Appendix D Other Sites

The need to complete the NPPF Exception Test (Table 1-1) is identified through reference to the site vulnerability and Flood Zone classification. However, approximately 50 additional sites have been included in the Croydon Level 2 assessment for one or more of the following reasons:

Group 1

The site is in Flood Zone 3 and the proposed use is Less Vulnerable. The Exception Test is not currently required, but in the event More Vulnerable development types (i.e. residential) are added to the site, the Exception Test would be needed.

Site 495: Dairy Crest dairy, 823-825 Brighton Road

Group 2

Whilst not in Flood Zone 3 currently, the site is still at fluvial flood risk (i.e. Flood Zone 2) or could be in the future when looking at the climate change modelling for the River Wandle.

Site 125: Sainsburys, Trafalgar Way

Site 144: Sofology

Site 147: IKEA

Site 314: Valley Park (B&Q and Units A-G Daniell Way), Hesterman Way

Site 332: Superstores, Drury Crescent

Site 334: Valley Leisure Park, Hesterman Way

Site 351: Furniture Village, 222 Purley Way

Site 355: 2 Trafalgar Way

Group 3

The site is at risk of surface water flooding (defined as within a Critical Drainage Area) and consideration of how the development can be safe should be made as part of a site proforma.

This group has been subdivided into Group 3A, sites identified to be at risk of surface water flooding; and Group 3B where the sites are not shown to be at significant risk of surface water flooding.

Group 3A

Site 30: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

Site 40: West Croydon Bus Station

Site 51: Land and car park between Belgrave Road and Grosvenor Road

Site 61: Car park, 54-58 Whytecliffe Road South

Site 64: 112a and 112b Brighton Road

Site 85: The Forestdale Centre

Site 106: CACFO, 40 Northwood Road

Site 123: Prospect West and car park to the rear of, 81-85 Station Road

Site 130: 1-9 Banstead Road

Site 136: Supermarket, car park, 54 Brigstock Road

Site 149: Tesco, Thornton Heath

Site 203: West Croydon station and shops, 176 North End

Site 222: Multi-storey car park, 1 Whitgift Street

Site 284: Asharia House, 50 Northwood Road

Site 326: Ambassador House, 3-17 Brigstock Road

Site 372: Car park, Lion Green Road

Site 374: Reeves Corner former buildings, 104-112 Church Street

Site 410: 100 Brighton Road

Site 490: 95-111 Brighton Road and 1-5, 9-15 and 19 Old Lodge Lane

Site 945: Waitrose, 110-112 Brighton Road

Group 3B

Site 1: Land Fronting North Downs Road and Overbury Crescent

Site 2: Blackhorse Lane Station

Site 28: Bowyers Yard, Bedwardine Road

Site 41: Direct Line House, 3 Edridge Road

Site 47: 3-7 Park Street

Site 58: 140 & 140a Hermitage Road

Site 59: Garages at rear of 96 College Green and land at Westow Park, Upper Norwood

Site 184: 1-19 Derby Road

Site 190: Car park to the rear of Leon House, 22-24 Edridge Road

Site 194: St George's Walk, Katharine House and Park House, Park Street

Site 211: Poplar Walk car park and, 16-44 Station Road

Site 220: 9-11 Wellesley Road

Site 231: Segas House, Park Lane

Site 357: Norwood Heights Shopping Centre, Westow Street

Site 393: Whitgift Centre, North End

Site 937: Kempsfield House, 1 Reedham Park Avenue

Site 948: 230 Addington Road

Site 951: 1485-1489 London Road

Site Name: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

Site ID:	30	**Area (ha):**	0.66
Proposed Use:	Mixed use incorporating public car park, new leisure facilities, community facilities, healthcare facility, creative and cultural industries enterprise centre, retail or residential accommodation.	**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%

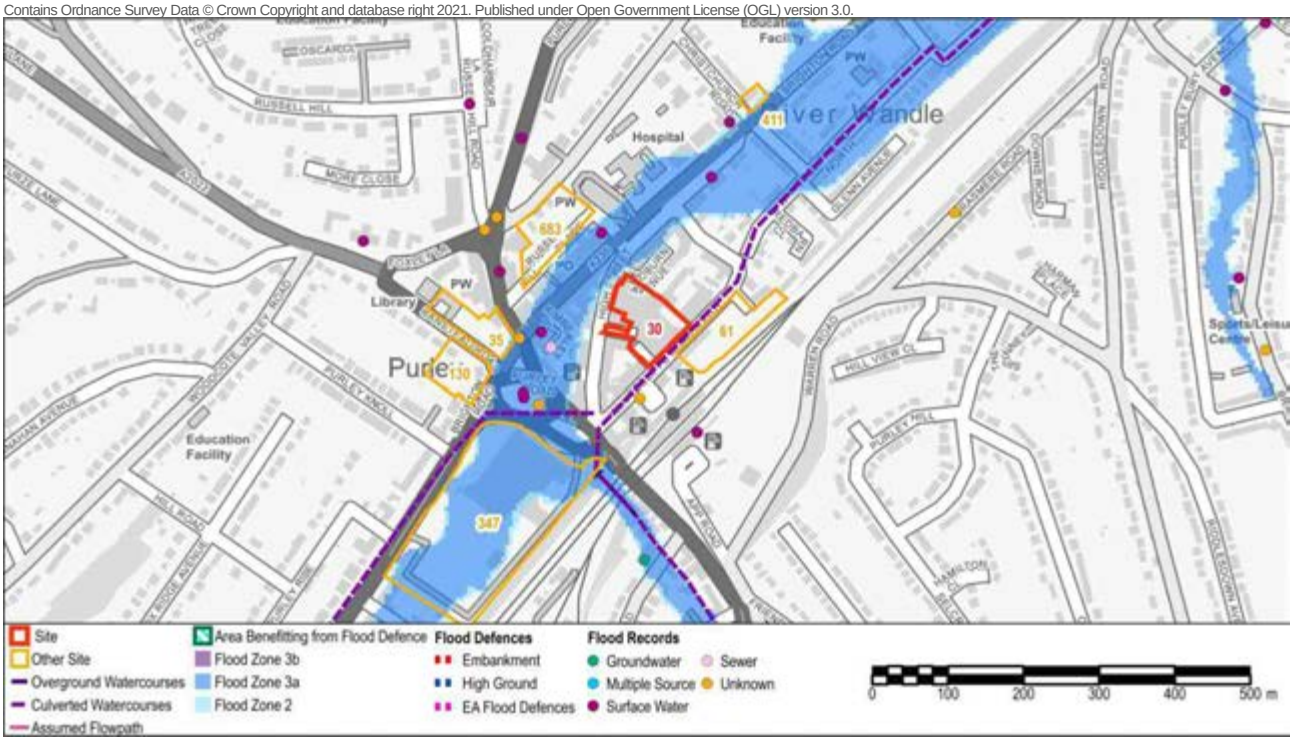
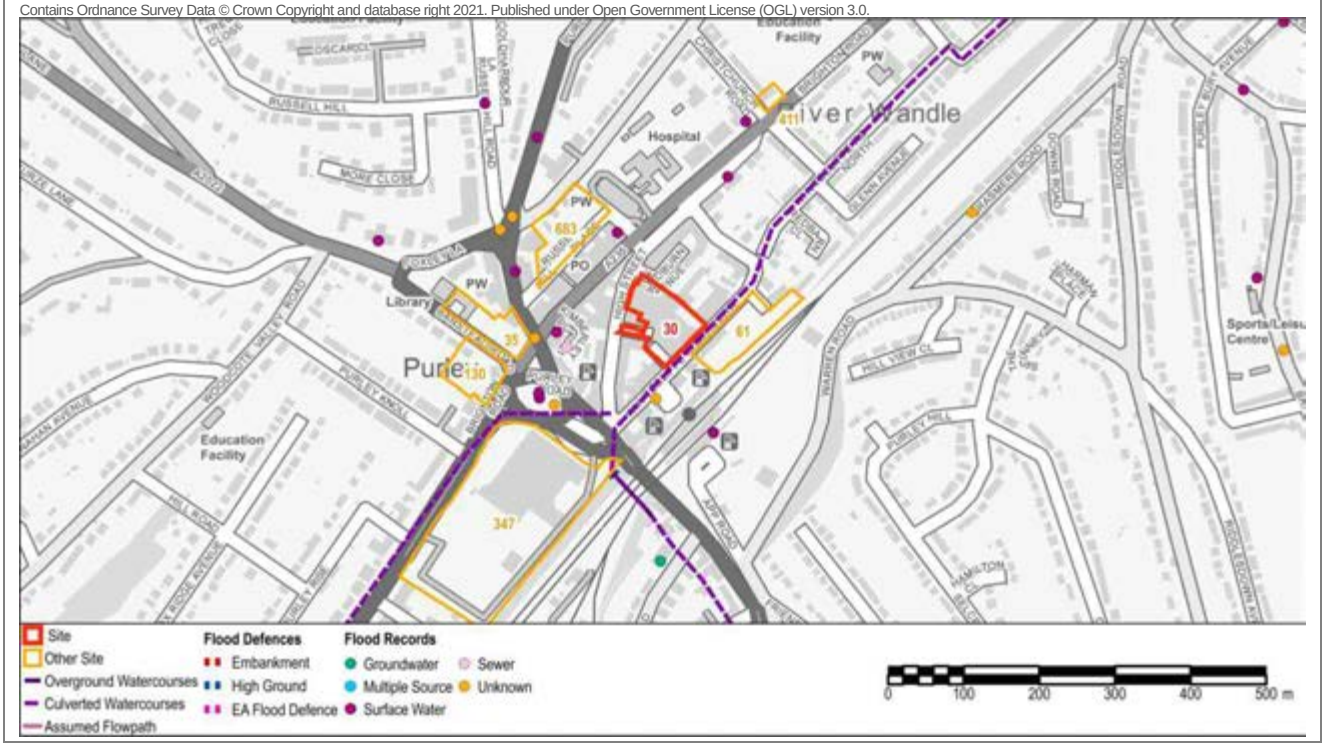


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 12; Groundwater 1; Sewer 2; Multiple source 0; Unknown source 7

River Flooding



Refer to the London Borough of Croydon Level 1 and Level 2 SFRA Reports for full details and limitations of the datasets used in this site assessment.

Site Name: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

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.

