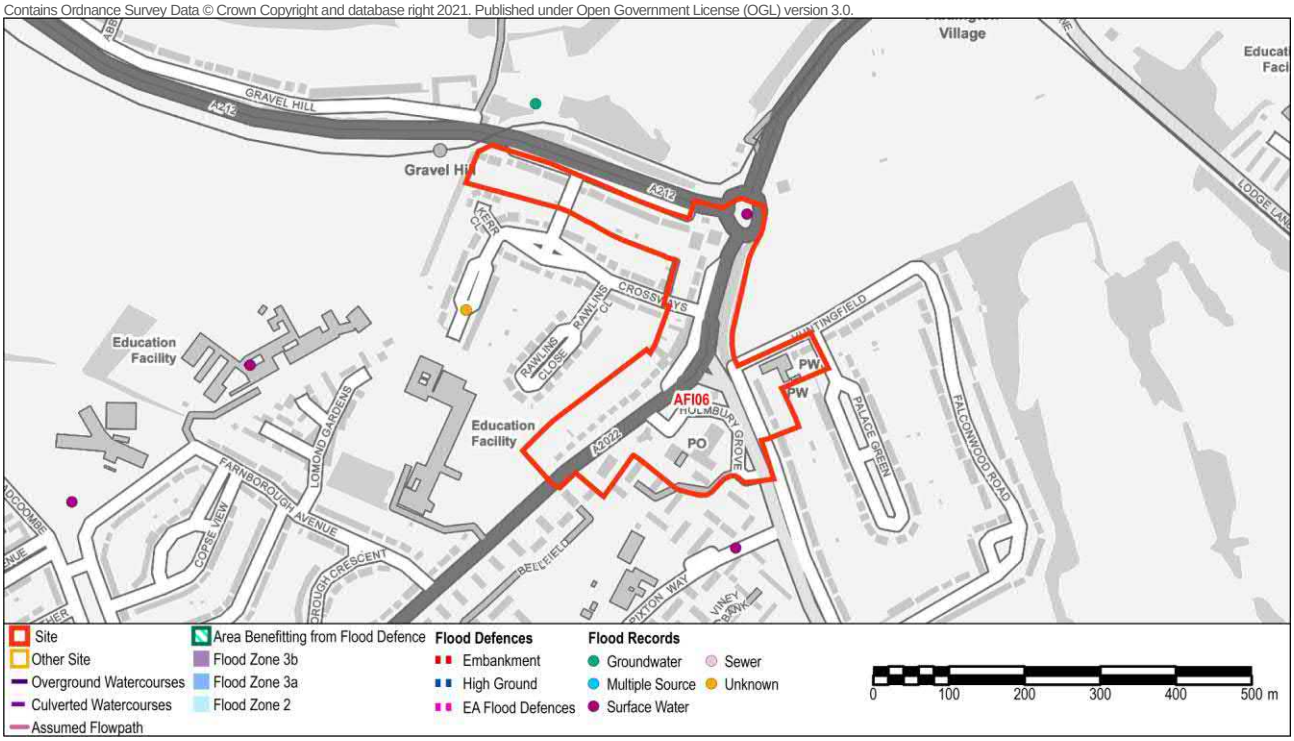

Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 5; Groundwater 1; Sewer 0; Multiple source 0; Unknown source 2

River Flooding

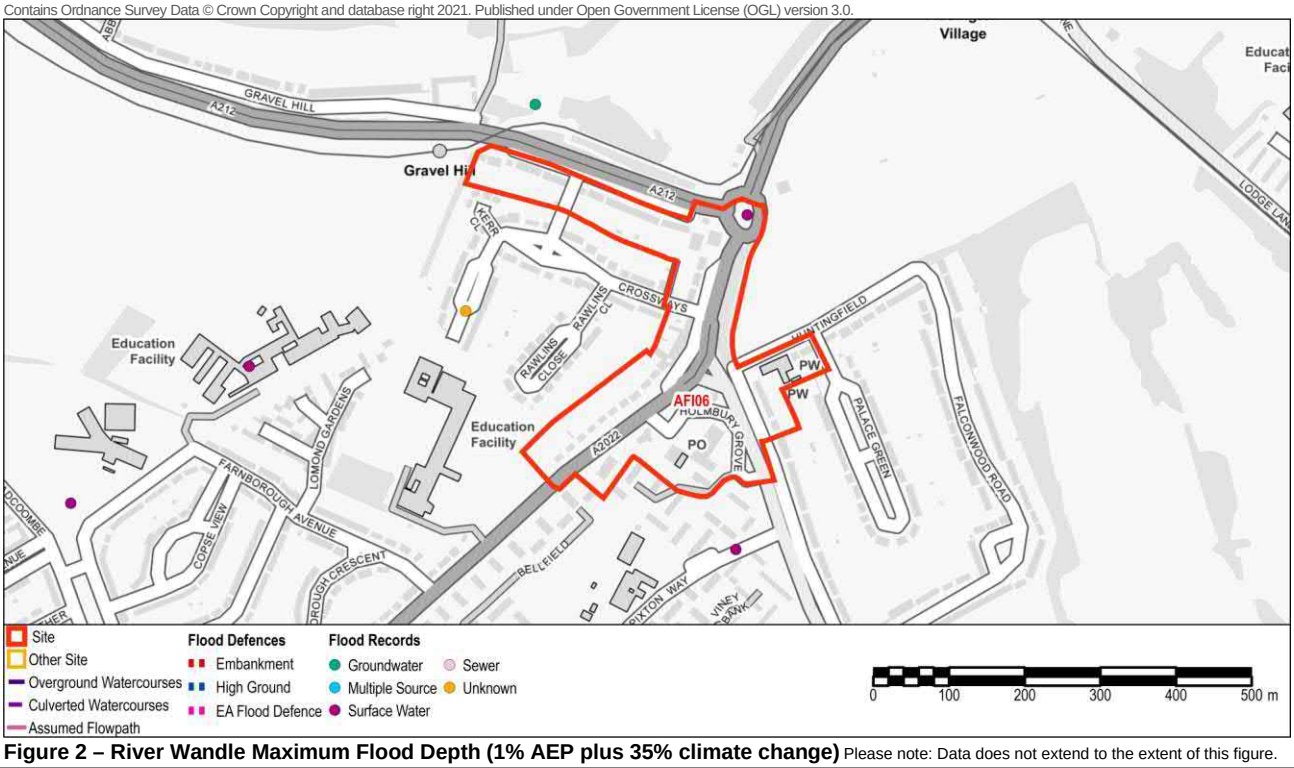

Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: Forestdale AFI

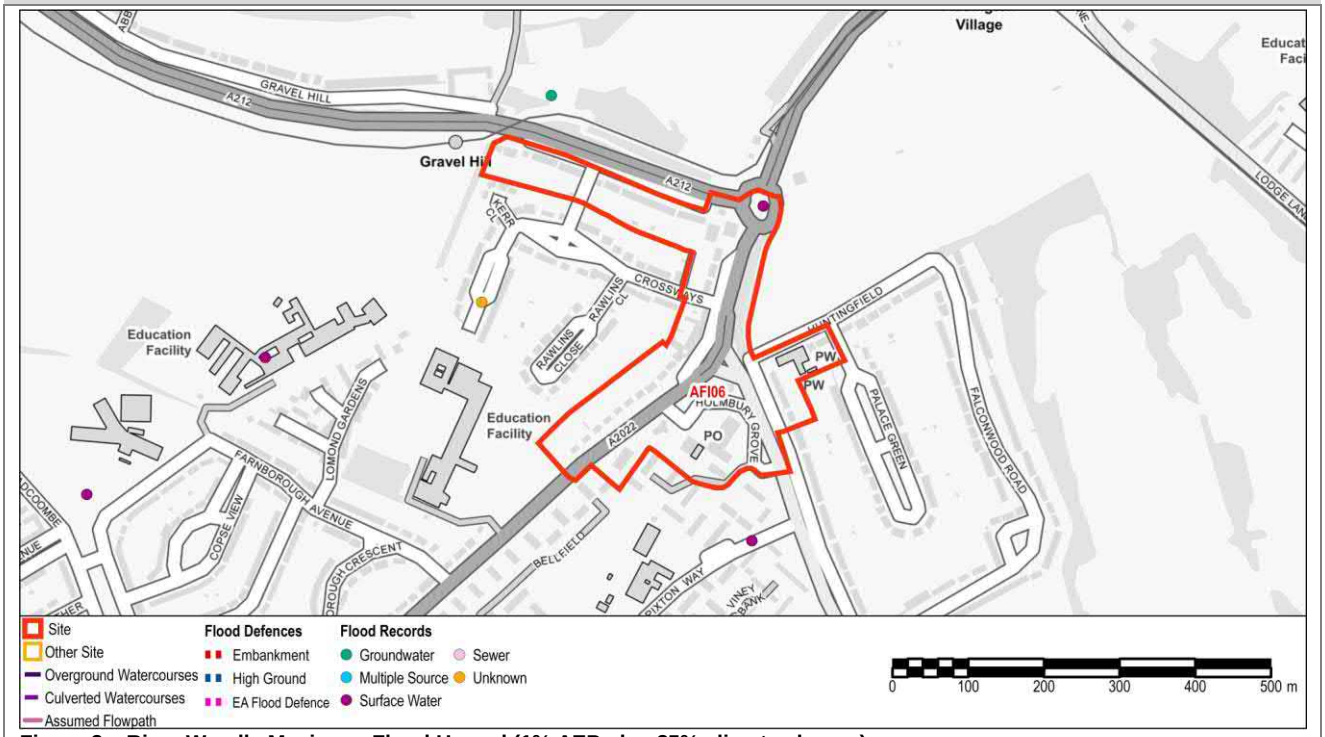

Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Surface Water Flooding	
Critical Drainage Area	Group8_045 - Forestdale/Addington [Croydon]
Drainage Catchment	DC42