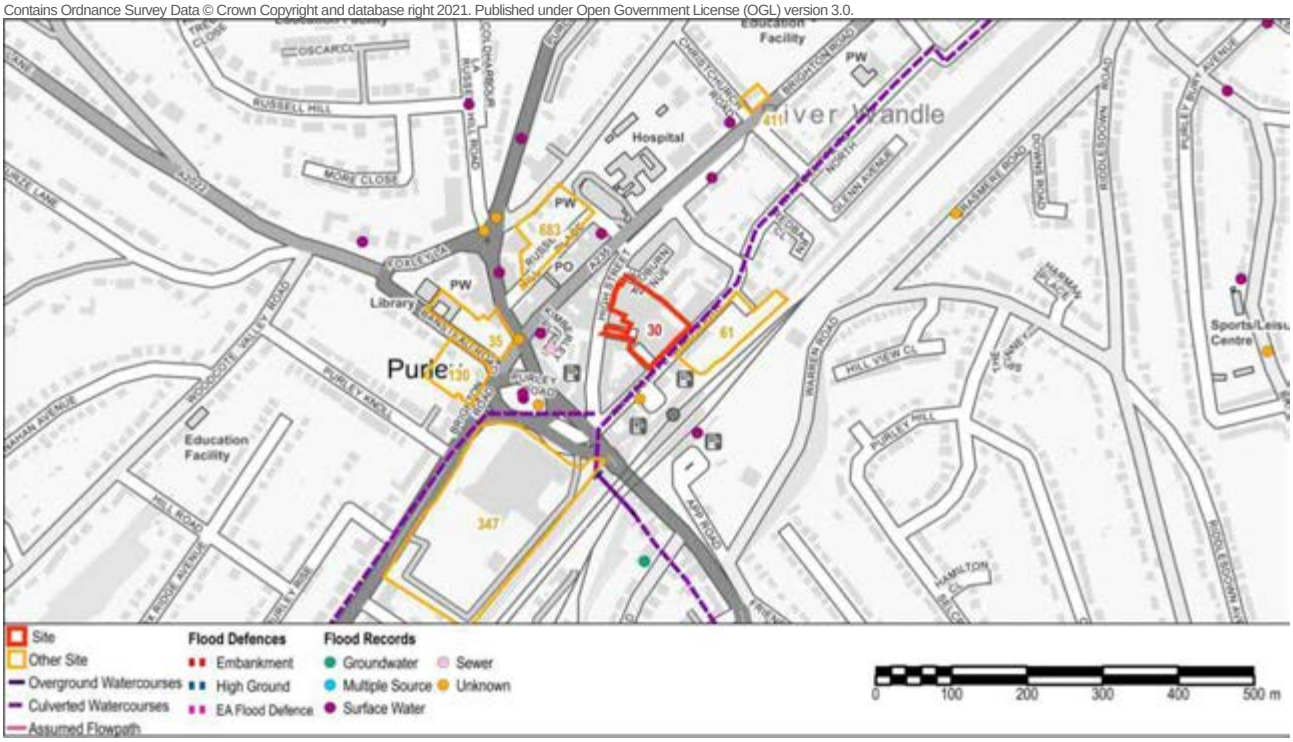


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

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

Site Name: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

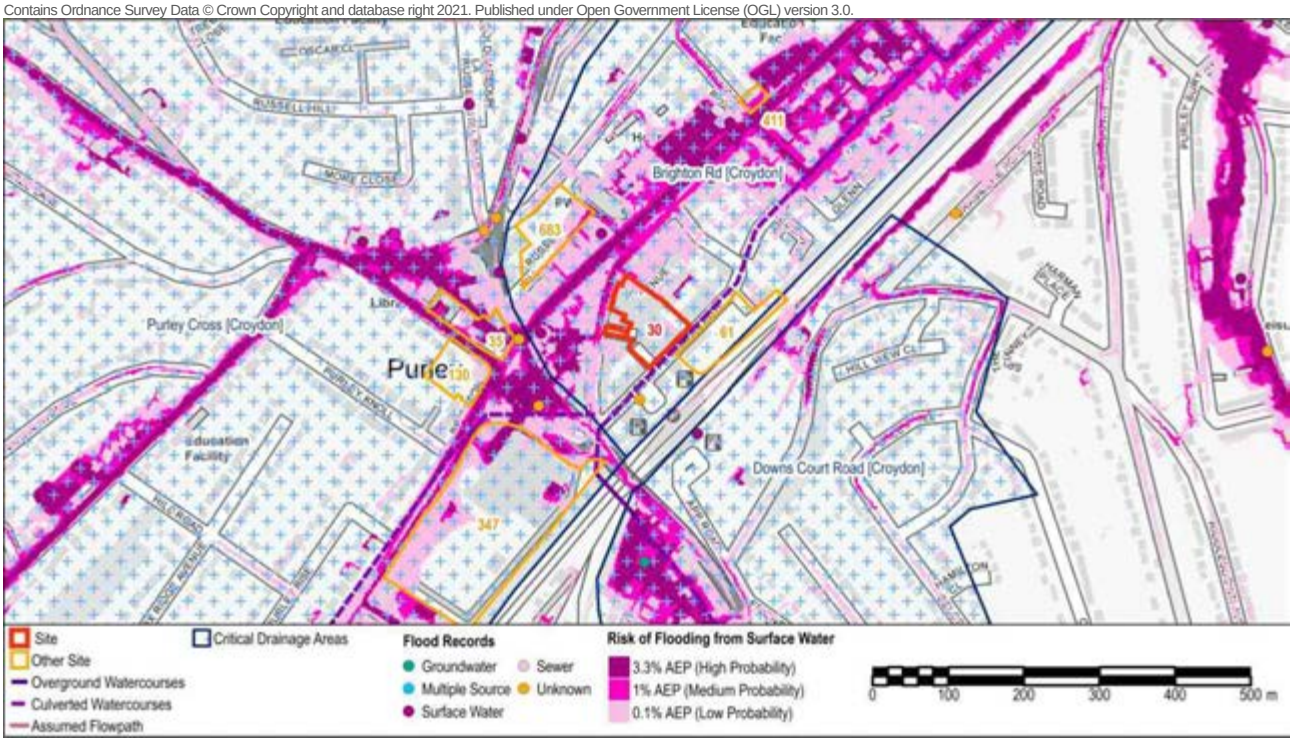


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

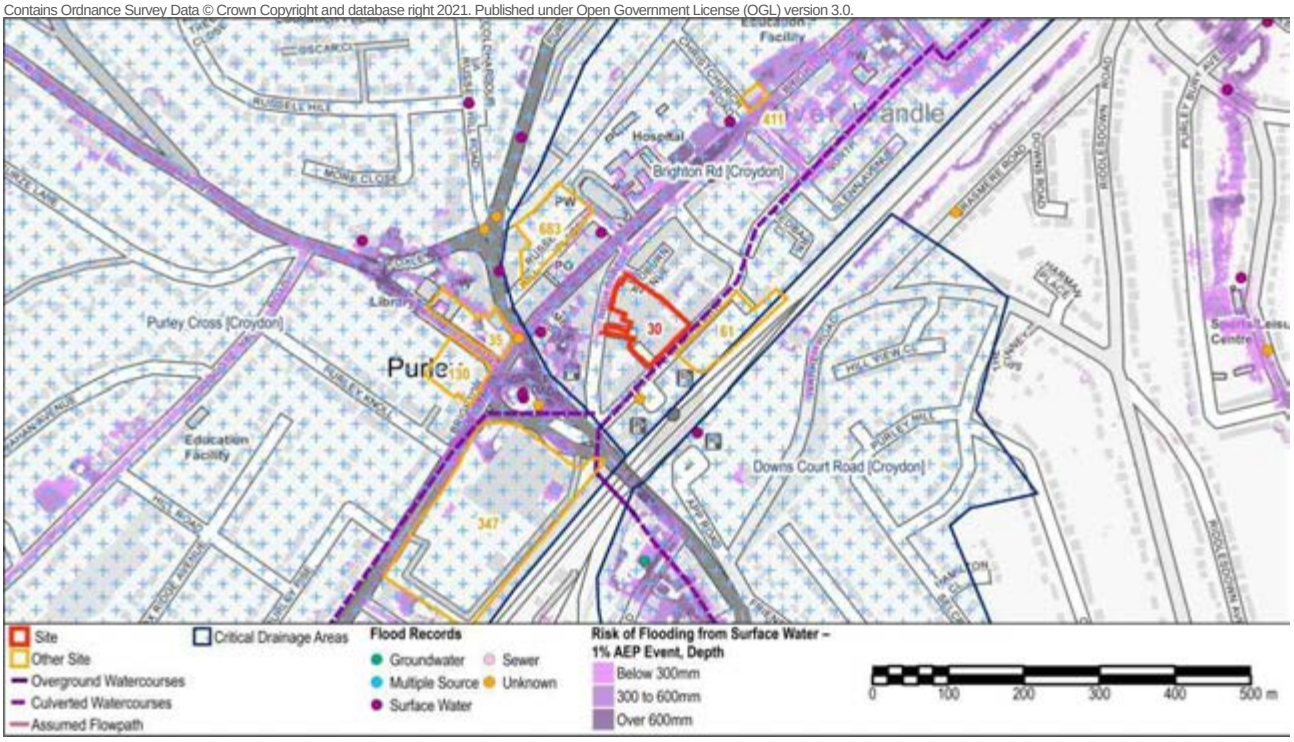


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

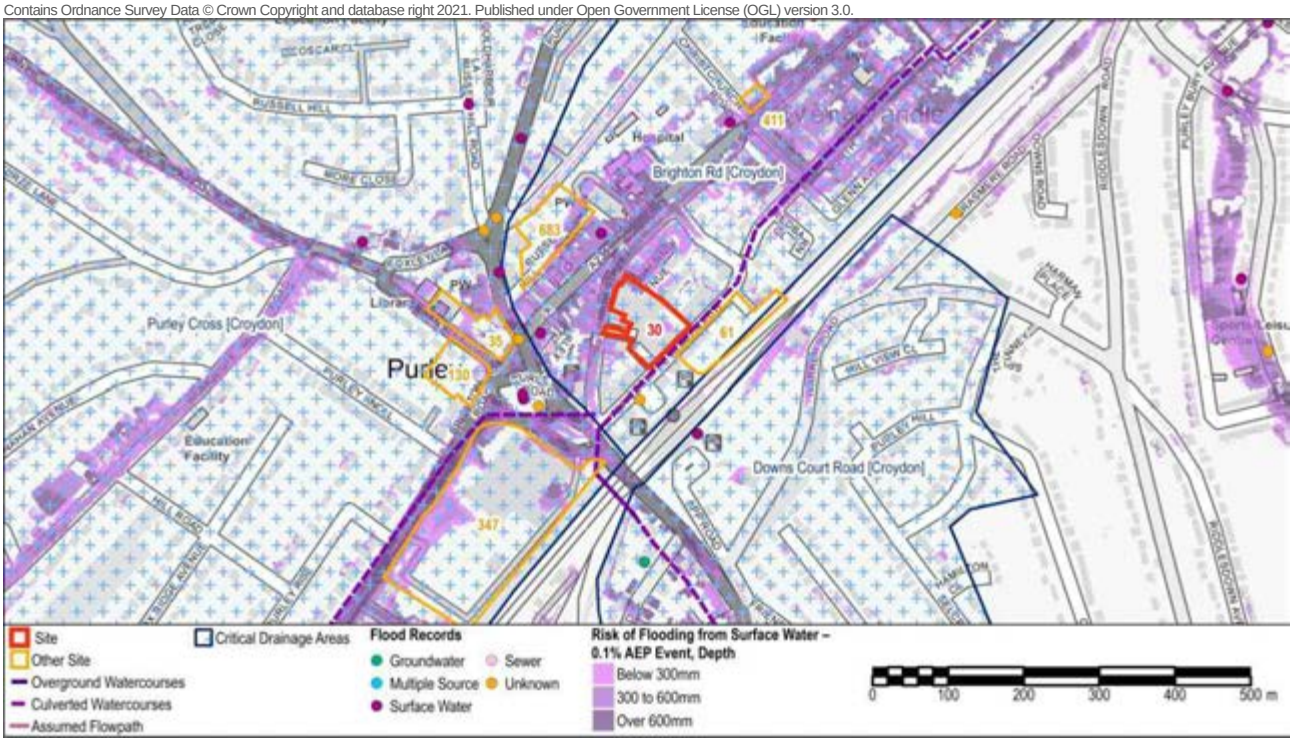


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

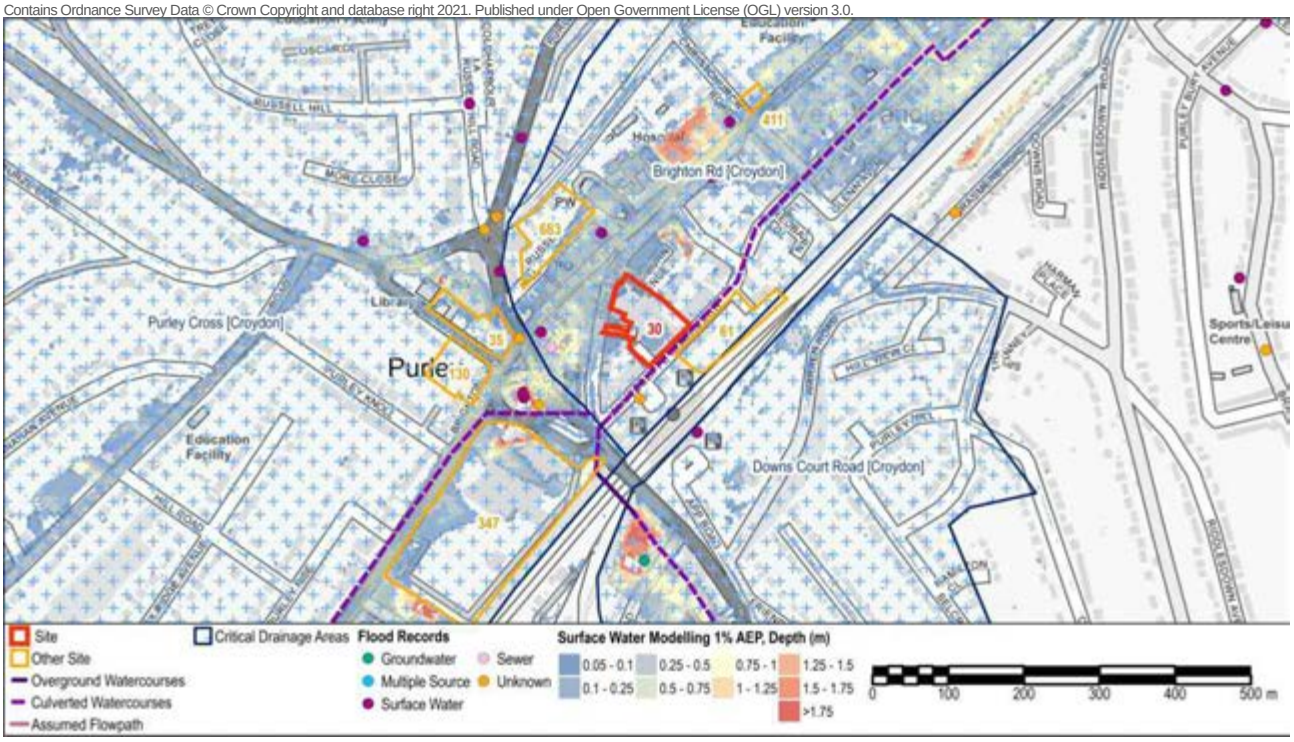


Figure 7 - Surface Water Modelling 1% AEP Flood Depth

Site Name: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

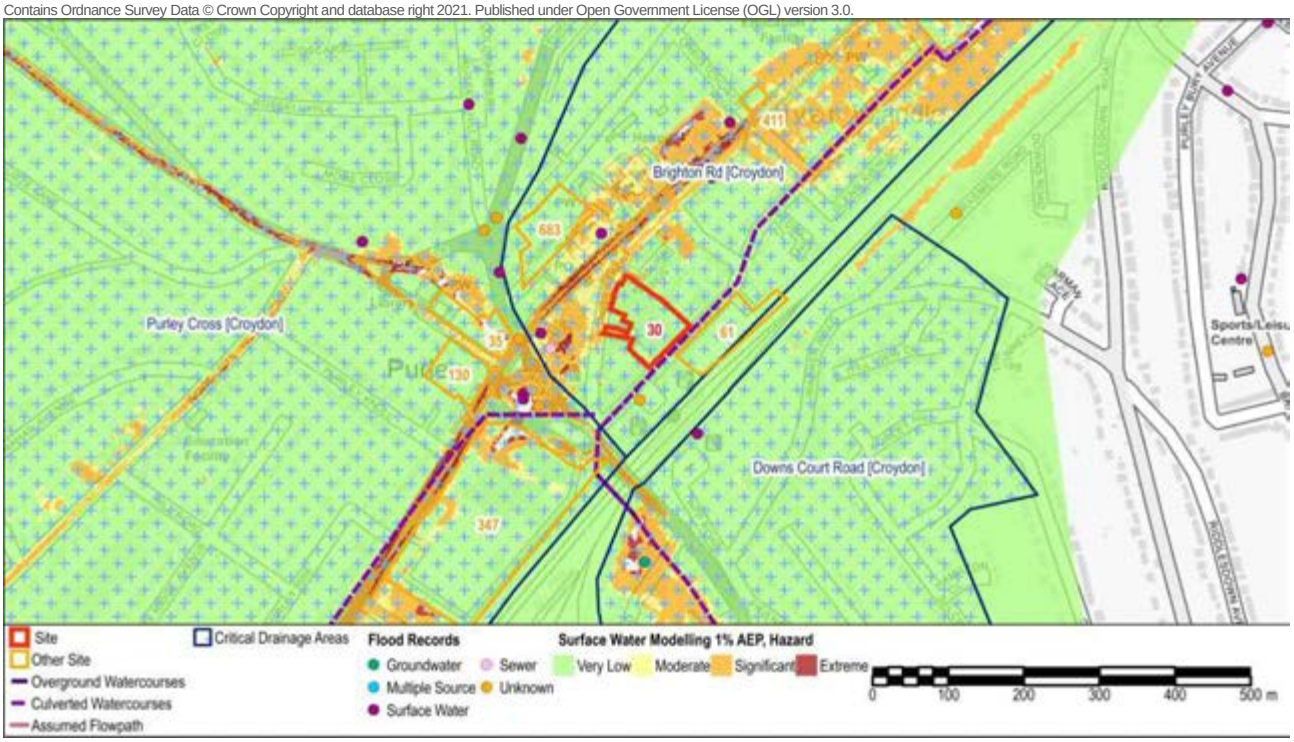


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

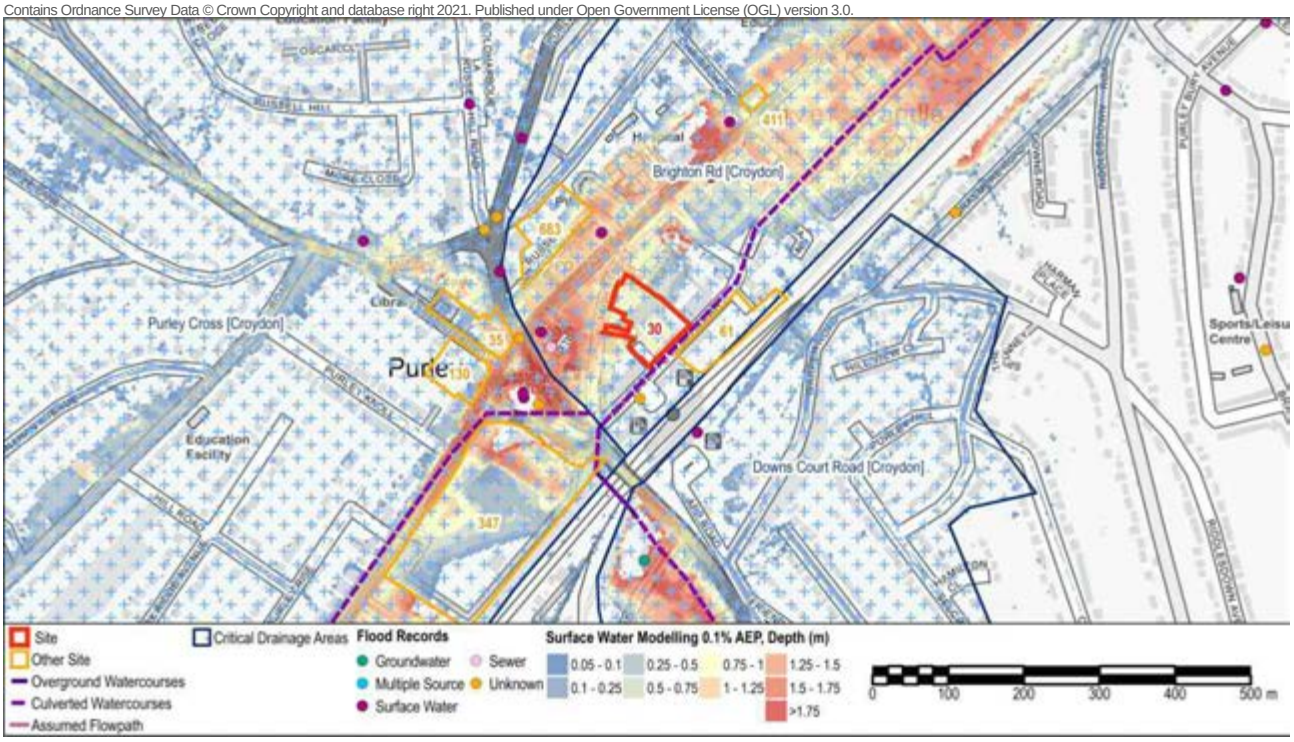


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

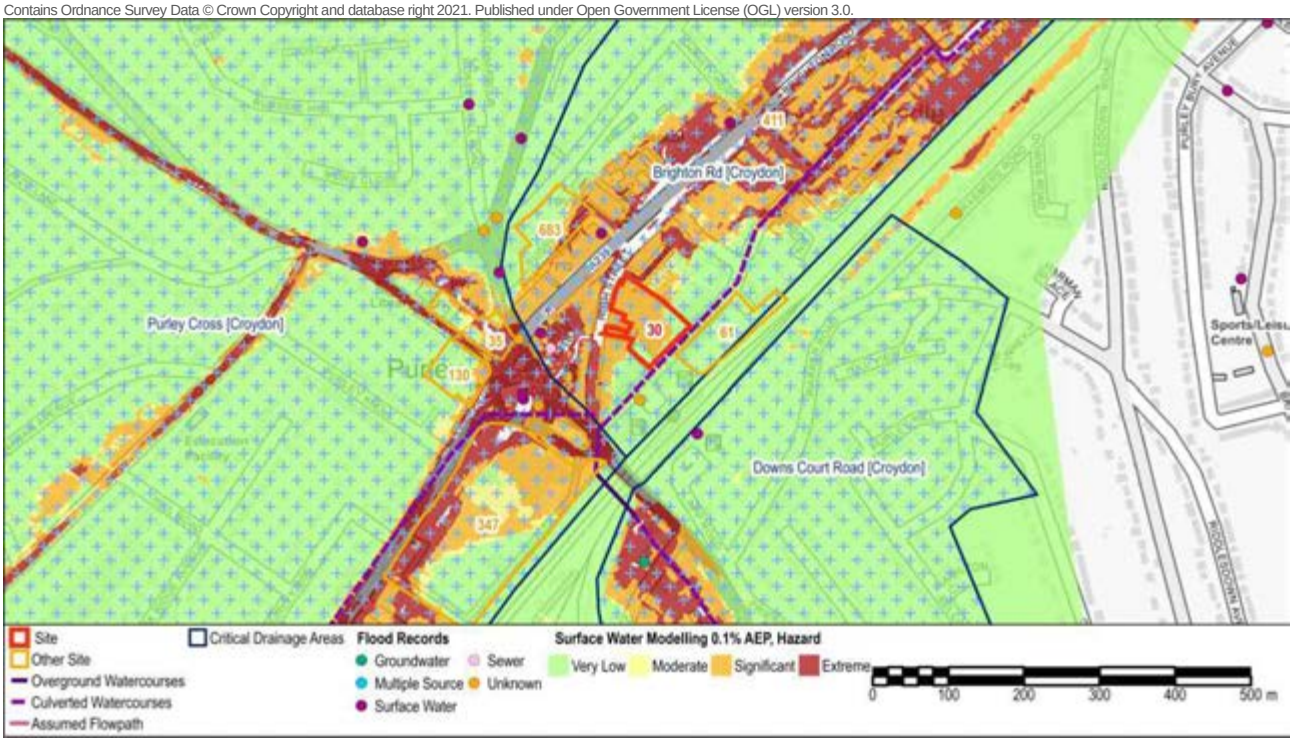


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		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 site is defined as Flood Zone 1, Low probability of river flooding.
A 1050mm diameter culvert runs in a northern direction along Brighton Road, conveying the intermittent sources of the River Wandle (the Caterham Bourne and Merstham Bourne) and runoff generated in the surroundings. The Caterham Bourne flows from east to west south 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 site. 12 surface water flood events have been recorded, one groundwater flooding incident and 7 of unknown source. Two unknown flood events have also been recorded in the north, along with a multiple source and a sewer flood record in the south. The site 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).
The Risk of Flooding from Surface Water mapping identifies the risk of flooding from surface water to the north west of the site along the High Street and Brighton Road.
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 -0.25m on the site, with a corresponding hazard rating of Low. During the 0.1% AEP event, flood depths of up to 1m are modelled to occur on the site, and 1.5m to the north of the site along Brighton Road, with hazard ratings of Significant to Extreme respectively.