Site Name: Forestdale AFI

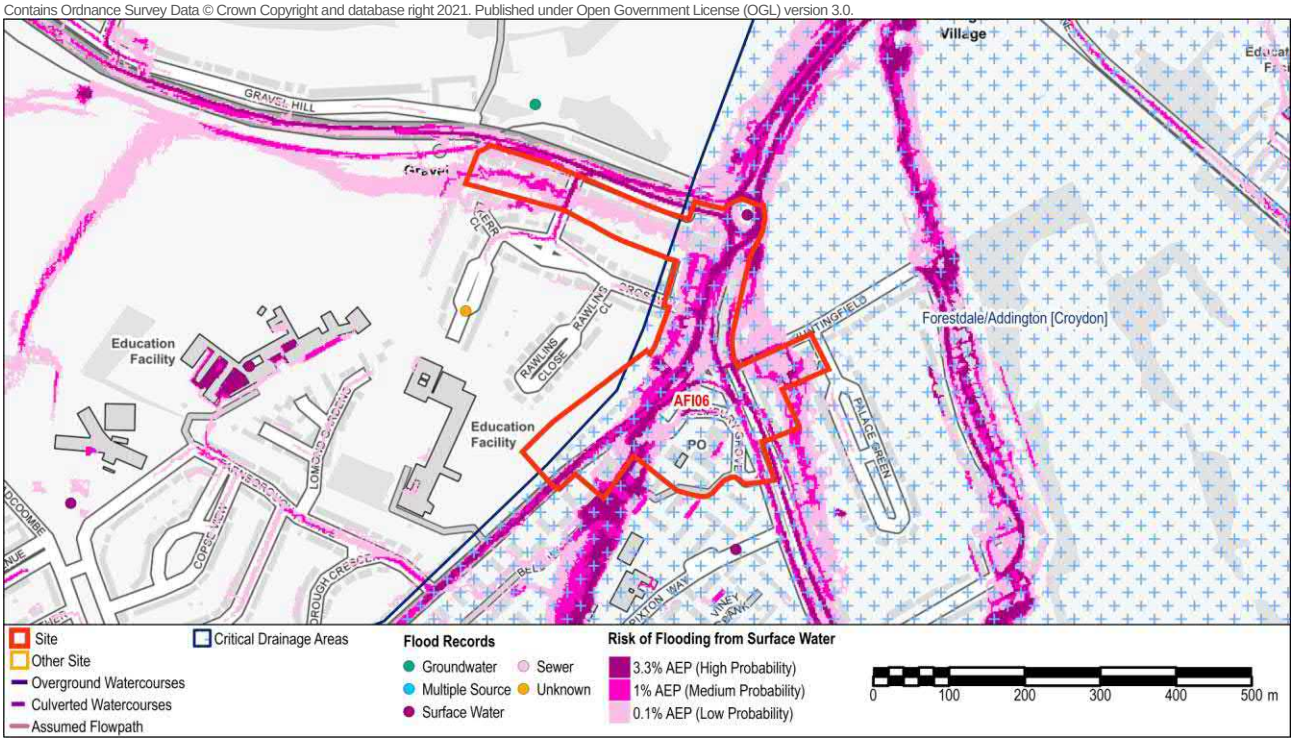

Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

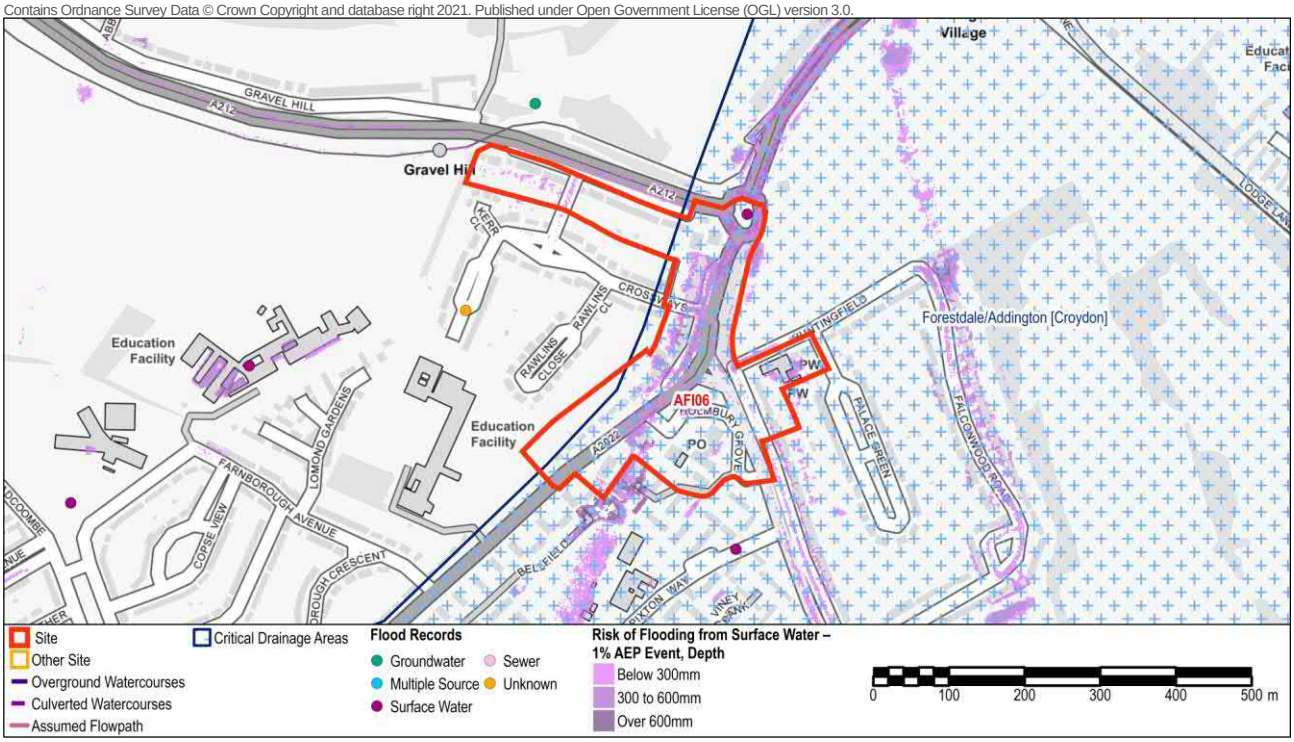

Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Forestdale AFI

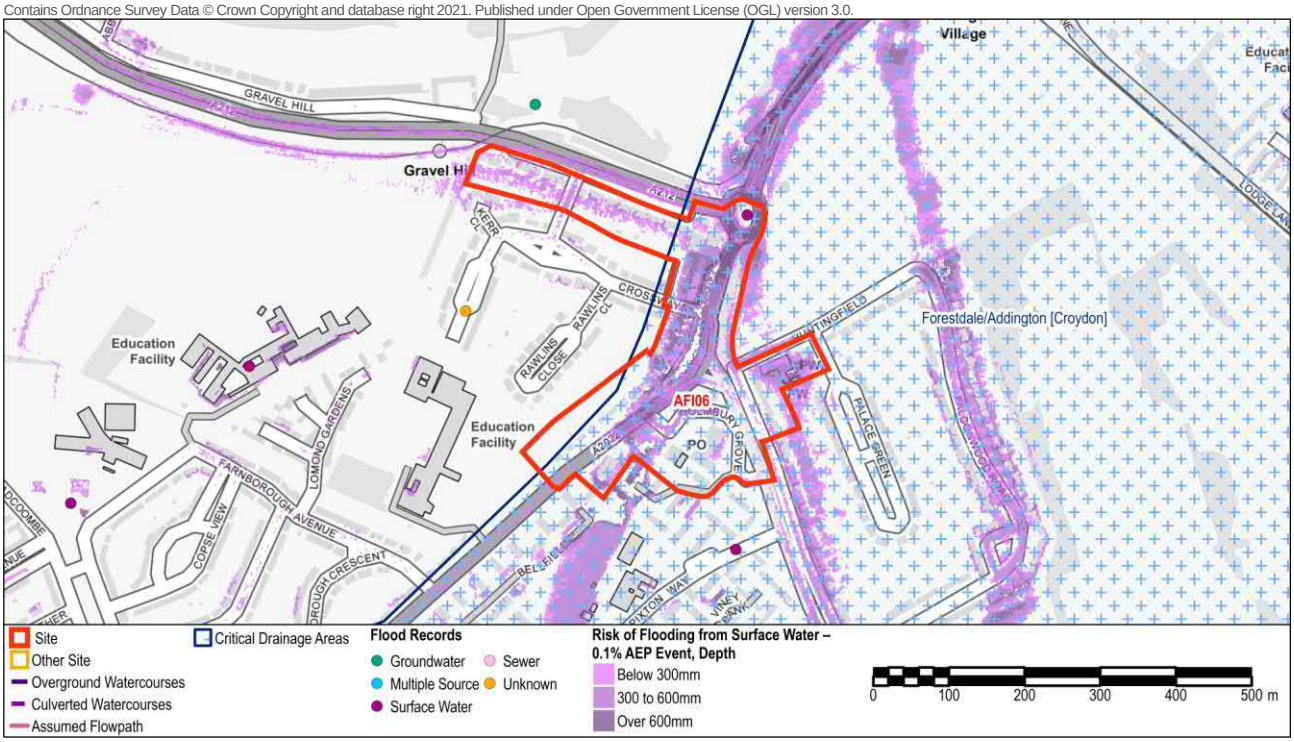

Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

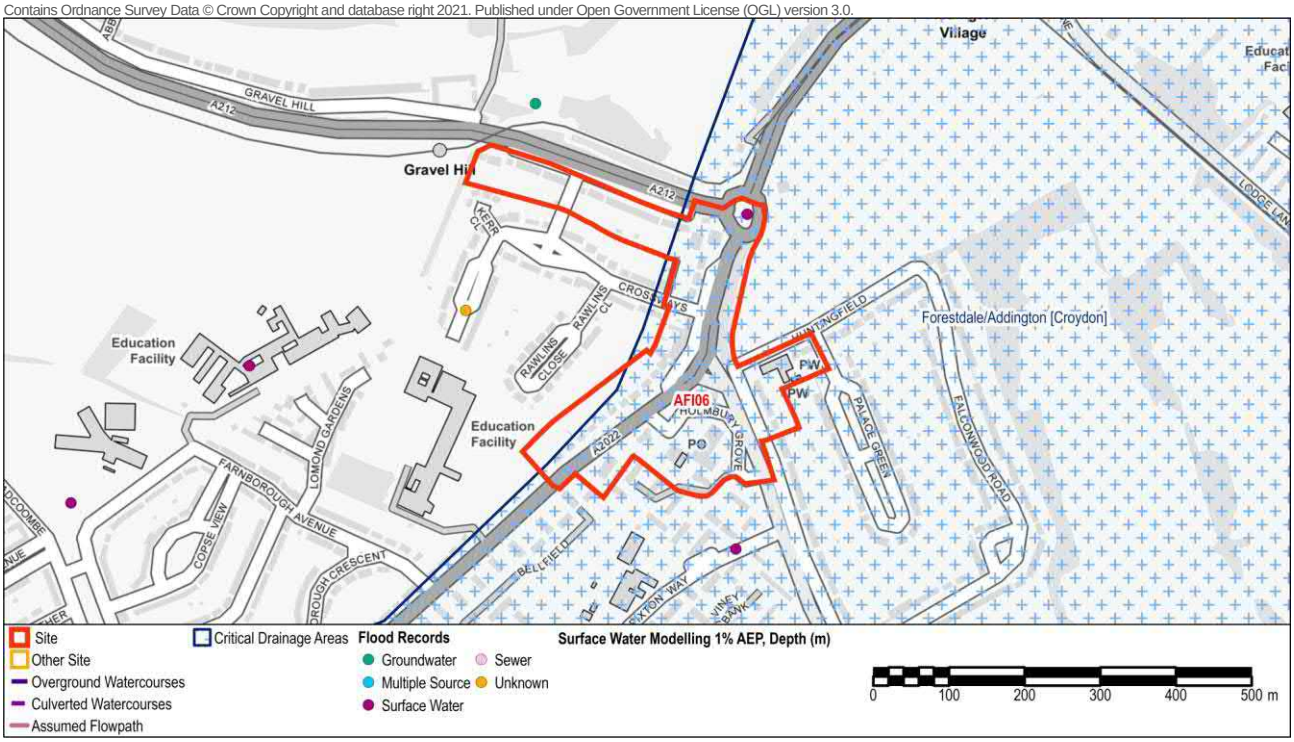

Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: Forestdale AFI

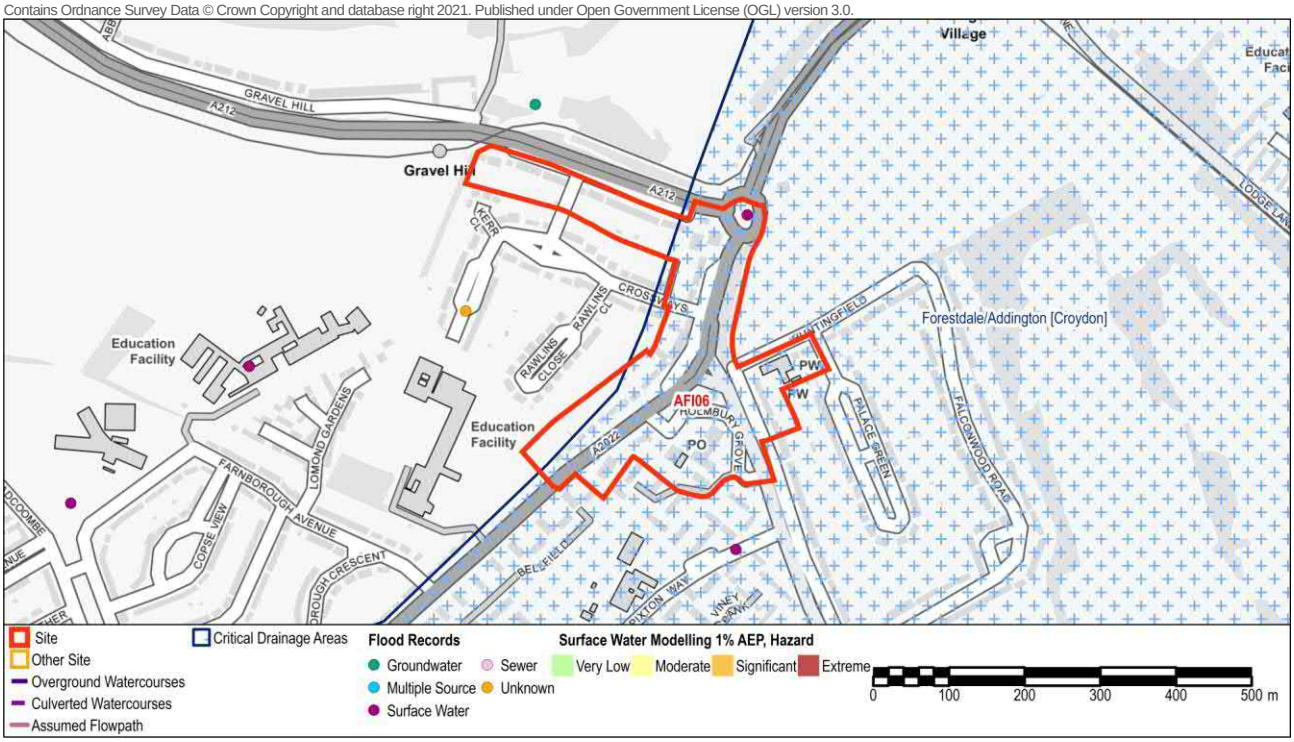

Figure 8 - Surface Water Modelling 1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