Site Specific Recommendations

The proposed uses for the site may include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- A sequential approach should be applied within the site, steering development towards those areas at lower risk of surface water flooding before consideration of areas at greater risk.
- Planning for the site 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 in collaboration with other plots within the area.
- 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.

Site Name: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

- Finished floor levels for More Vulnerable development should be set 600mm above ground levels. Where surface water modelling is available, finished floor levels should 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 for the site, (High Street, Brighton Road) are at risk of flooding with a Significant or Extreme hazard rating during the 1% and 0.1% AEP events and the site is constrained to the west by the railway embankment. Development proposals 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 on the site.

Site Name: West Croydon Bus Station

Site ID:	40	**Area (ha):**	0.32
Proposed Use:	Redevelopment over the bus station to incorporate residential uses and town centre uses (office, leisure, food & drink or hotel).	**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%

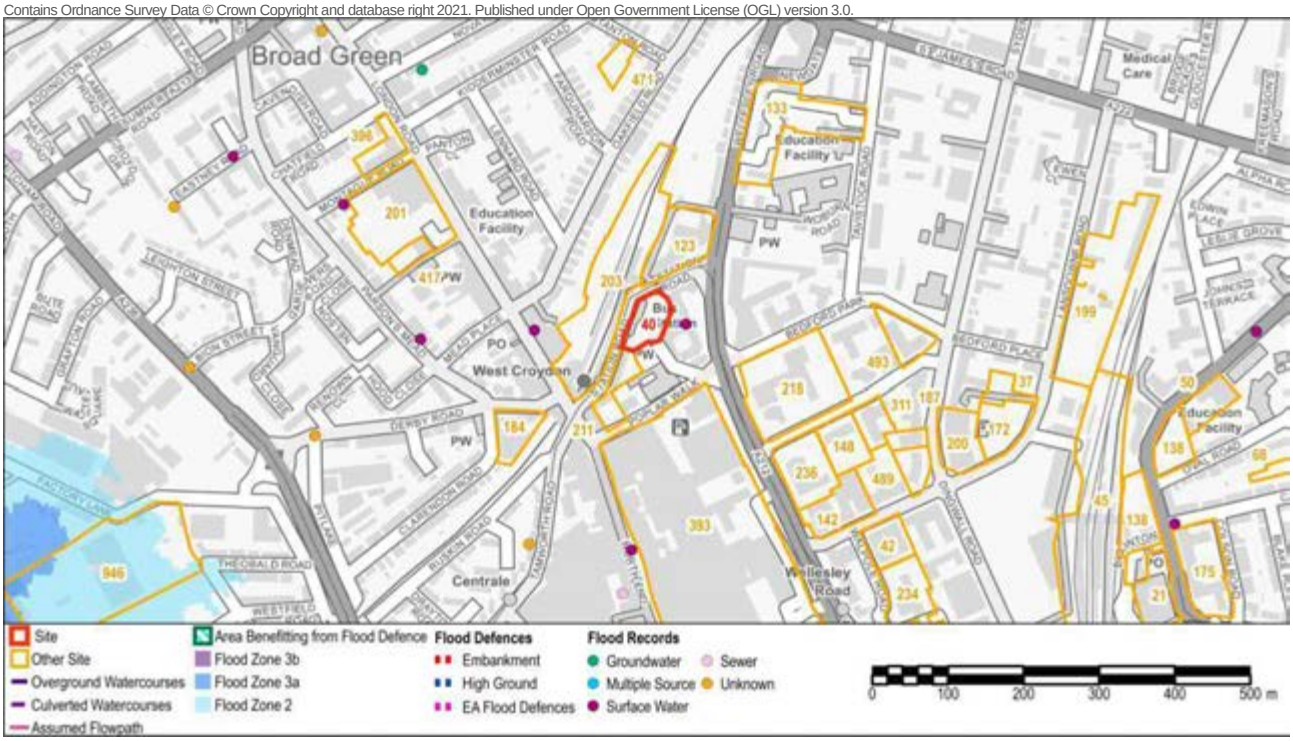


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 7; Groundwater 2; Sewer 1; Multiple source 0; Unknown source 2

River Flooding

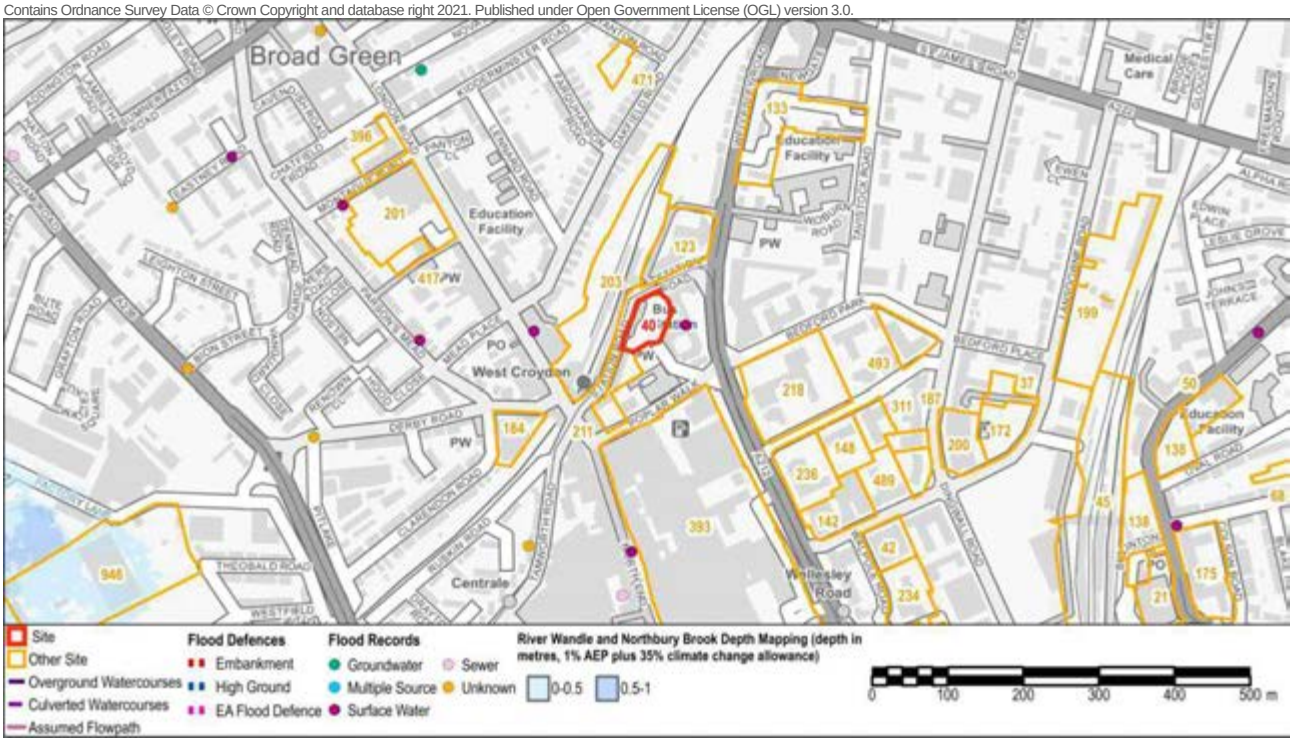


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change)

Refer to the London Borough of Croydon Level 1 and Level 2 SFRA Reports for full details and limitations of the datasets used in this site assessment.

Site Name: West Croydon Bus Station

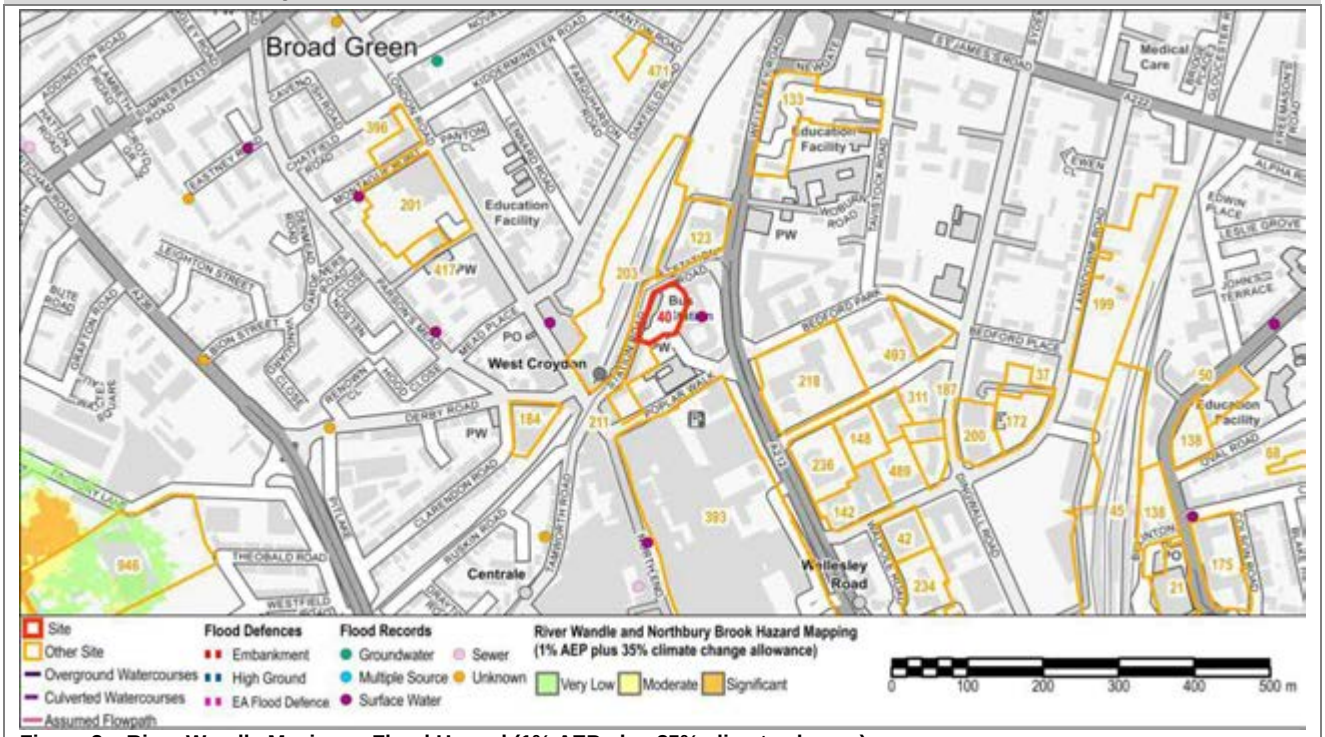


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change)

Surface Water Flooding	
Critical Drainage Area	Group8_042 - South & Central Croydon [Croydon]
Drainage Catchment	DC38

Site Name: West Croydon Bus Station

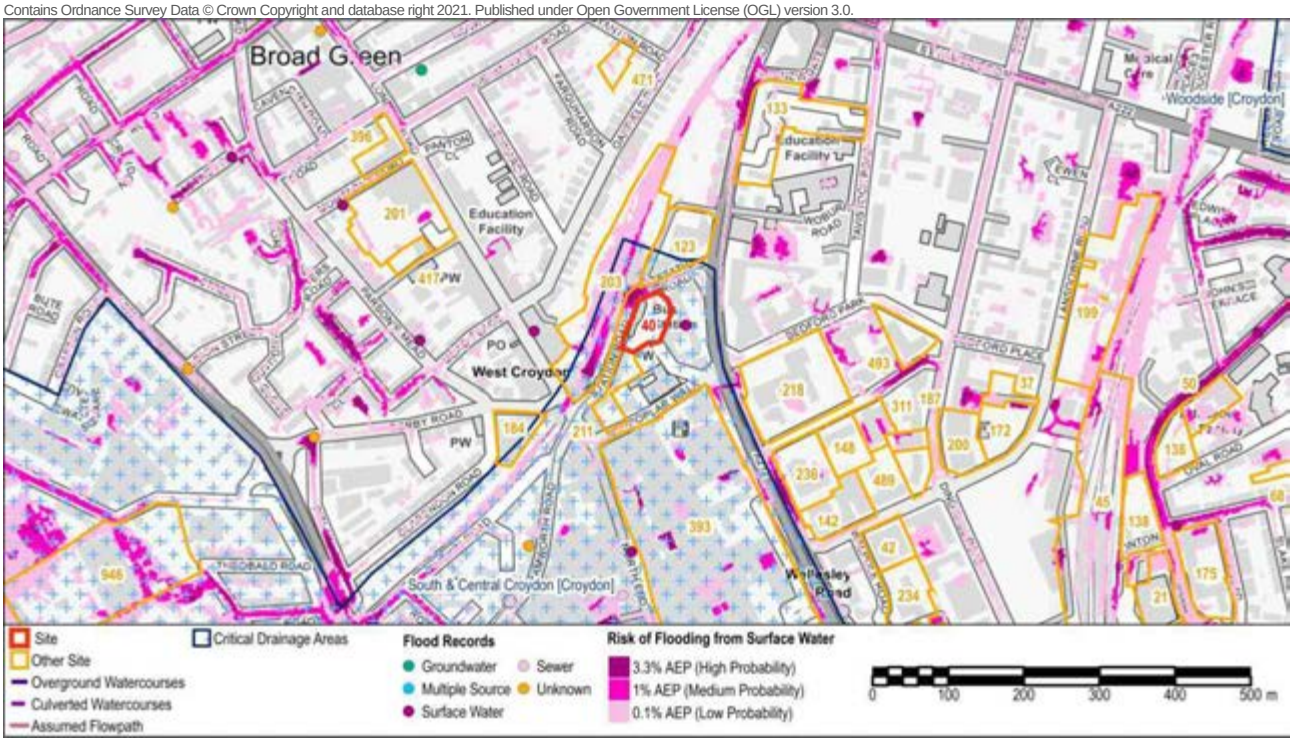


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

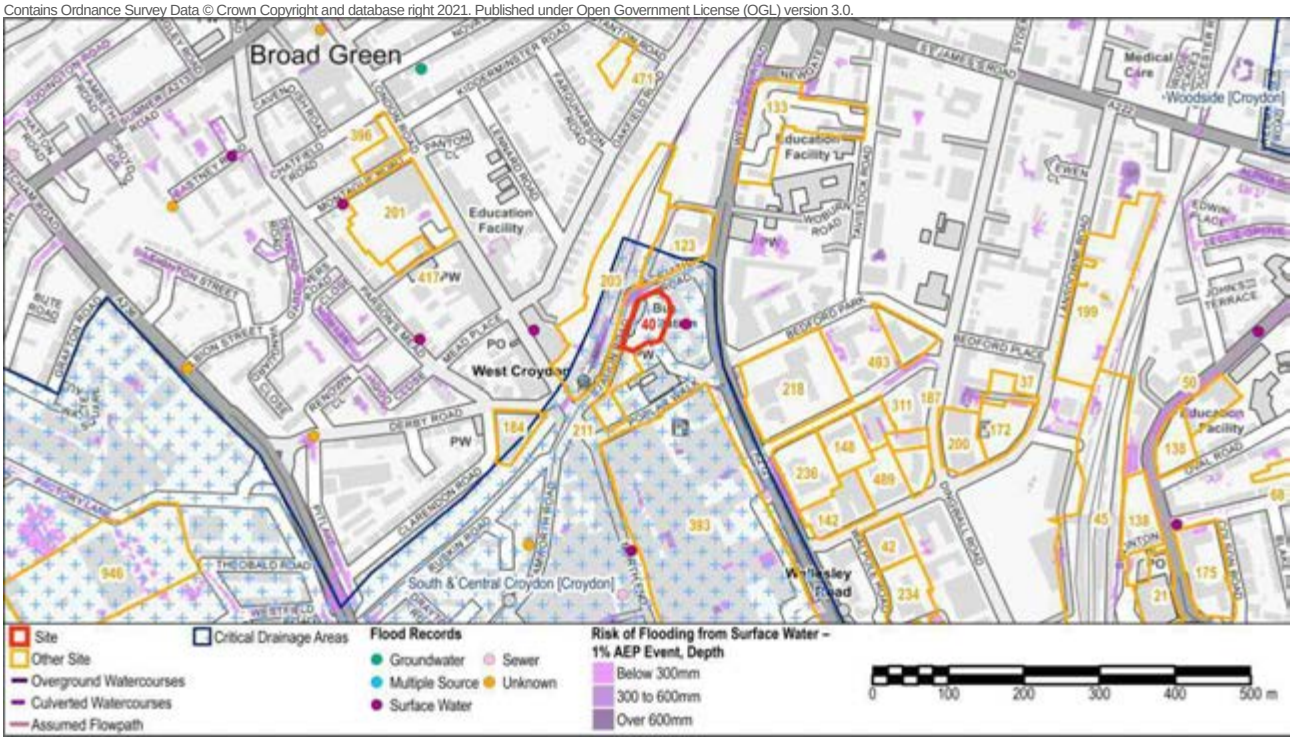


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: West Croydon Bus Station

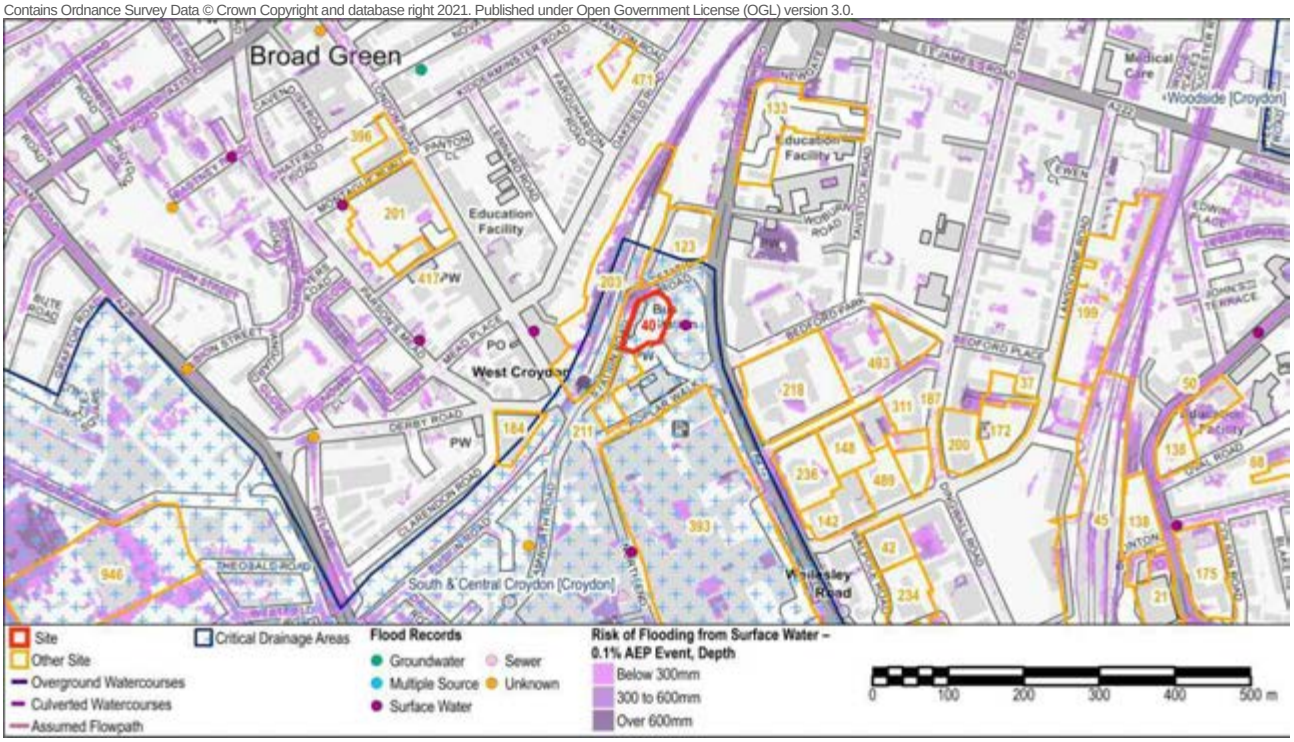


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

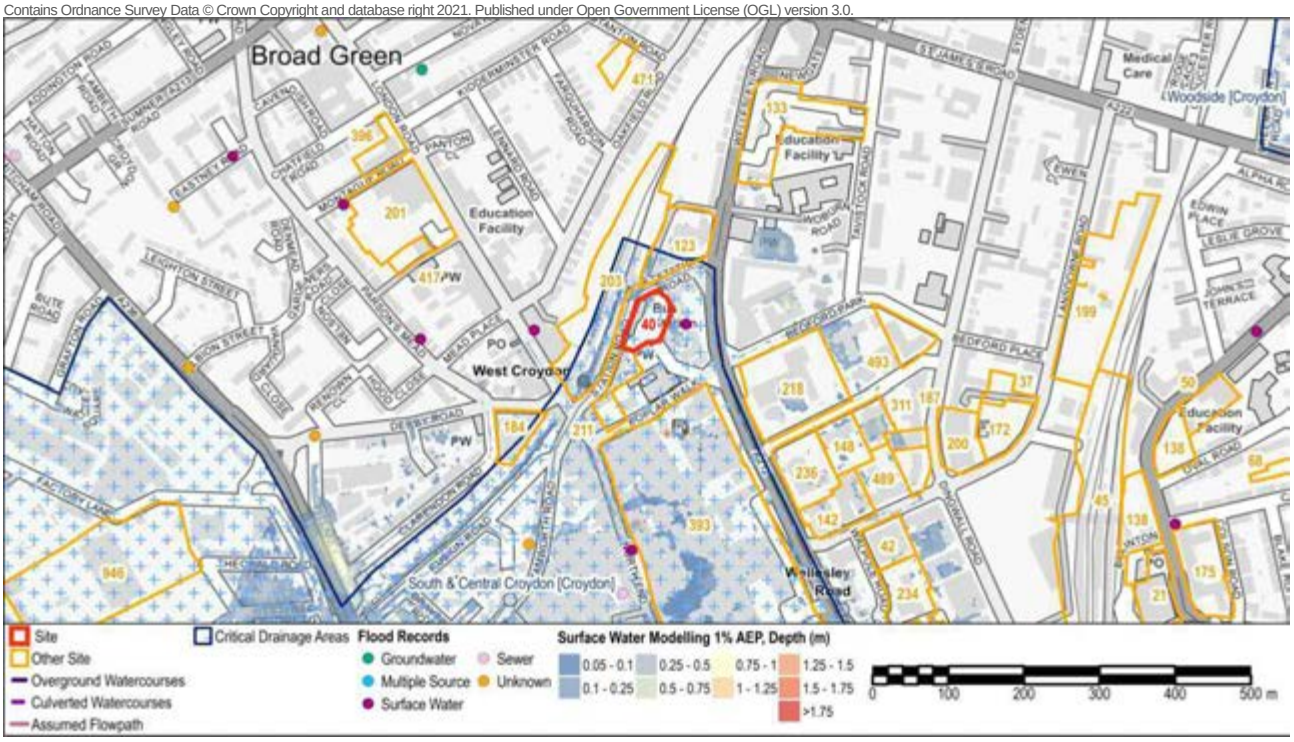


Figure 7 - Surface Water Modelling 1% AEP Flood Depth

Site Name: West Croydon Bus Station

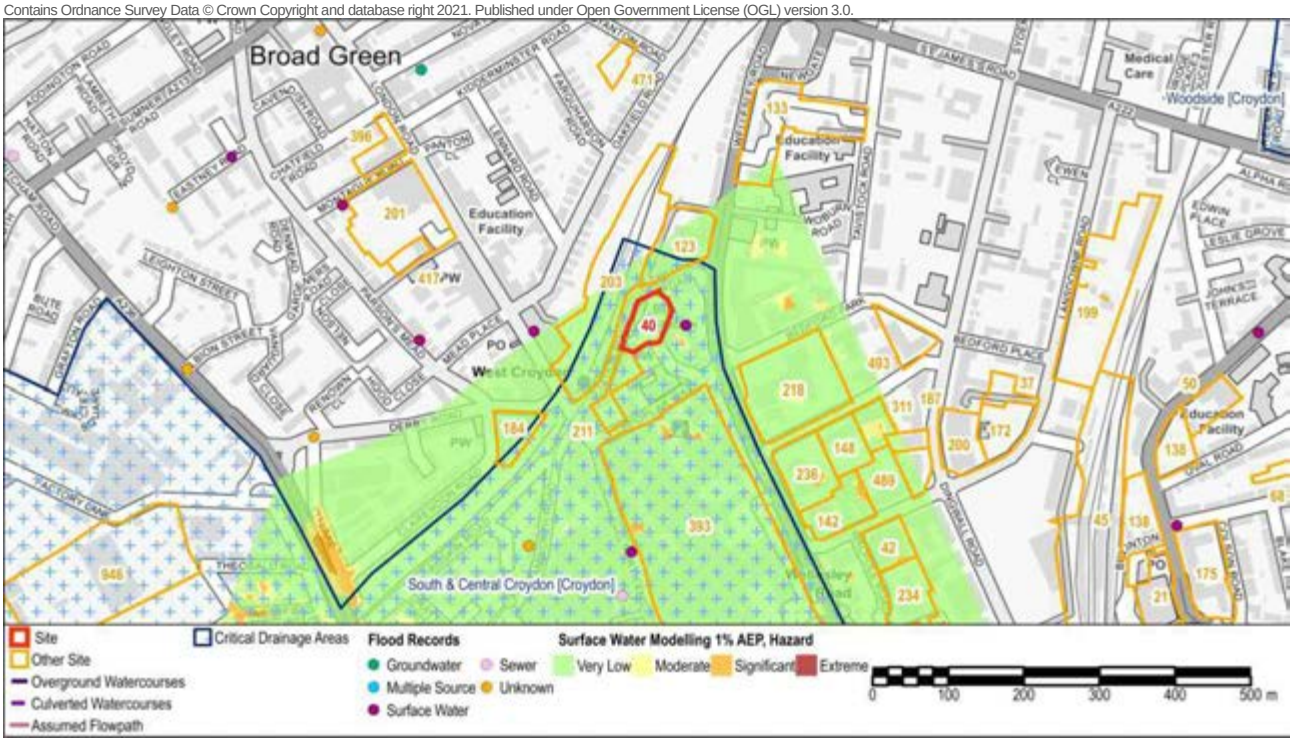


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

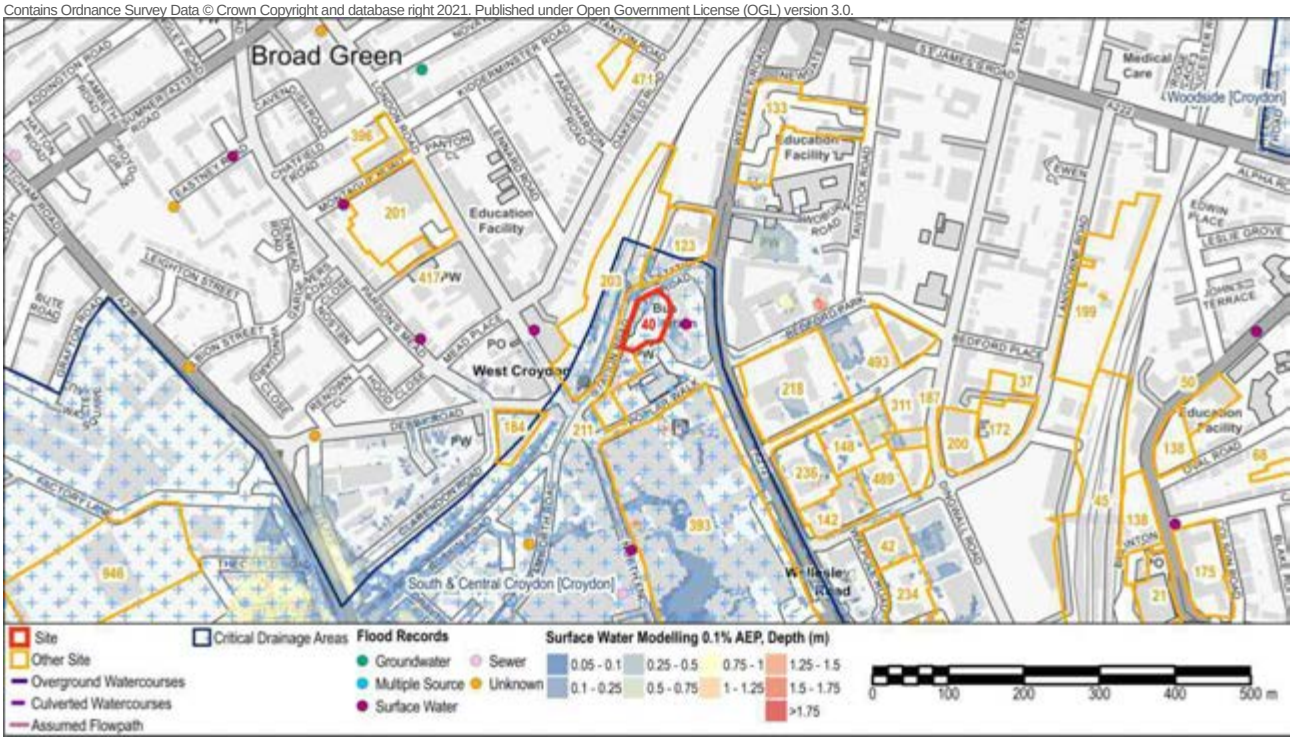


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: West Croydon Bus Station

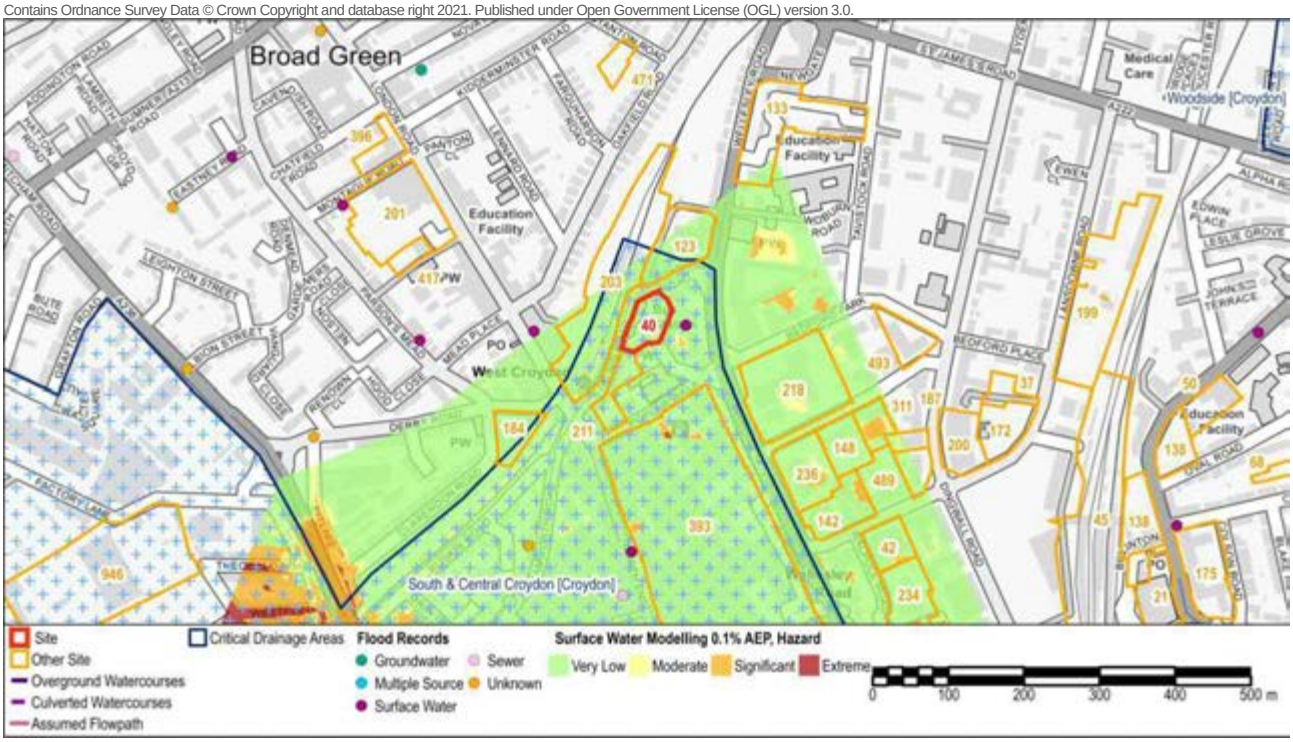


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	Thames Group	**Superficial Geology**	Sand And Gravel
Increased Potential for Elevated Groundwater		No	
Susceptibility to Groundwater Flooding (BGS)		Potential for groundwater flooding of property situated below ground level	

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 site is defined as Flood Zone 1, Low probability of river flooding.

The Risk of Flooding from Surface Water mapping identifies the majority of the site to be at very low risk of surface water flooding. There is the potential for surface water to flow south from Station Road and pond at the north of the site. There are records of surface water flooding in proximity to the site and it is located within a Critical Drainage Area (Group8_042, South & Central Croydon).

There are records of flooding from a range of sources including surface water, groundwater, sewers and unknown sources within 500m of the site.