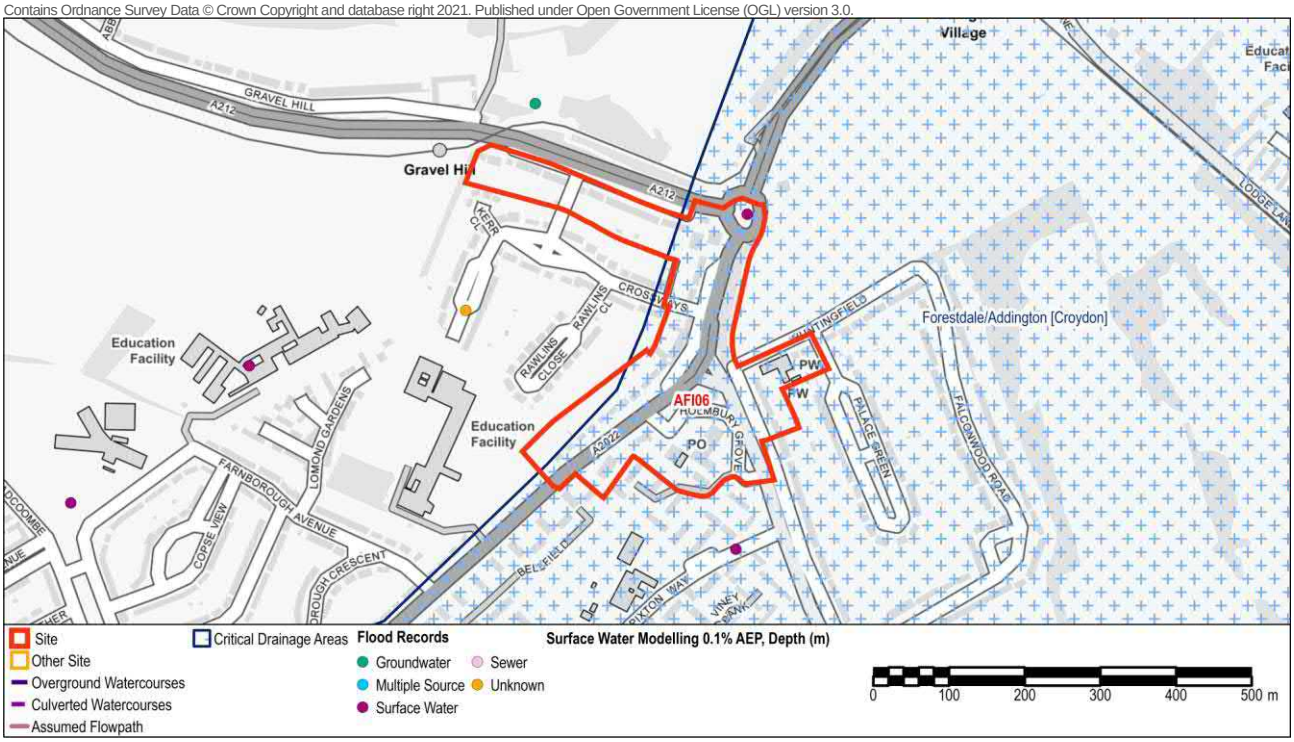

Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: Forestdale AFI

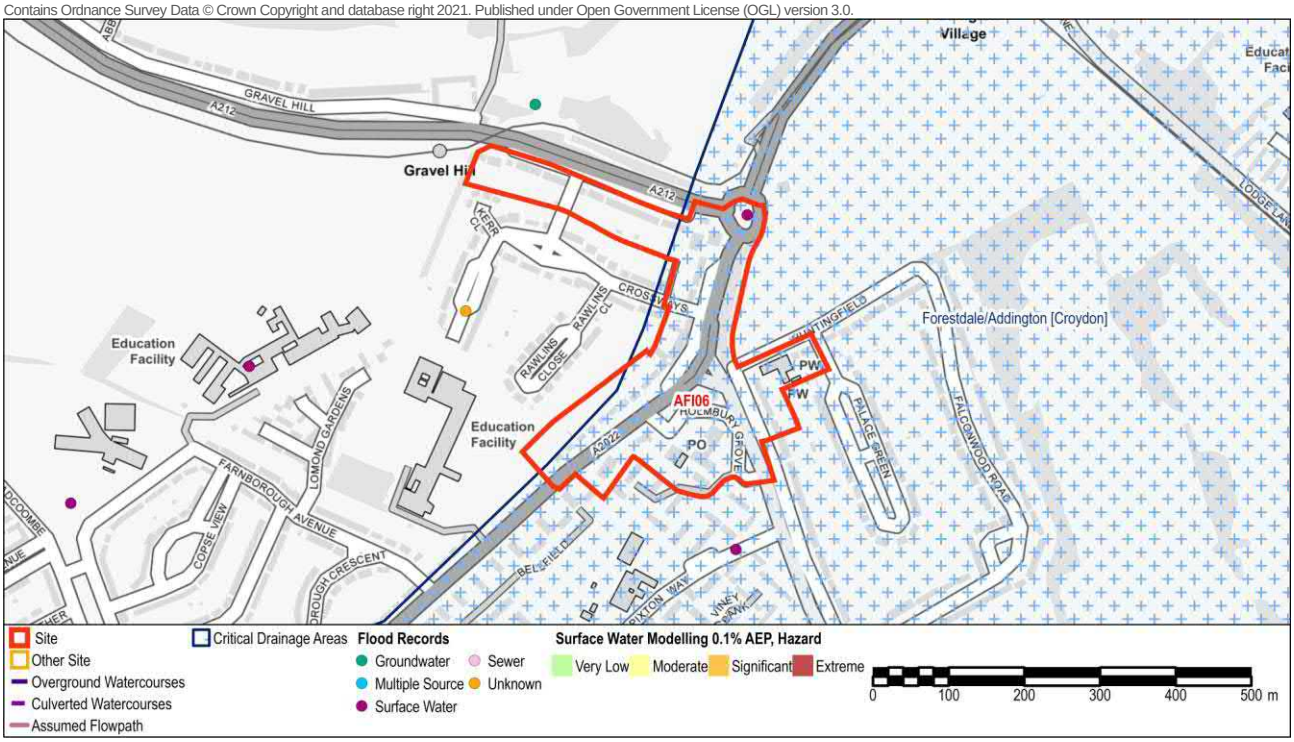

Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		Potential for groundwater flooding to occur at surface	

Other Sources	
Risk of flooding from reservoirs	The Long Term Flood Risk Map shows that the site is not at risk of flooding, in the event of a breach or failure of a reservoir.

Summary

This AFI is located within Flood Zone 1, Low probability of river flooding.
The surface water sewer system in this area conveys the runoff generated by the surroundings.
Five surface water flood events are recorded in this AFI. The majority of the AFI lies within the Forestdale/Addington Critical Drainage Area (CDA).
This AFI is not covered by the surface water modelling study (Arcadis September 2020). The Risk of Flooding from Surface Water (RoFSW) mapping (Figures 5 and 6) identifies areas of surface water ponding and two dominant flow paths that pass north through the AFI. There is also a flow path east down Gravel Hill into the AFI. These natural flow paths flow north forming the upper parts of the Chaffinch Brook catchment. The RoFSW mapping shows that in a 1% AEP event there is risk of flooding between 300-600mm through the centre of the AFI and to the east. In the west there is a small area of flooding below 300mm. In a 0.1% AEP event, the surface water flood risk increases in all areas of the AFI. In the west the depth increases to between 300-600mm with areas in the centre, north and east increase to over 600mm.

Site Specific Recommendations

A range of proposed uses may be considered across this AFI. Given the location within Flood Zone 1, development is not subject to the application of the Exception Test. However, given the potential for surface water flooding in this area, steps should be taken to ensure that development is safe for its lifetime considering the impact of climate change, will not increase flood risk elsewhere, and where possible will reduce flood risk overall. To this end, the following recommendations are made throughout the AFI:

- A sequential approach should be applied within the AFI, steering development towards those areas at lower risk of surface water flooding before consideration of areas at greater risk.
- Planning for the AFI should consider the need to temporarily store surface water runoff during heavy rainfall events. Opportunities should be sought for providing strategic SuDS systems across multiple plots within the AFI.
- Development proposals should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water making use of SuDS including green roofs, rainwater harvesting and other innovative technologies; and incorporate soft landscaping, planting, and impermeable surfacing.
- Flood resistance and resilience measures should be adopted within ground level developments to reduce potential damage during surface water flooding and enable rapid re-occupancy.
- The RoFSW mapping shows that Selsdon Park Road, Featherbed Lane, Kent Gate Way and Gravel Hill are all at risk of surface water flooding to depths of 300-600mm and over 600mm. Development proposals within the AFI should consider provision of safe access/egress using alternative routes to the north and west. Development proposals within the AFI should consider how safe access/egress can be provided during these events. In addition, given the potential for surface water to have rapid onset, a place of safe refuge should be provided within new developments at first floor level and/or above.
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response.

Site Name: Forestdale AFI

- This area is covered by the Environment Agency Flood Alert Area for Groundwater flooding in South East London (Areas at risk from Groundwater flooding including Caterham Bourne, Coulsdon Bourne, Beddington, Carshalton, Coulsdon, Kenley, Purley, South Croydon, Whyteleafe, Bromley, Bexley, and Lewisham). This service has a wide geographic coverage and does not give time-specific warnings.
- The risk of groundwater flooding and groundwater levels should be further assessed as part of a Site Investigation for specific development proposals within the AFI.