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- Planning for the site 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 in collaboration with other plots within the area.
- 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 set 600mm above the ground level.
- 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.
- The Risk of Flooding from Surface Water mapping shows the risk of flooding along the access routes to the site. Development proposals should consider how safe access/egress can be provided. 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 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: West Croydon Bus Station

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

Site Name: Land and car park between Belgrave Road and Grosvenor Road

Site ID:	51	**Area (ha):**	0.71
Proposed Use:	Residential and community 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%

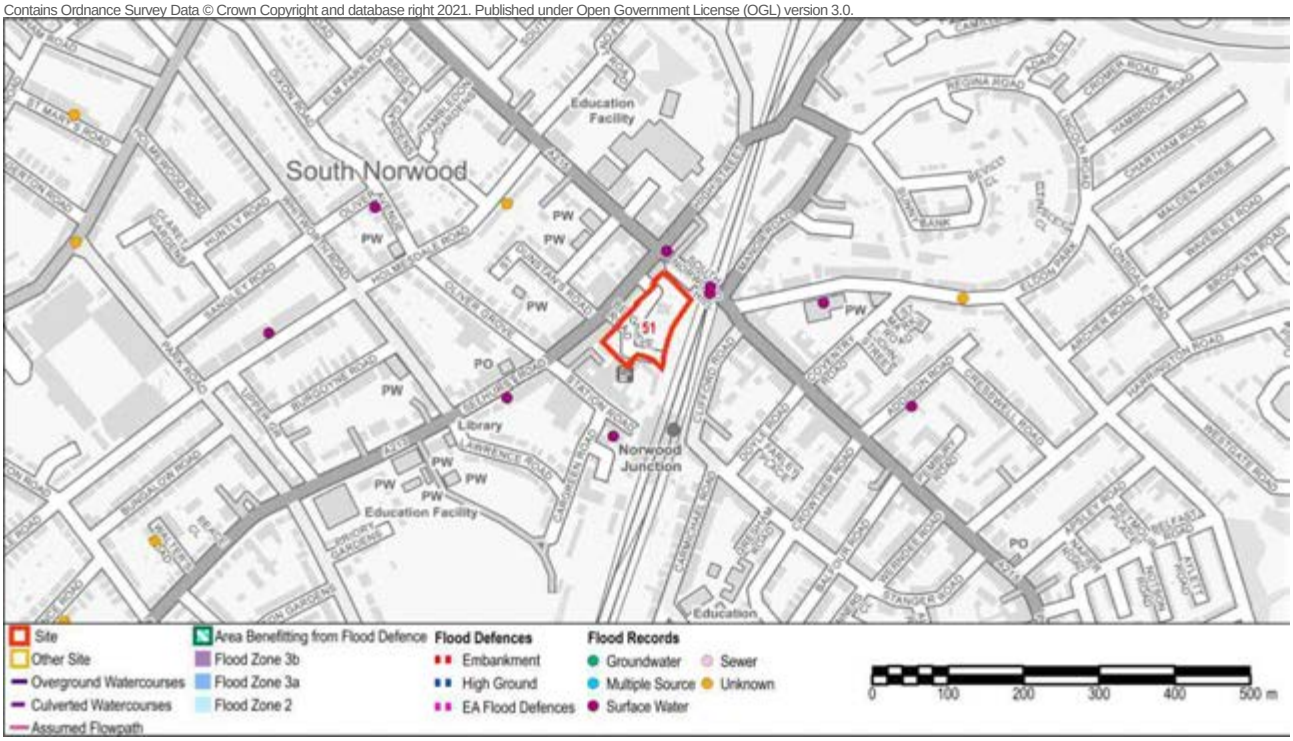


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 10; Groundwater 0; Sewer 1; Multiple source 0; Unknown source 2

River Flooding

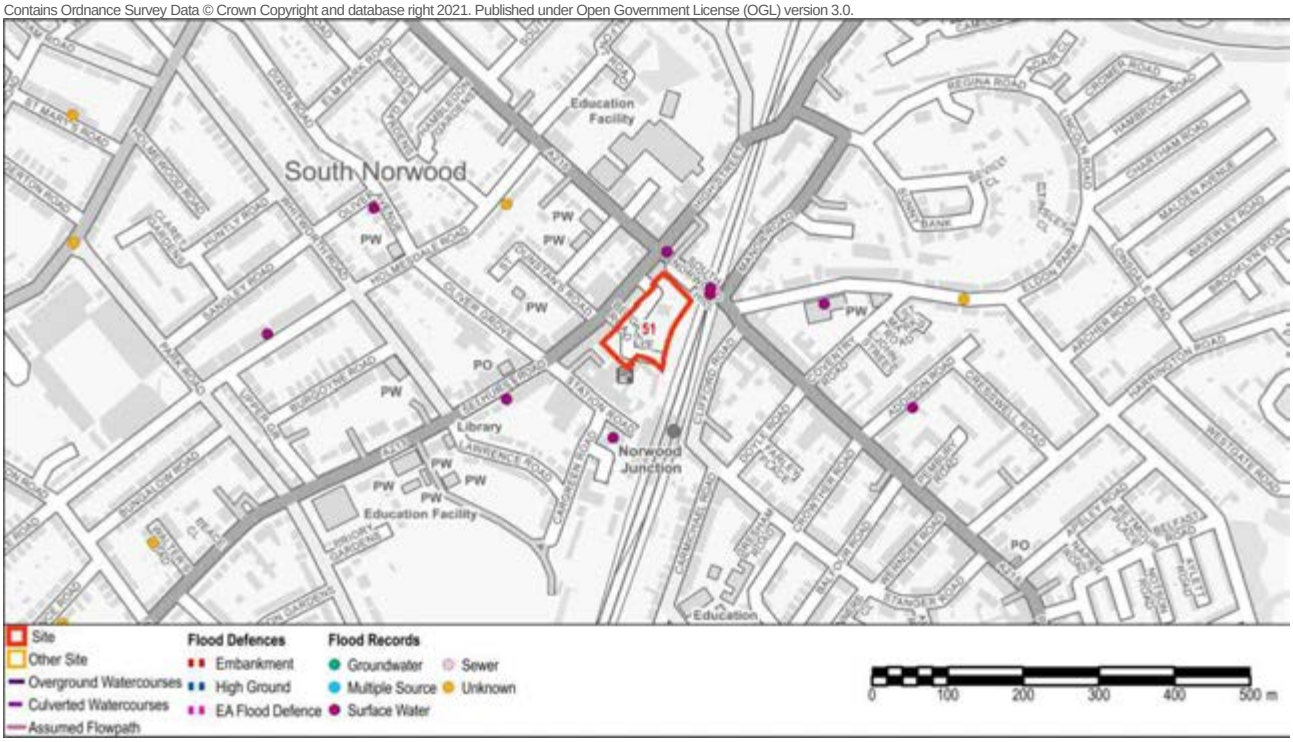


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: Land and car park between Belgrave Road and Grosvenor Road

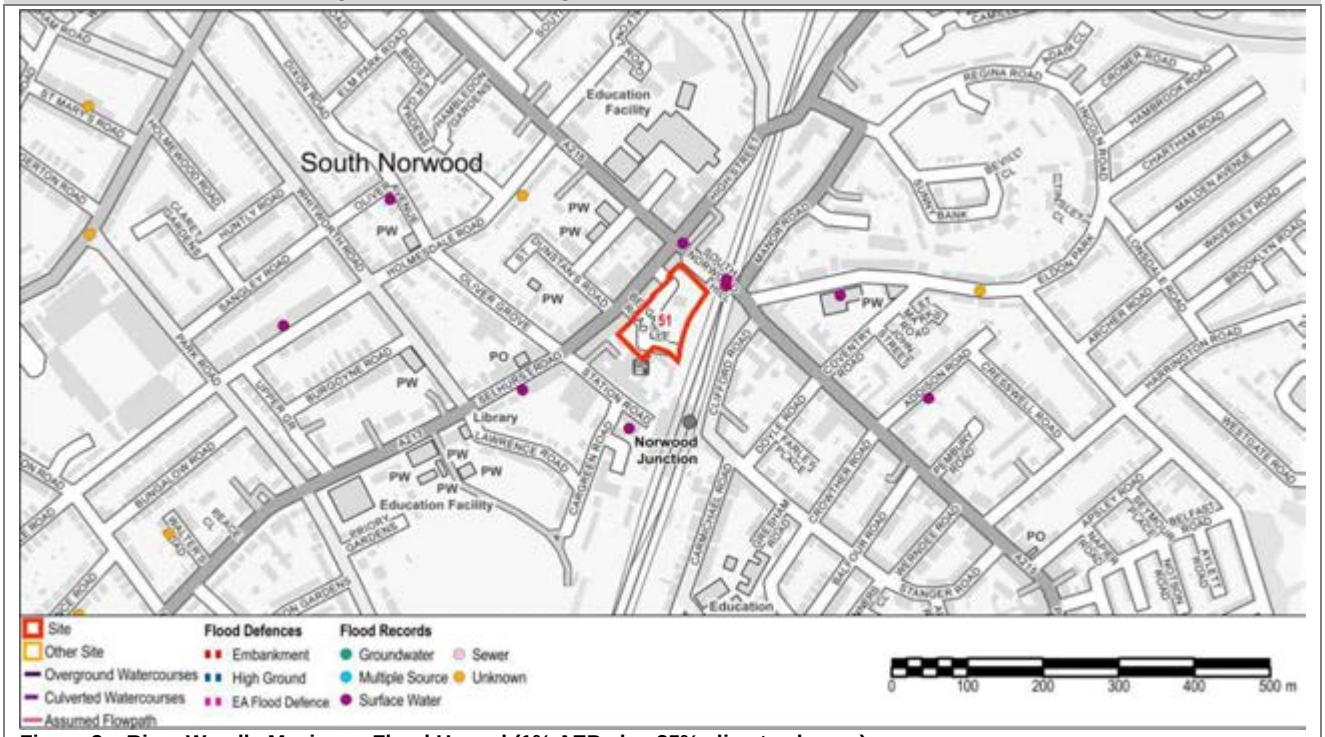


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Surface Water Flooding	
Critical Drainage Area	Group8_048 - South Norwood Hill [Croydon]
Drainage Catchment	DC40

Site Name: Land and car park between Belgrave Road and Grosvenor Road

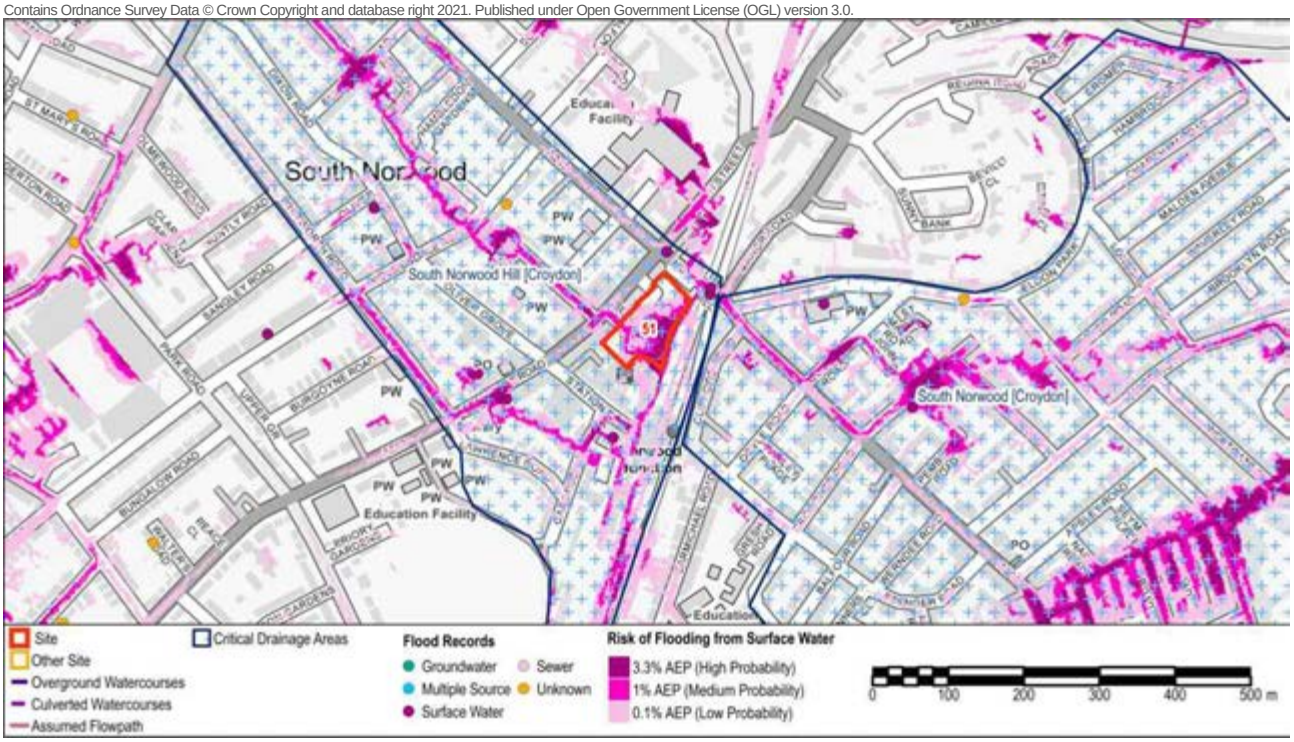


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

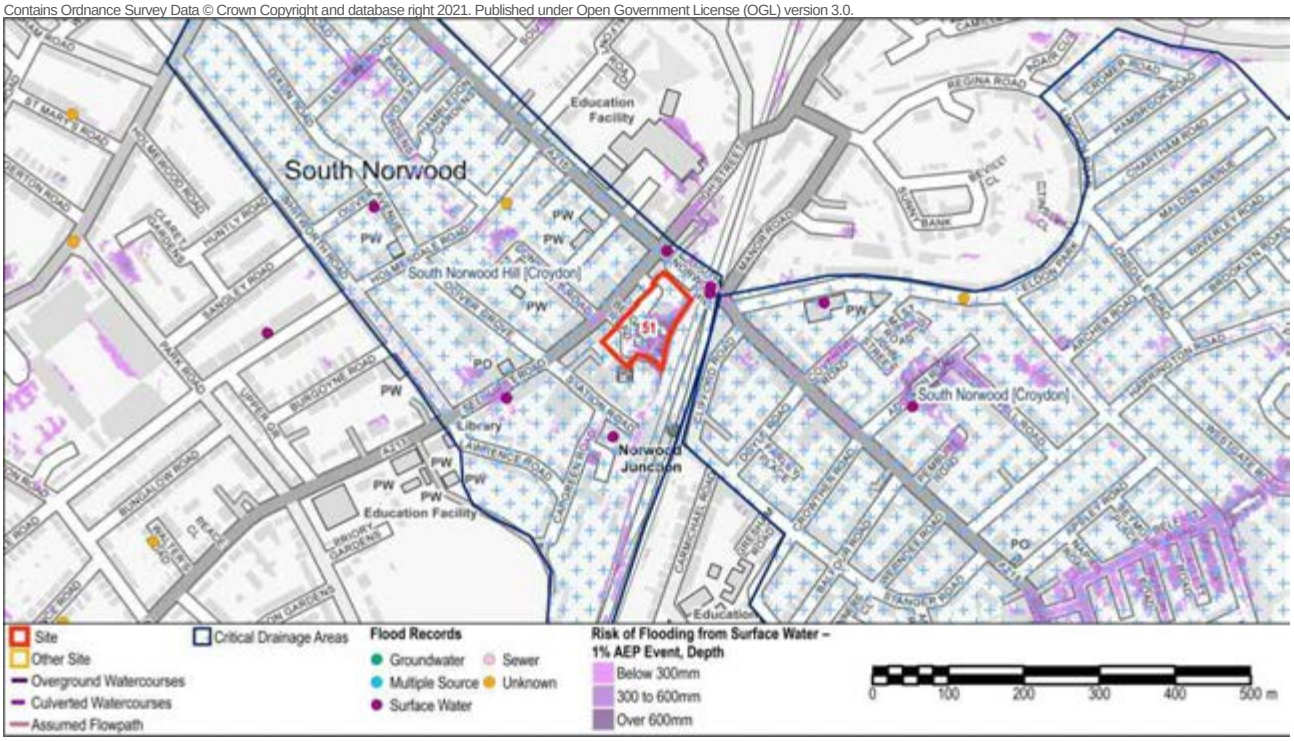


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Land and car park between Belgrave Road and Grosvenor Road

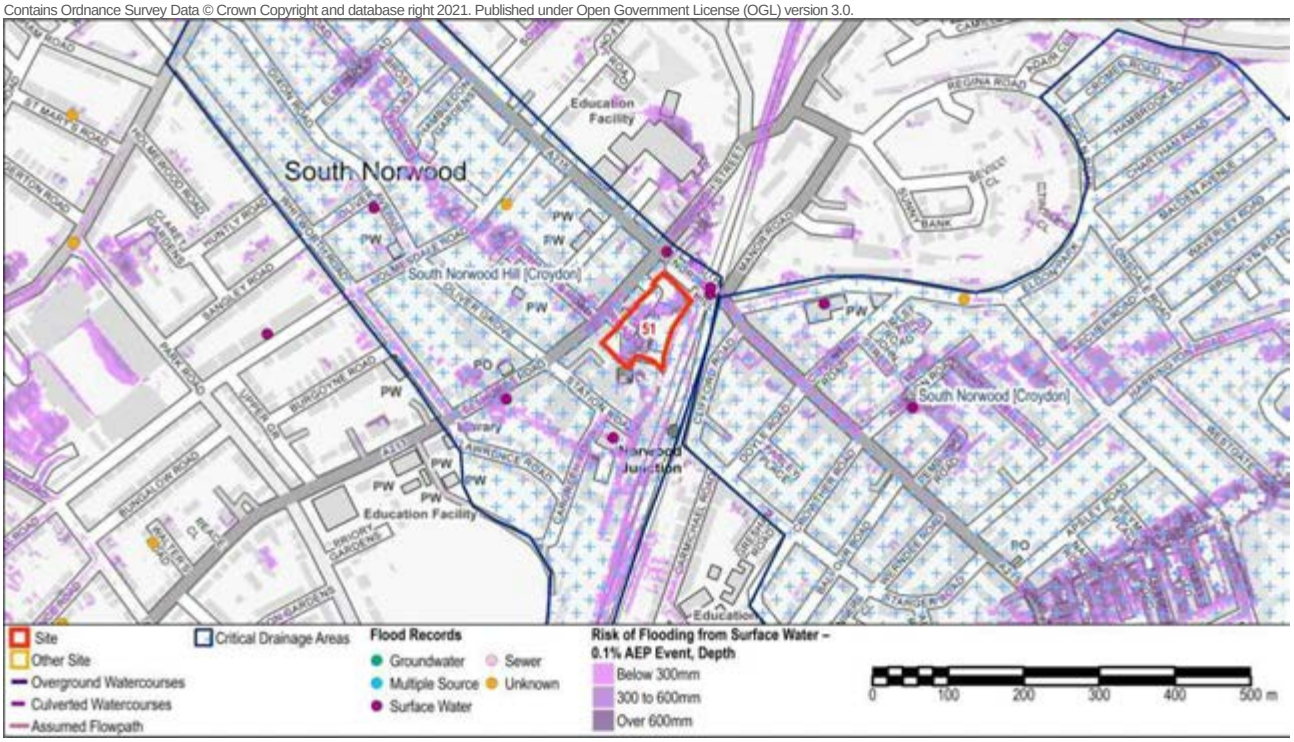


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

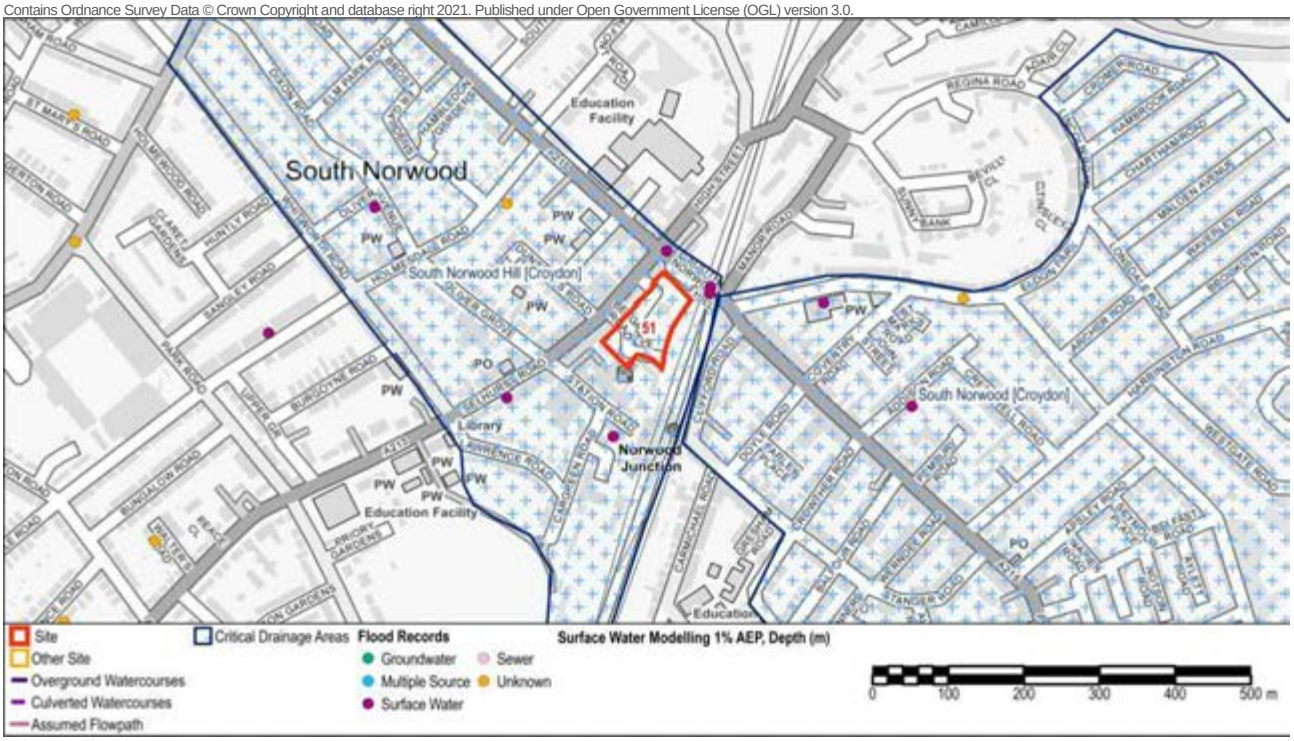


Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: Land and car park between Belgrave Road and Grosvenor Road

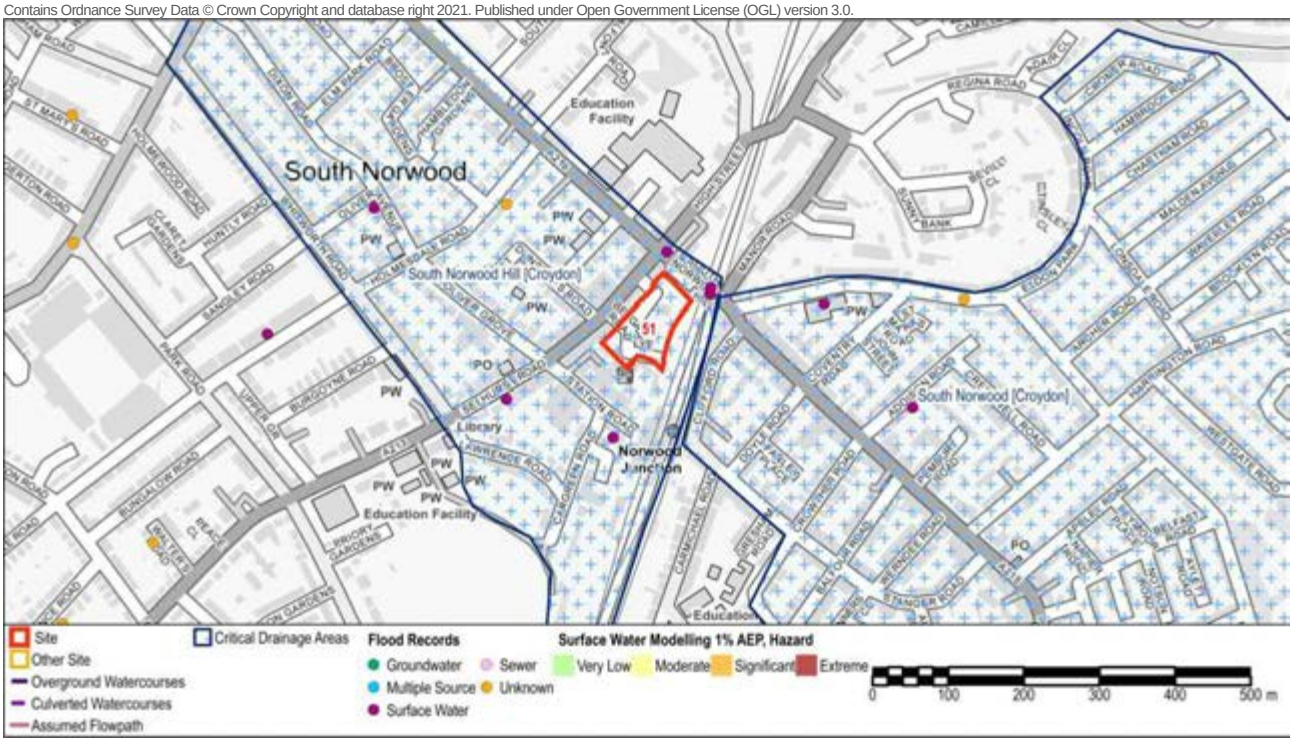


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

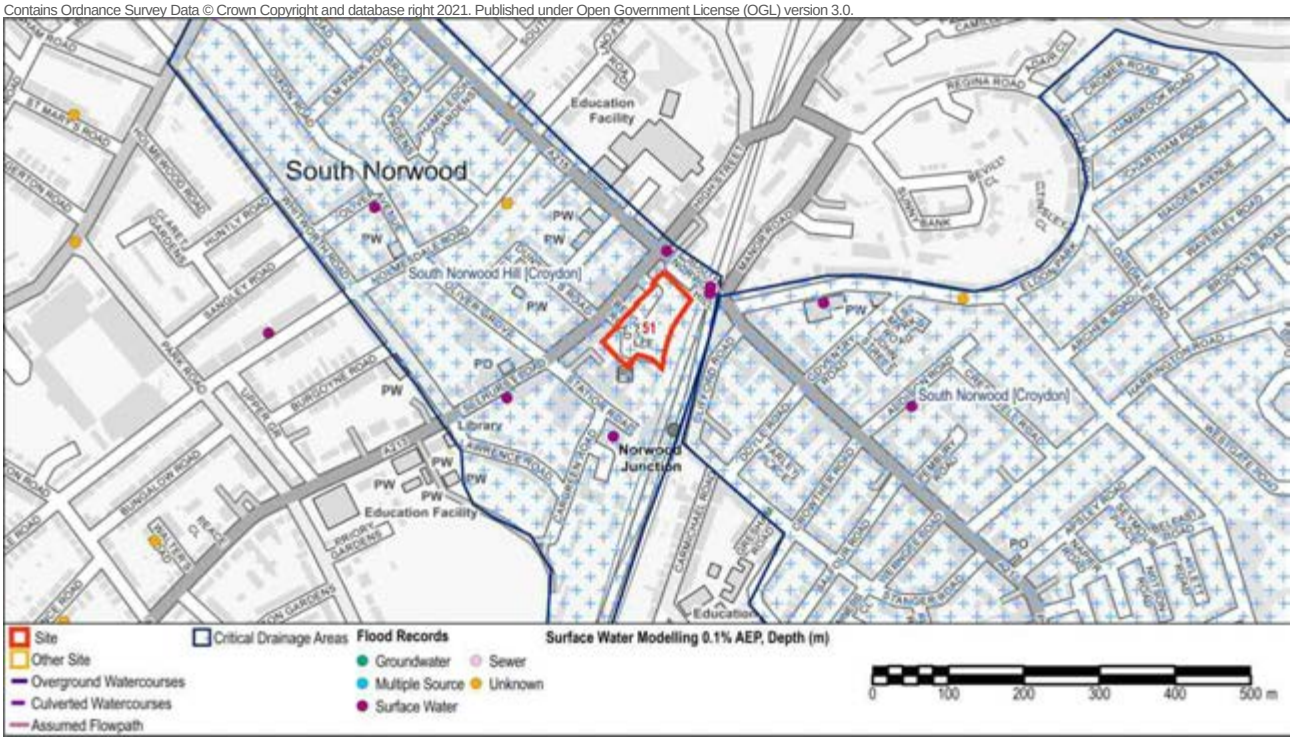


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: Land and car park between Belgrave Road and Grosvenor Road

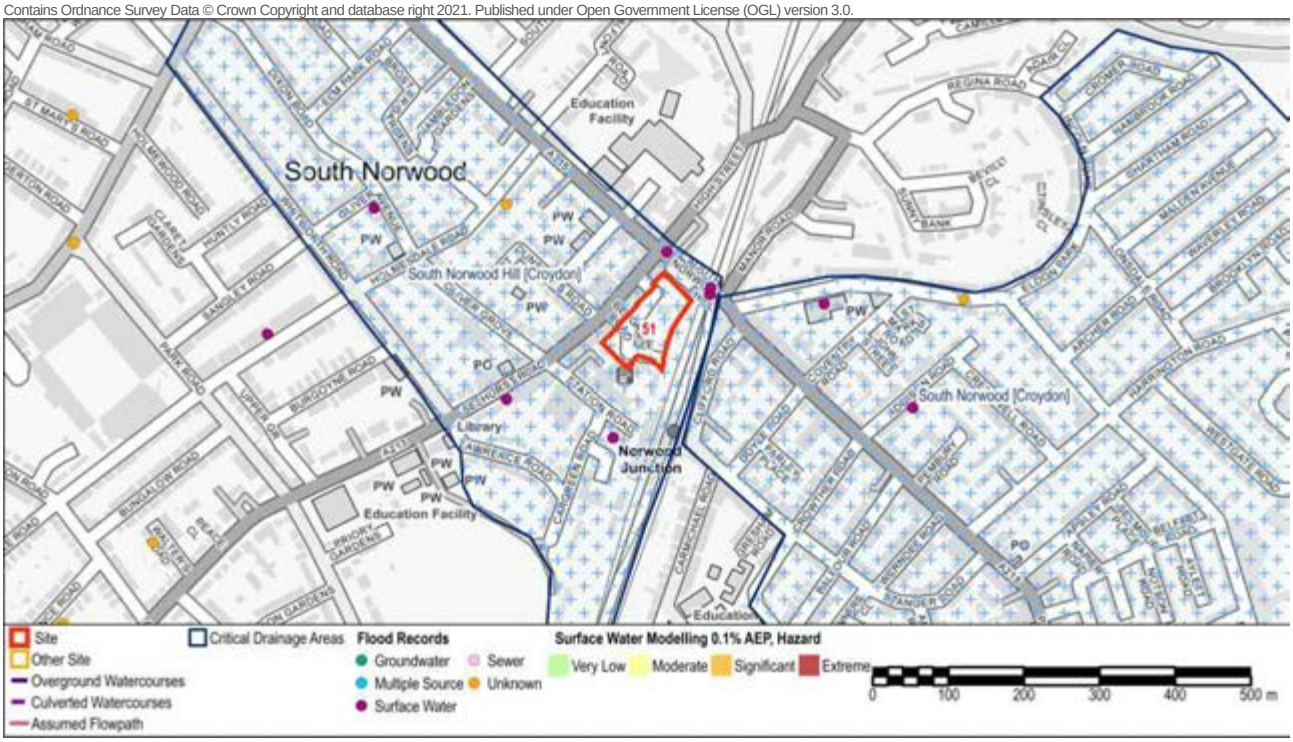


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

Groundwater Flooding			
Bedrock Geology	Thames Group	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		No	
Susceptibility to Groundwater Flooding (BGS)		None	

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 site is defined as Flood Zone 1, Low probability of river flooding.

The Risk of Flooding from Surface Water mapping identifies the potential for significant amounts of surface water to pond on the site, and the presence of a flow path through South Norwood that ponds against the railway line. There are records of surface water flooding in proximity to the site and it is located within a Critical Drainage Area (Group8_048, South Norwood Hill [Croydon]).

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- A sequential approach should be applied within the site, steering development towards those areas at lower risk of surface water flooding before consideration of areas at greater risk.
- Planning for the site 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 in collaboration with other plots within the area.
- 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 set 600mm above the ground levels.
- 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.
- The Risk of Flooding from Surface water mapping shows that some of the access routes around the site are at risk of flooding. Development proposals should consider how safe access/egress can be provided. 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 or above.
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response. The flood warning and evacuation plan should set out the response of occupants upon receiving a flood warning (for example evacuating prior to a flood or remaining within their safe place of refuge).
- The risk of groundwater flooding and groundwater levels should be further assessed as part of a Site Investigation for specific development proposals on the site.

Site Name: Car park, 54-58 Whytecliffe Road South

Site ID:	61	**Area (ha):**	0.61
Proposed Use:	Residential use with retention of car parking spaces.	**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%

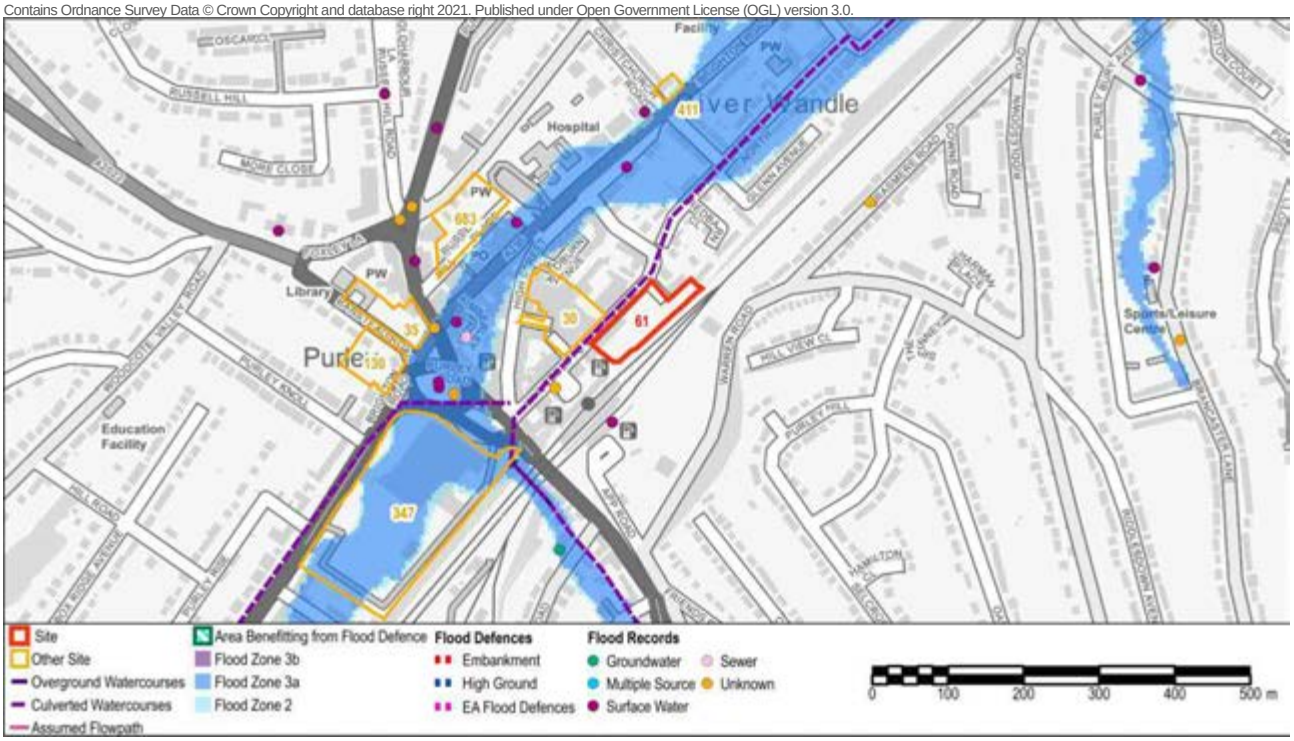


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 12; Groundwater 1; Sewer 2; Multiple source 0; Unknown source 7