Site Name: London Road (West Croydon to Thornton Heath Pond) AFI

Site ID:	AFI 7	**Area (ha):**	27.74
Proposed Use:	Mixed use.	**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 3 (1% AEP):** 0%	**Flood Zone 3b (5% AEP):** 0%	**Area Benefiting from Defences:** 0%

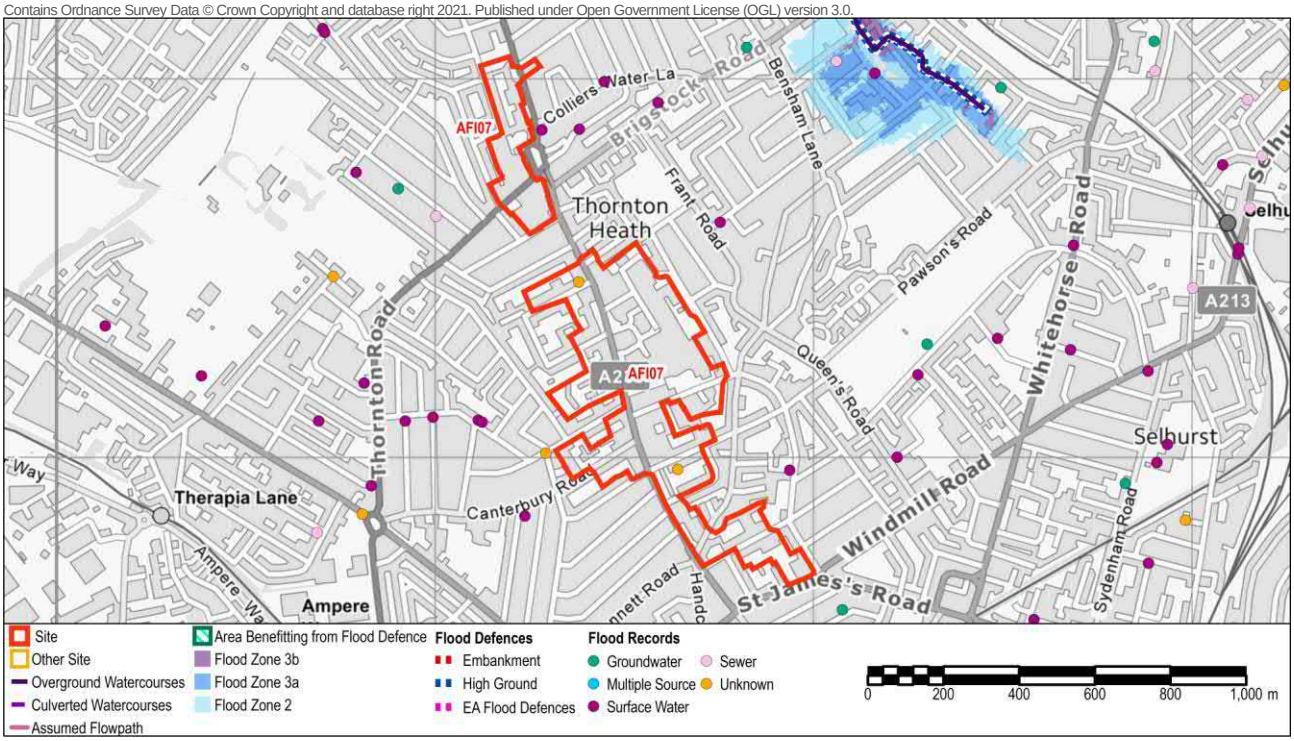

Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 21; Groundwater 3; Sewer 3; Multiple source 0; Unknown source 7

River Flooding

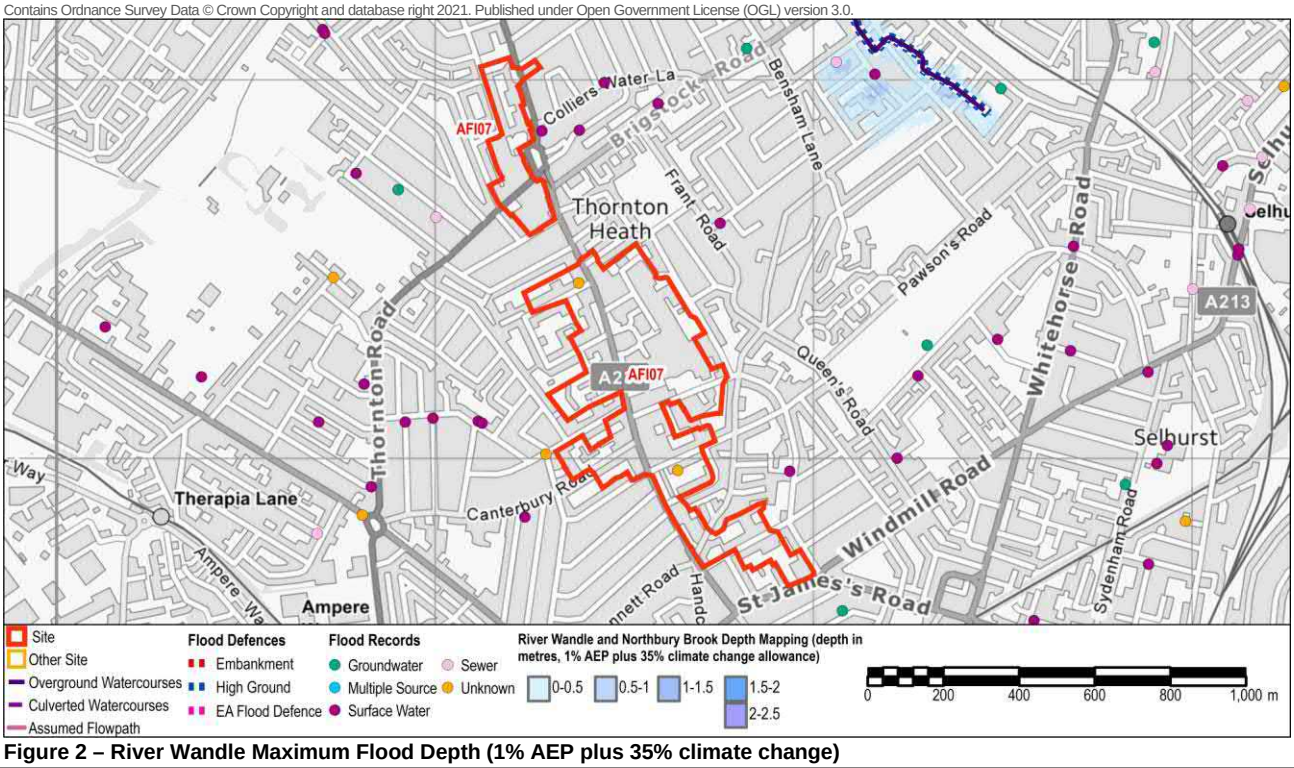

Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change)

Site Name: London Road (West Croydon to Thornton Heath Pond) AFI

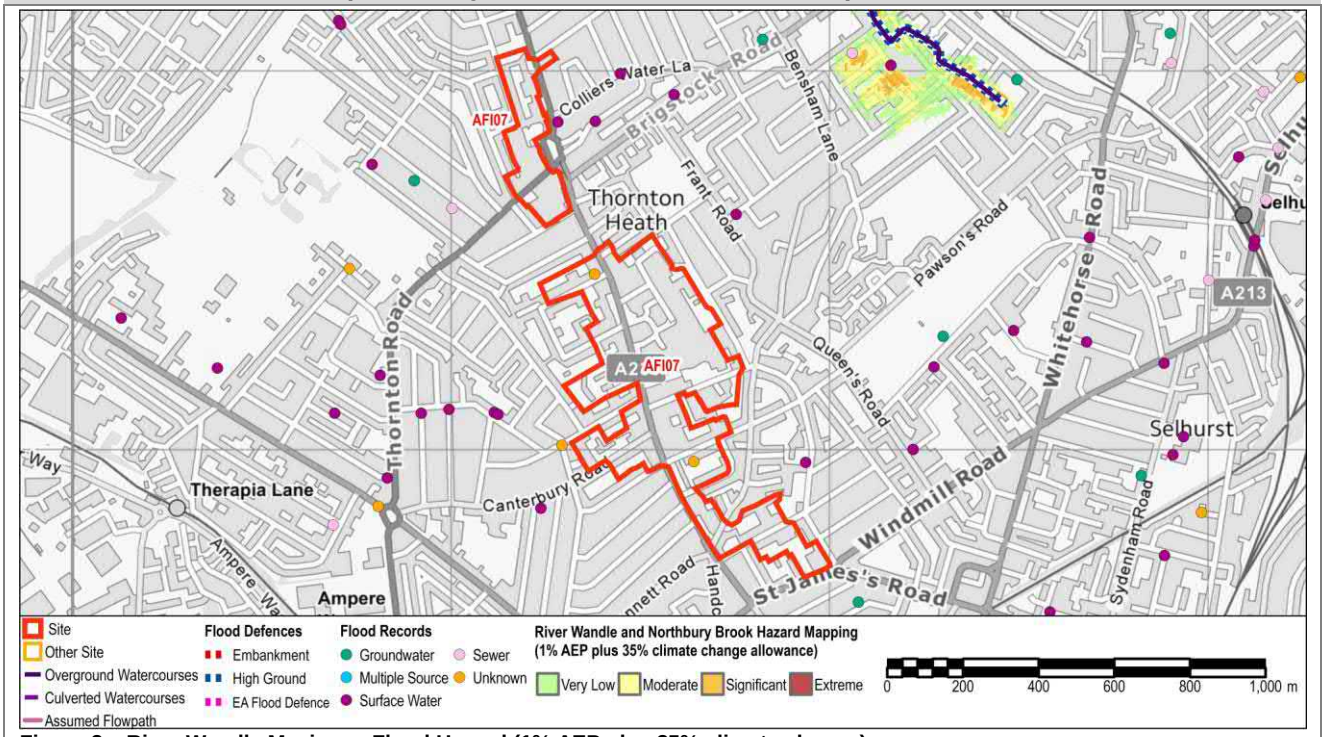

Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change)