River Flooding

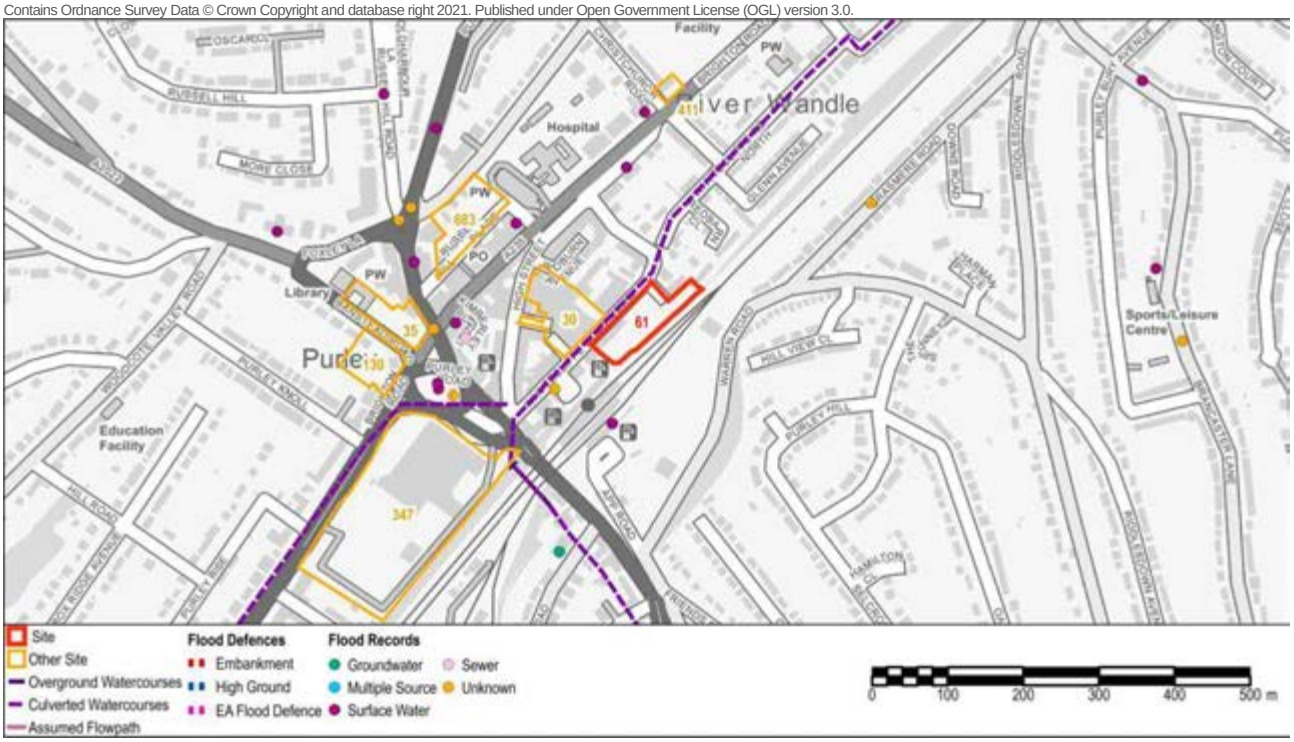


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: Car park, 54-58 Whytecliffe Road South

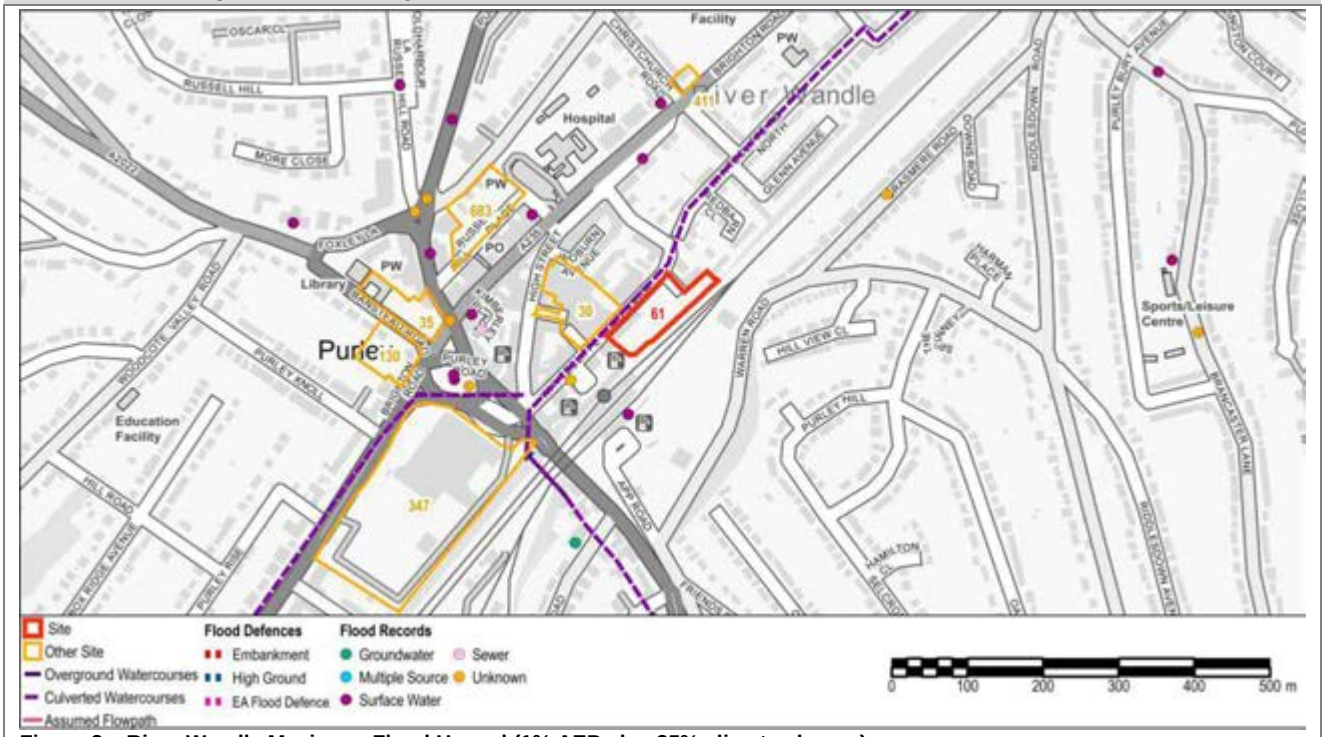


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

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

Site Name: Car park, 54-58 Whytecliffe Road South

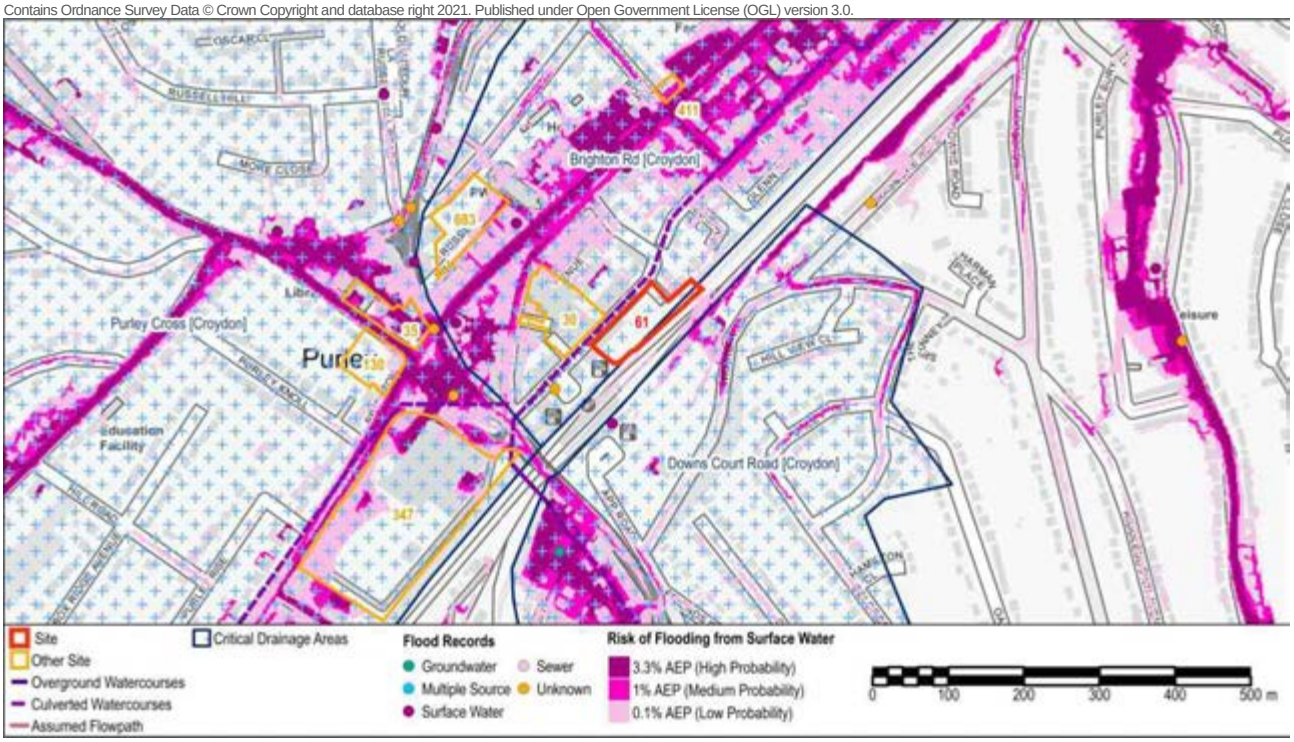


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

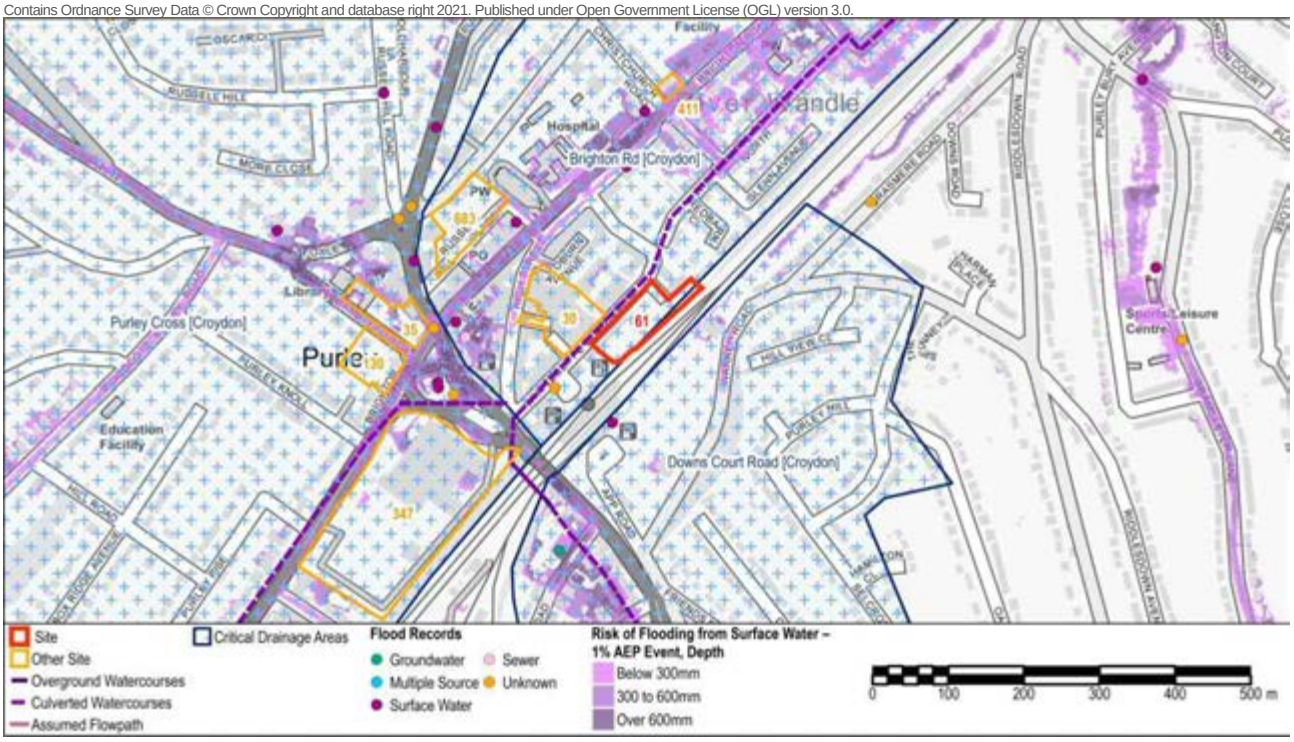


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Car park, 54-58 Whytecliffe Road South