Surface Water Flooding	
Critical Drainage Area	None - None
Drainage Catchment	DC22, DC38

Site Name: London Road (West Croydon to Thornton Heath Pond) AFI

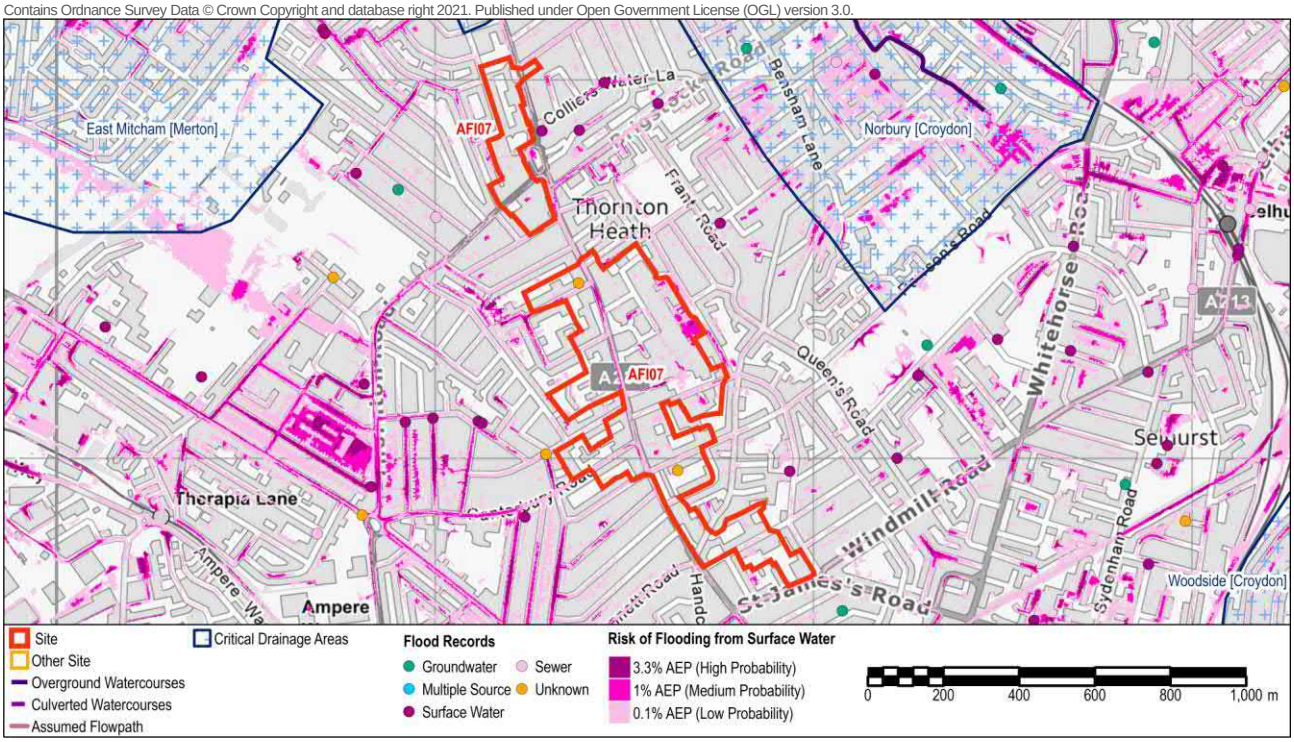

Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

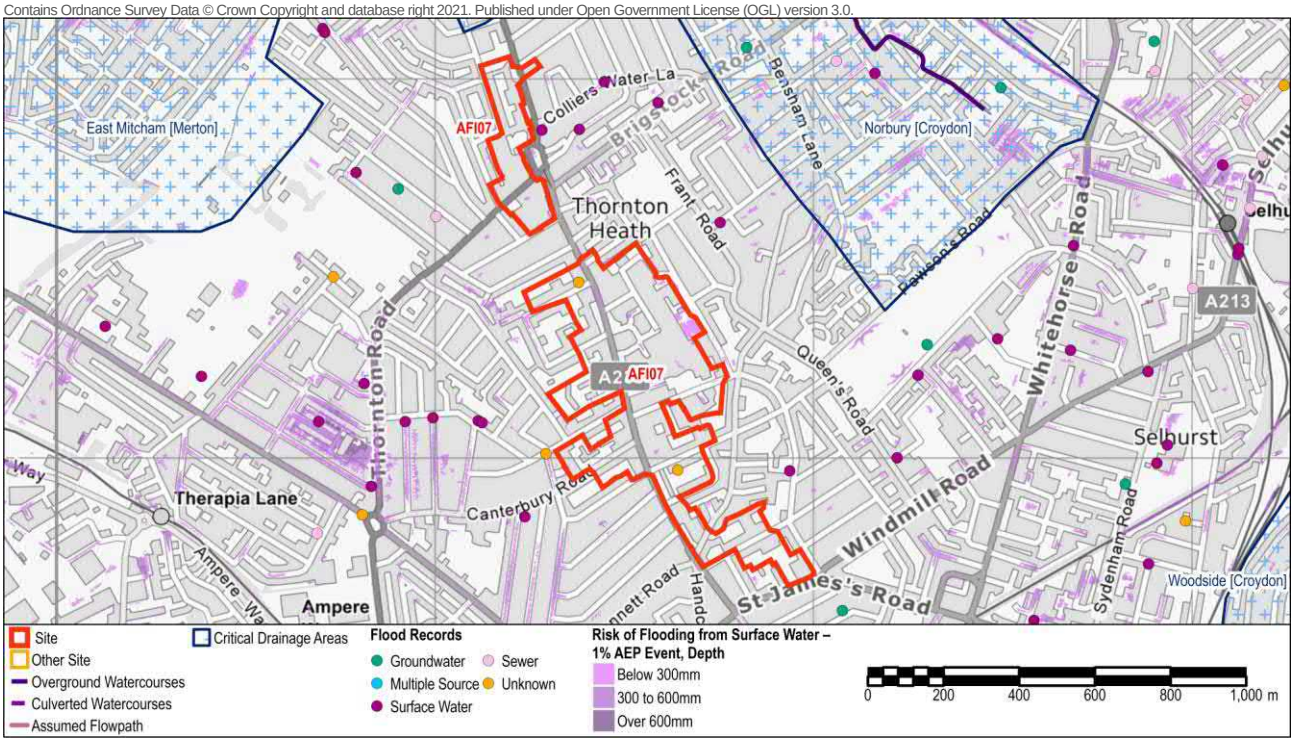

Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: London Road (West Croydon to Thornton Heath Pond) AFI

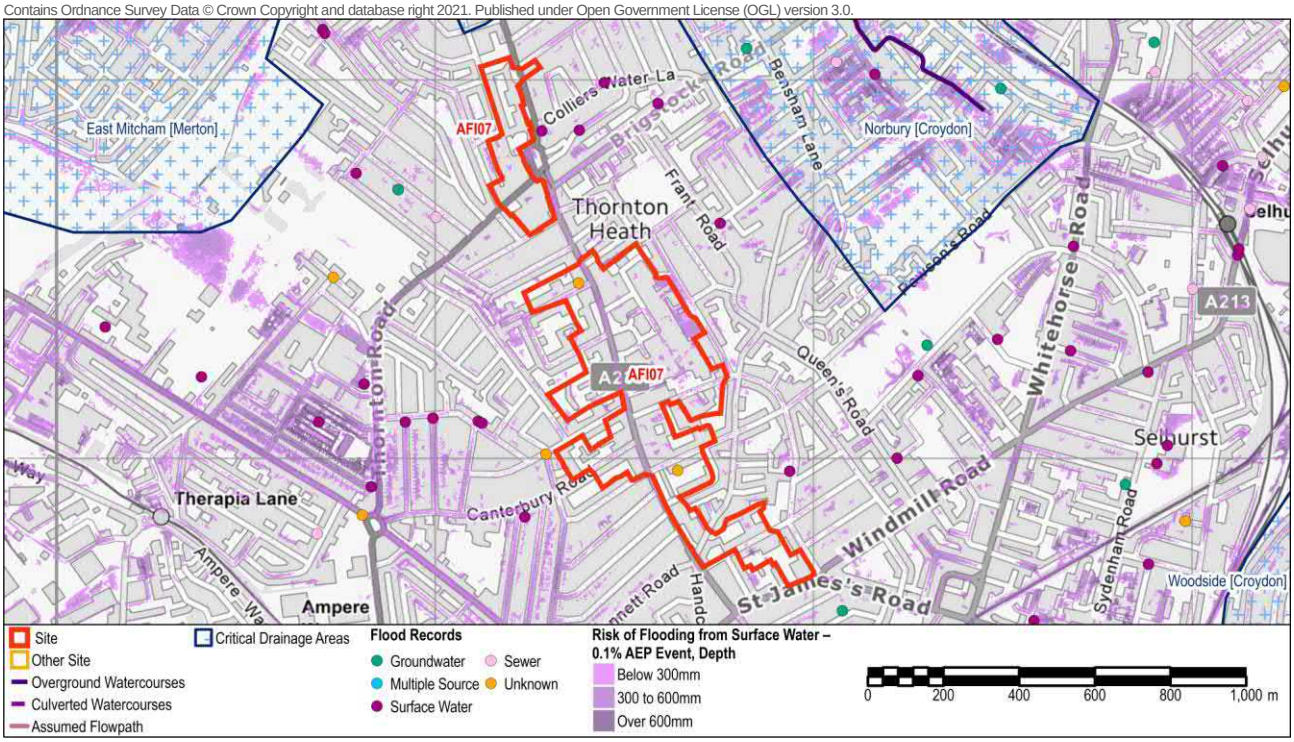

Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

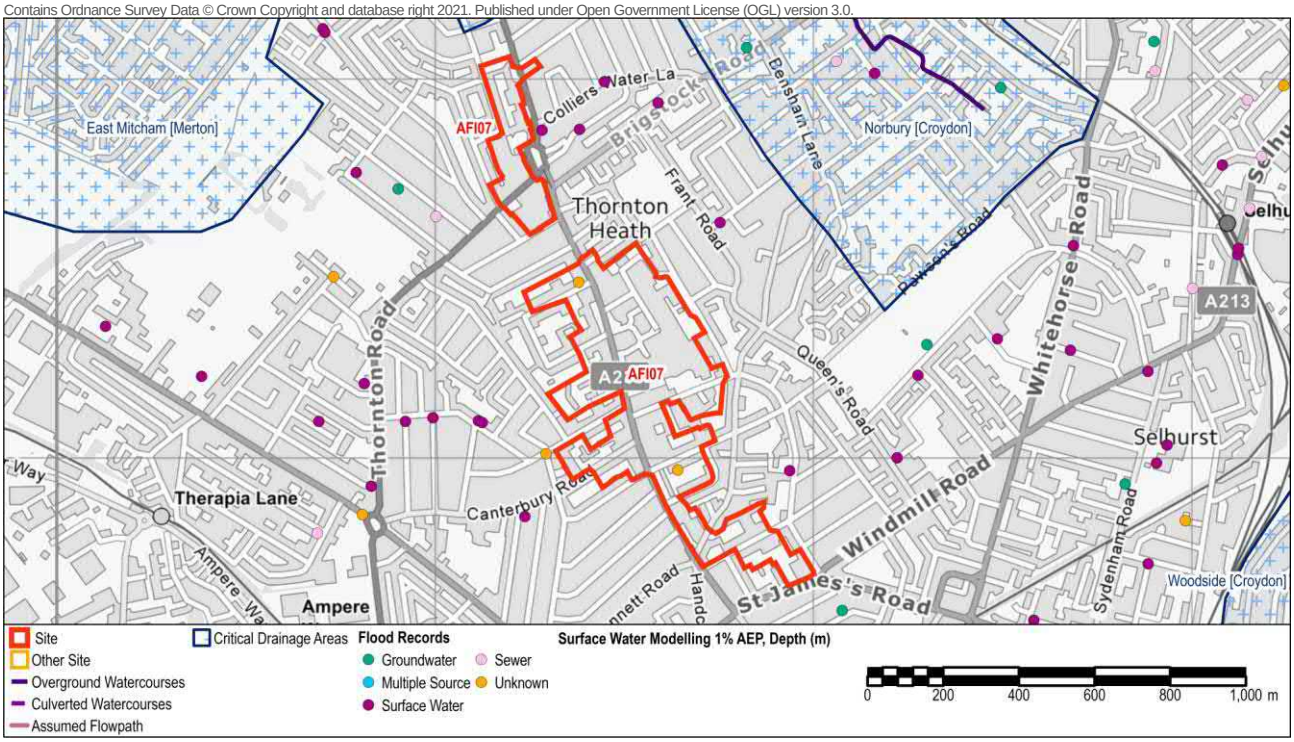

Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: London Road (West Croydon to Thornton Heath Pond) AFI

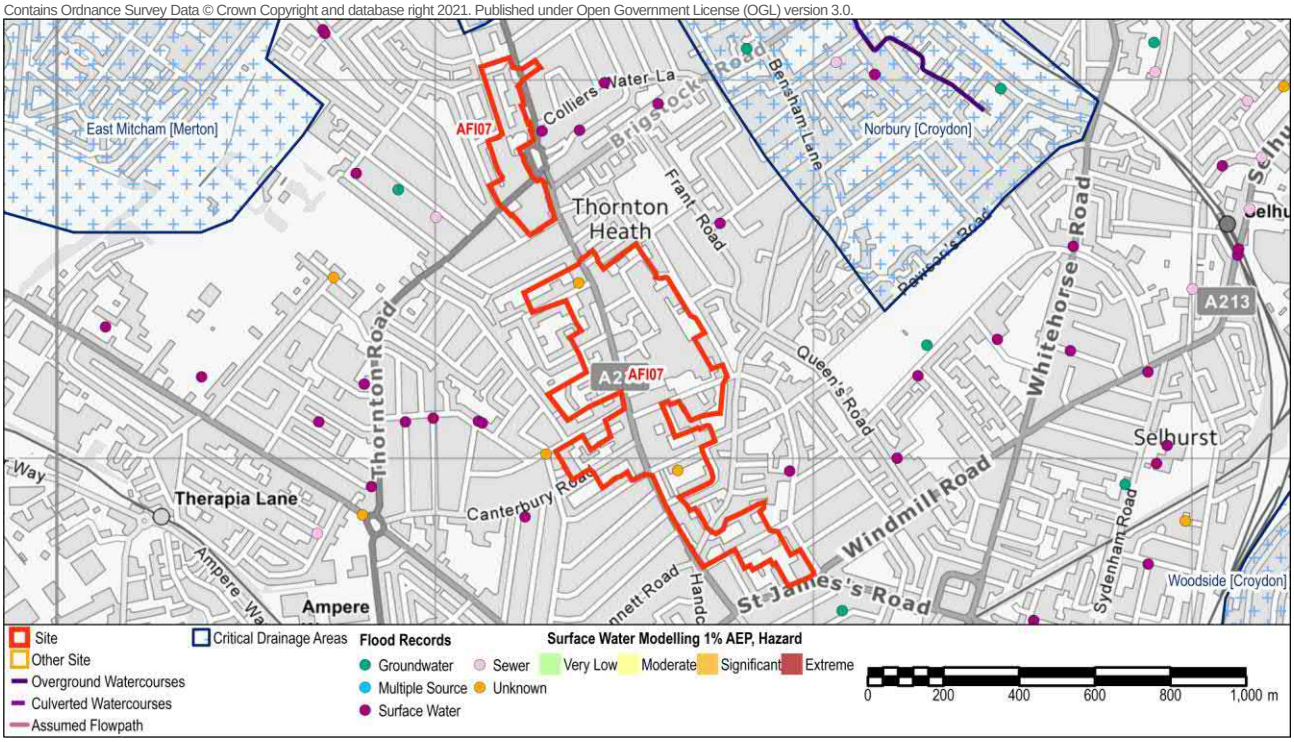

Figure 8 - Surface Water Modelling 1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

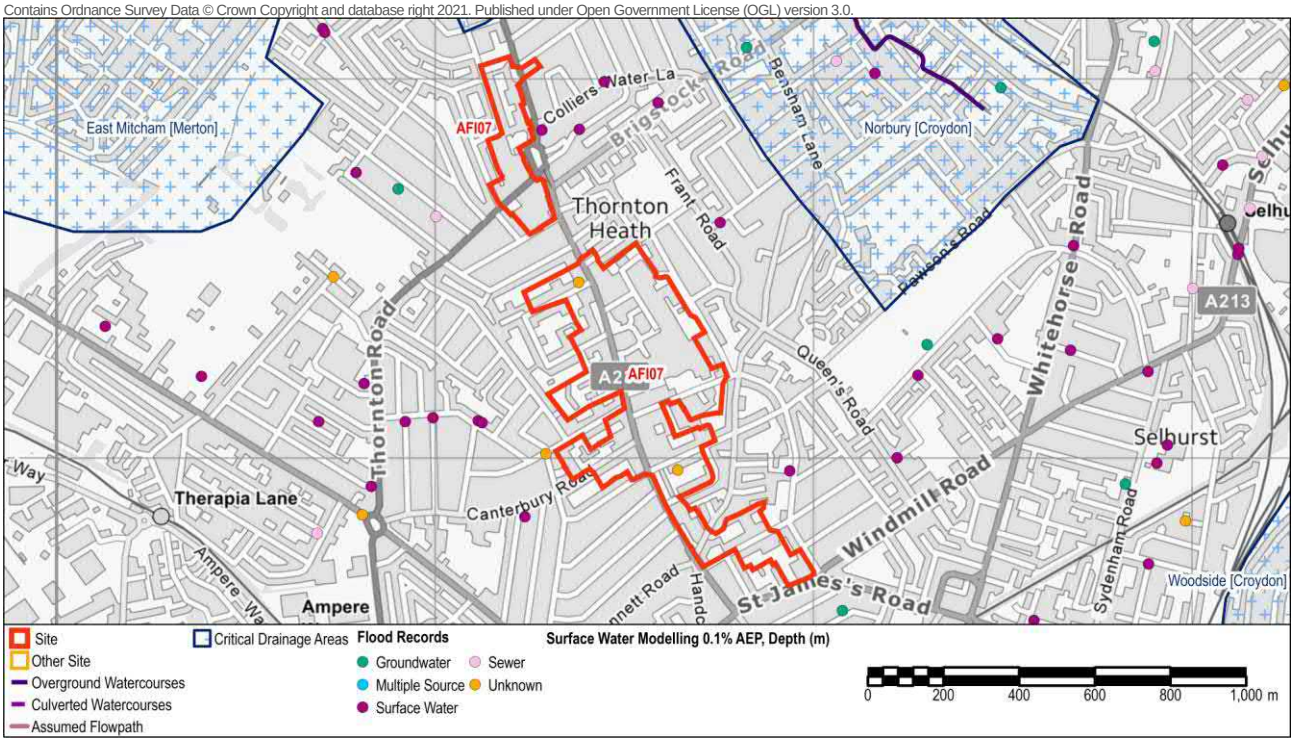

Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: London Road (West Croydon to Thornton Heath Pond) AFI

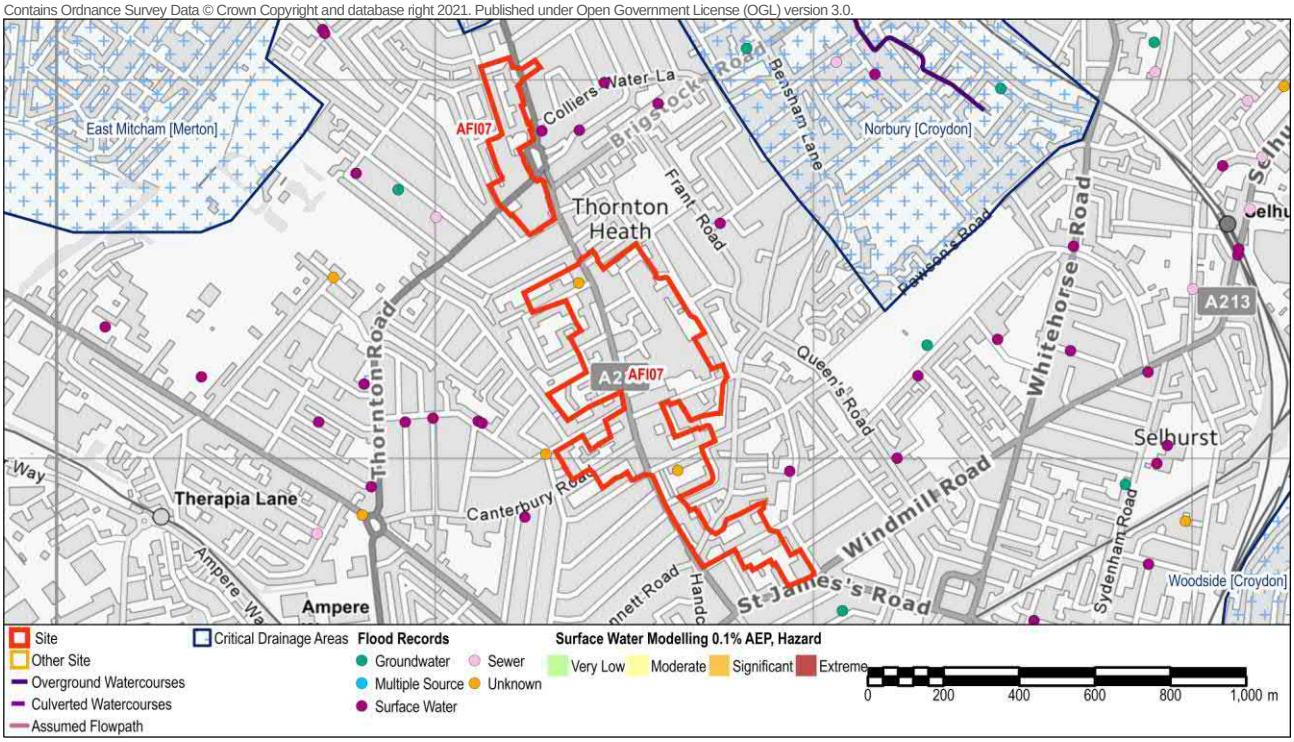

Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

Groundwater Flooding			
Bedrock Geology	Thames Group	**Superficial Geology**	Sand And Gravel
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		Potential for groundwater flooding of property situated below ground level, Potential for groundwater flooding to occur at surface	

Other Sources	
Risk of flooding from reservoirs	The Long Term Flood Risk Map shows that the site is not at risk of flooding, in the event of a breach or failure of a reservoir.

Summary

This AFI comprises two regions along London Road. Both regions are located within Flood Zone 1, Low probability of river flooding. The surface water sewer system in this area conveys the runoff generated by the surroundings.
There are 23 records of flooding from surface water recorded within 500m of this AFI, 3 from sewers and 3 from groundwater.
This AFI is not covered by the surface water modelling study (Arcadis July 2020). The Risk of Flooding from Surface Water (RoFSW) mapping (Figures 5 and 6) does not identify any areas of significant surface water ponding or flow paths. A small area in the east is at risk of flooding from surface water in the 1% AEP event, at a depth of below 300mm. In a 0.1% AEP event, the flood risk across the AFI increases to around 300mm in the north and south and to 300-600mm in the east.

Site Specific Recommendations

A range of proposed uses may be considered across this AFI. Given the location within Flood Zone 1, development is not subject to the application of the Exception Test. However, given the potential for surface water flooding in this area, steps should be taken to ensure that development is safe for its lifetime considering the impact of climate change, will not increase flood risk elsewhere, and where possible will reduce flood risk overall. To this end, the following recommendations are made throughout the AFI:

- A sequential approach should be applied within the AFI, steering development towards those areas at lower risk of surface water flooding before consideration of areas at greater risk.
- Planning for the AFI should consider the need to temporarily store surface water runoff during heavy rainfall events. Opportunities should be sought for providing strategic SuDS systems across multiple plots within the AFI.
- Development proposals should seek to restrict surface water runoff rates to greenfield rates; demonstrate sustainable approaches to the management of surface water making use of SuDS including green roofs, rainwater harvesting and other innovative technologies; and incorporate soft landscaping, planting, and impermeable surfacing.
- Flood resistance and resilience measures should be adopted within ground level developments to reduce potential damage during surface water flooding and enable rapid re-occupancy.
- The RoFSW mapping shows that during the 0.1% AEP event, many of the roads in this area are at risk of surface water flooding, generally to depths of 300mm, but in some cases up to 600mm. Development proposals within the AFI should consider how safe access/egress can be provided during these events. In addition, given the potential for surface water to have rapid onset, a place of safe refuge should be provided within new developments at first floor level and/or above.
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response.
- This area is covered by the Environment Agency Flood Alert Area for Groundwater flooding in South East London (Areas at risk from Groundwater flooding including Caterham Bourne, Coulsdon Bourne, Beddington, Carshalton, Coulsdon, Kenley, Purley, South Croydon, Whyteleafe, Bromley, Bexley, and Lewisham). This service has a wide geographic coverage and does not give time-specific warnings.

Site Name: London Road (West Croydon to Thornton Heath Pond) AFI

- The risk of groundwater flooding and groundwater levels should be further assessed as part of a Site Investigation for specific development proposals within the AFI.