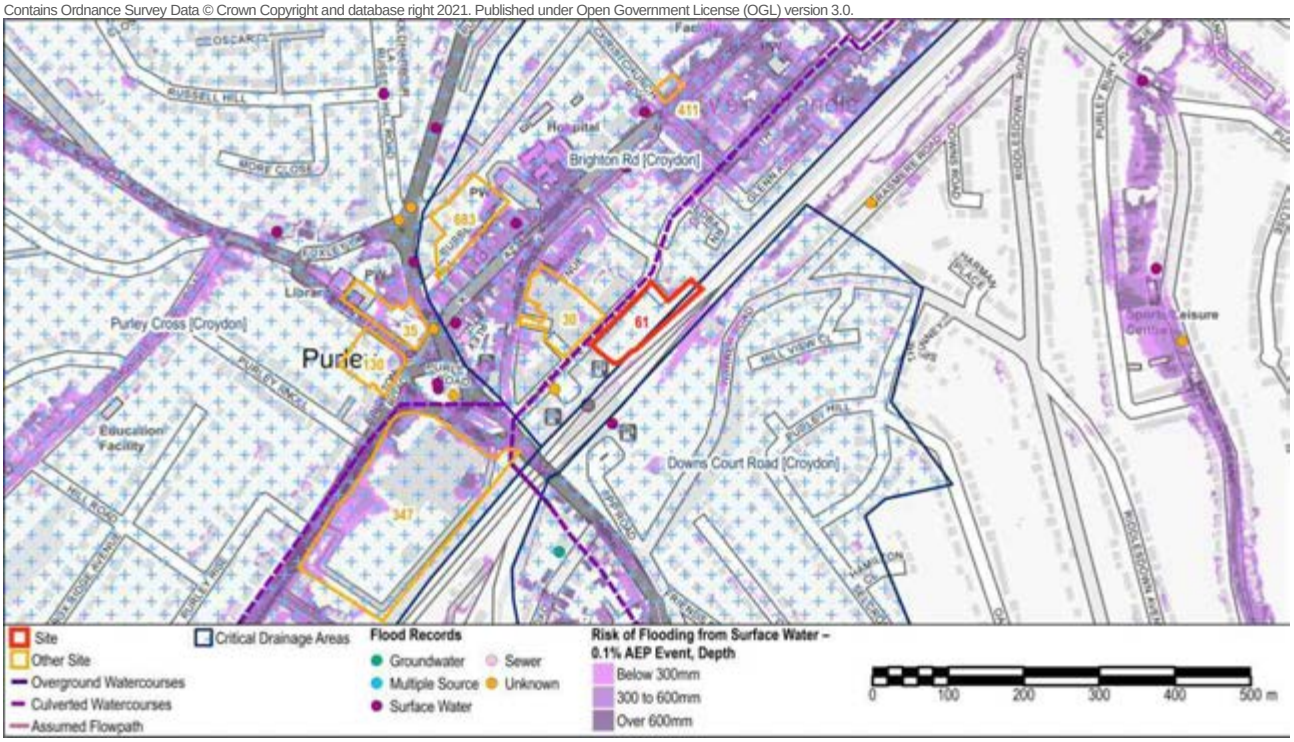


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

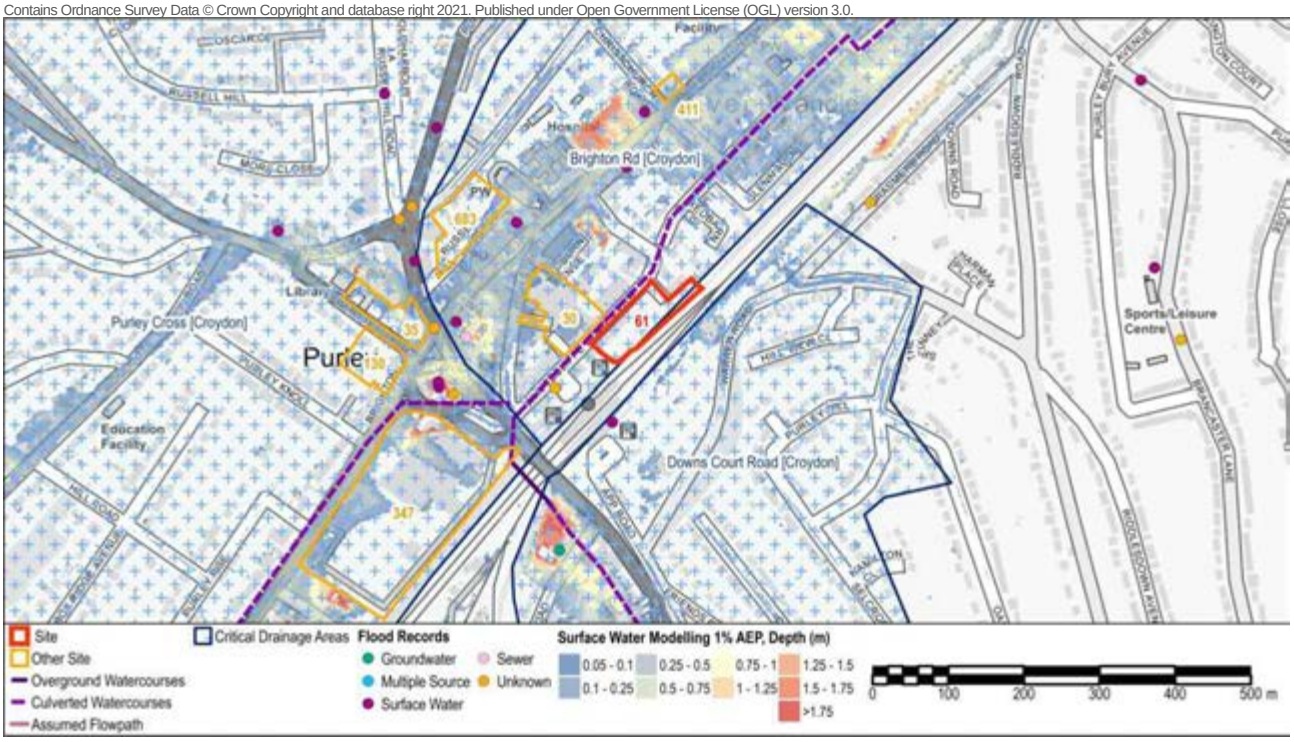


Figure 7 - Surface Water Modelling 1% AEP Flood Depth

Site Name: Car park, 54-58 Whytecliffe Road South

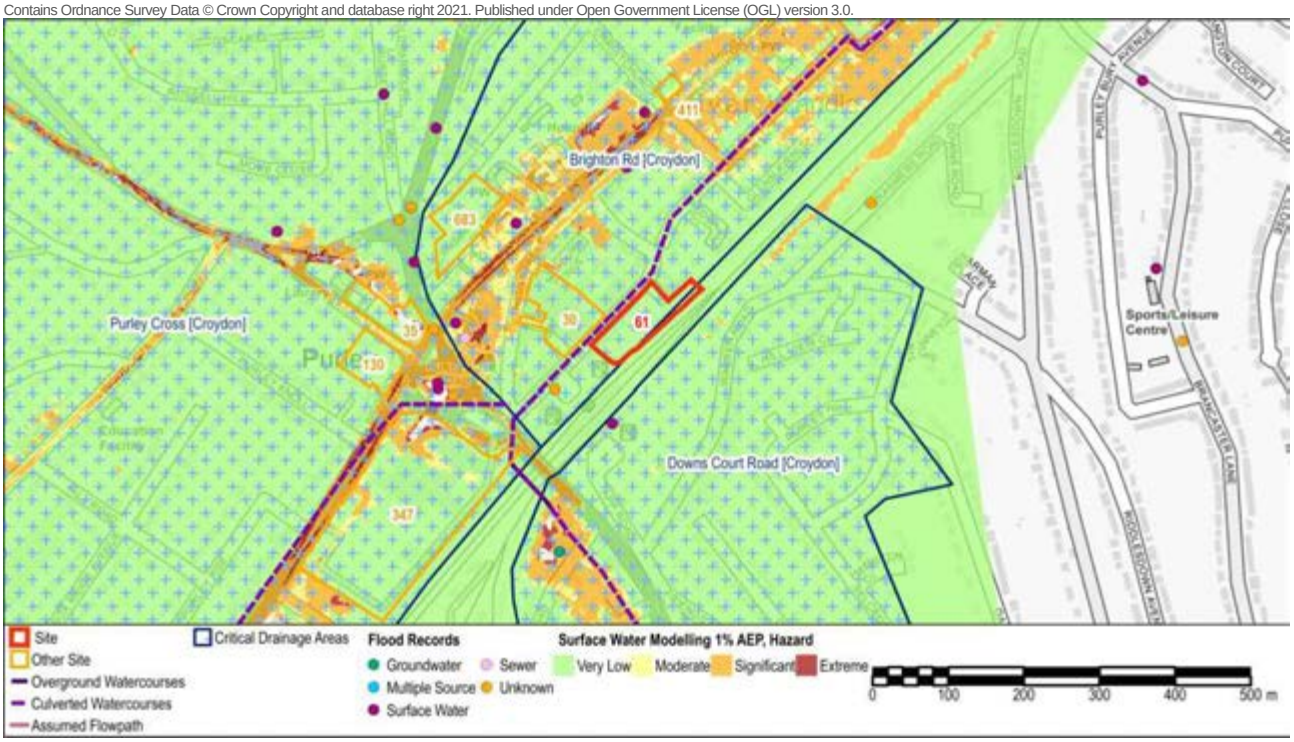


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

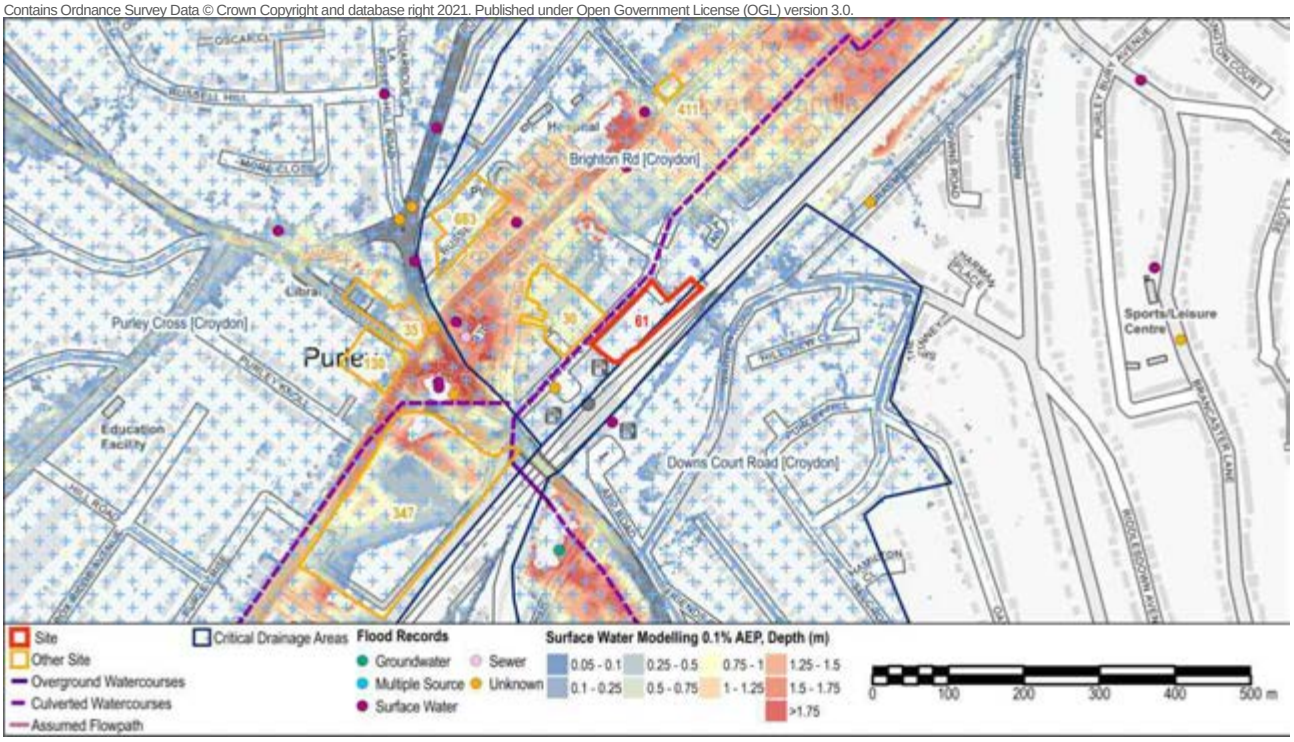


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: Car park, 54-58 Whytecliffe Road South

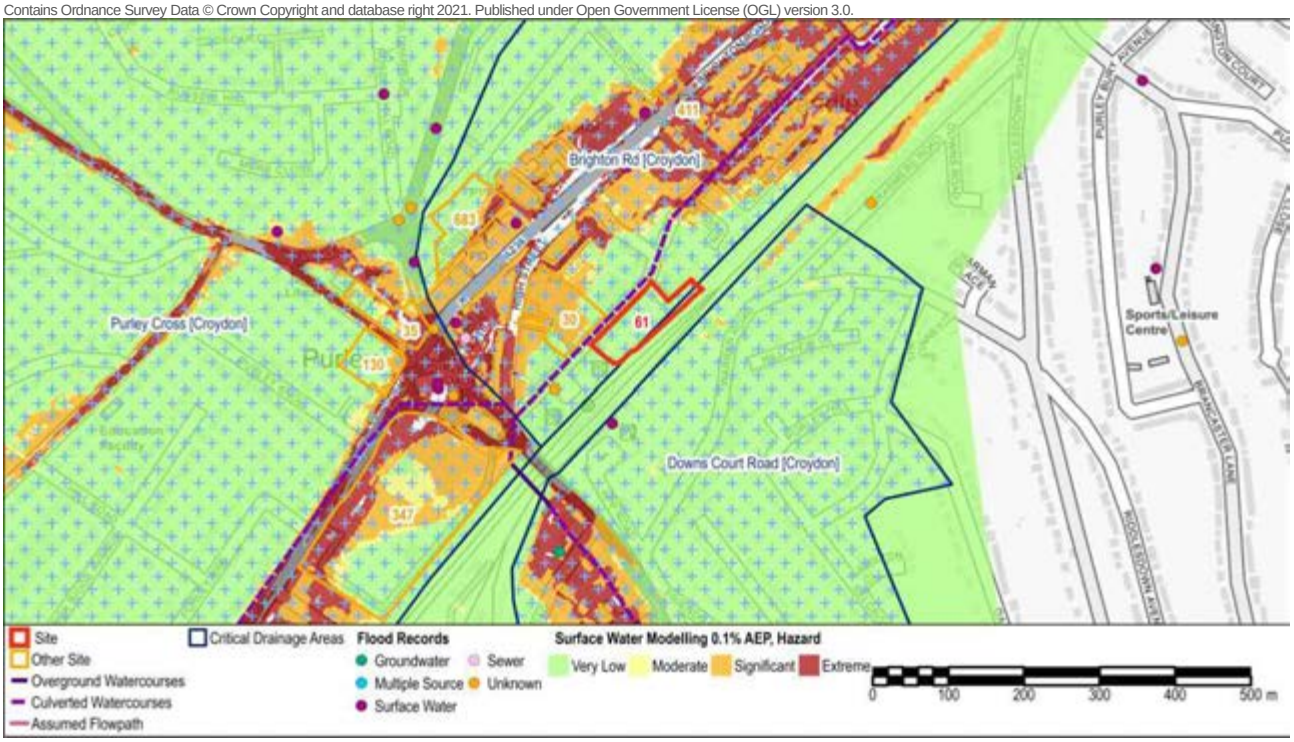


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		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 site is defined as Flood Zone 1, Low probability of river flooding.

A 1050mm diameter culvert runs in a northern direction along Brighton Road, conveying the intermittent sources of the River Wandle (the Caterham Bourne and Merstham Bourne) and runoff generated in the surroundings. The Caterham Bourne flows from east to west south 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 site. 12 surface water flood events have been recorded, one groundwater flooding incident and 7 of unknown source. Two unknown flood events have also been recorded in the north, along with a multiple source and a sewer flood record in the south. The site 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).

The Risk of Flooding from Surface Water mapping identifies that whilst the site itself may not be at particular risk of surface water flooding, the area surrounding the site, and along Brighton Road to the west is at significant risk. There is potential that access to this site could be affected by surface water flooding.

Surface water modelling undertaken by Arcadis (July 2020) is included in Figures 7-10 and shows the risk to the area surrounding the site. During the 1% AEP and 0.1% AEP hazard ratings along the Brighton Road and surroundings reach Significant and Extreme.

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- Planning for the site 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 in collaboration with other plots within the area.
- 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.

Site Name: Car park, 54-58 Whytecliffe Road South

- Finished floor levels for More Vulnerable development should be set 600mm above ground levels. Where surface water modelling is available, finished floor levels should 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 for the site, (High Street, Brighton Road) are at risk of flooding with a Significant or Extreme hazard rating during the 1% and 0.1% AEP events and the site is constrained to the west by the railway embankment. Development proposals 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 on the site.

Site Name: 112a and 112b Brighton Road

Site ID:	64	**Area (ha):**	0.29
Proposed Use:	Residential, with leisure uses (up to existing floor space).	**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%

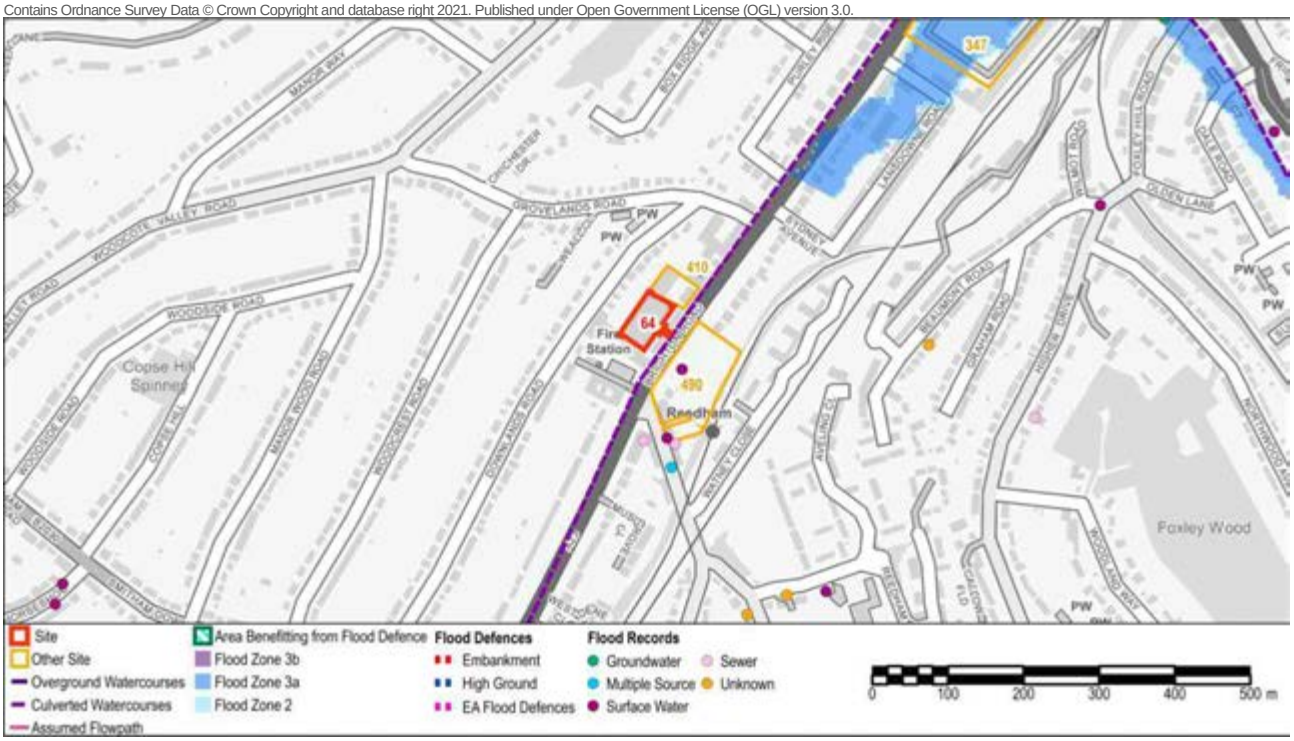


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 5; Groundwater 0; Sewer 3; Multiple source 2; Unknown source 3

River Flooding

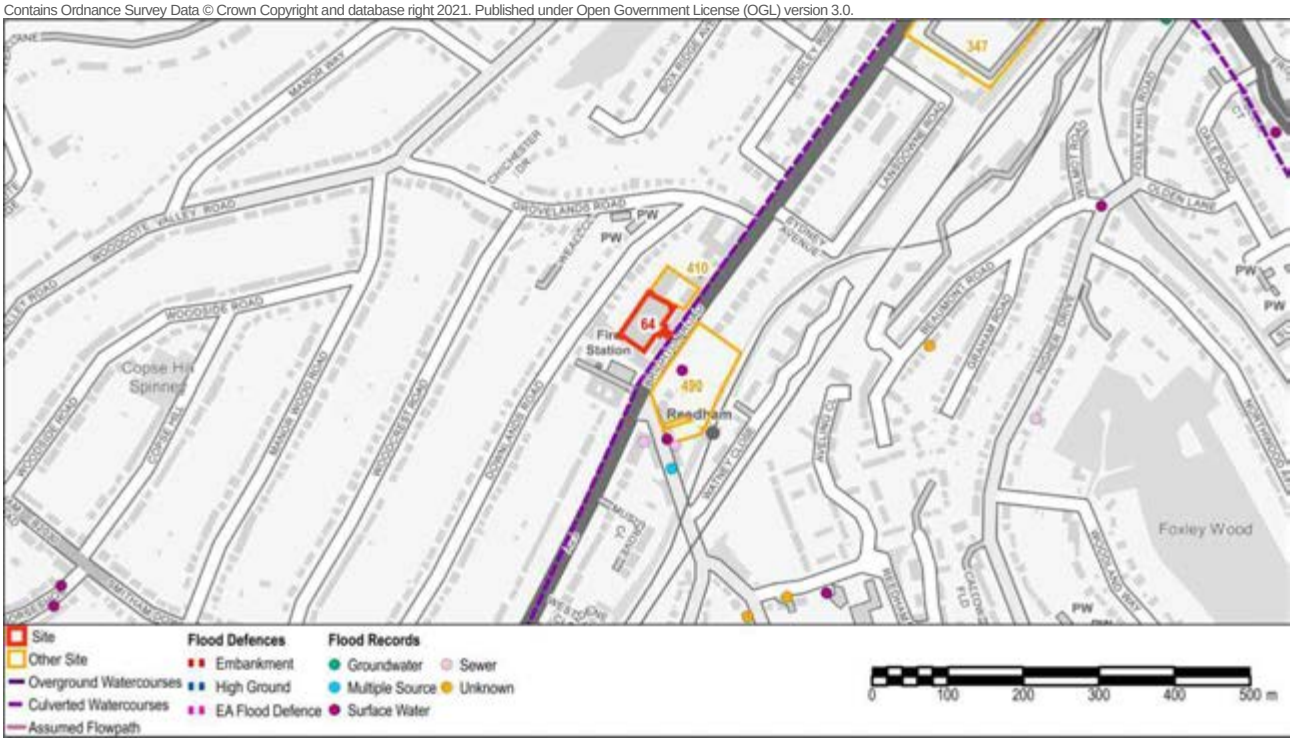


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: 112a and 112b Brighton Road

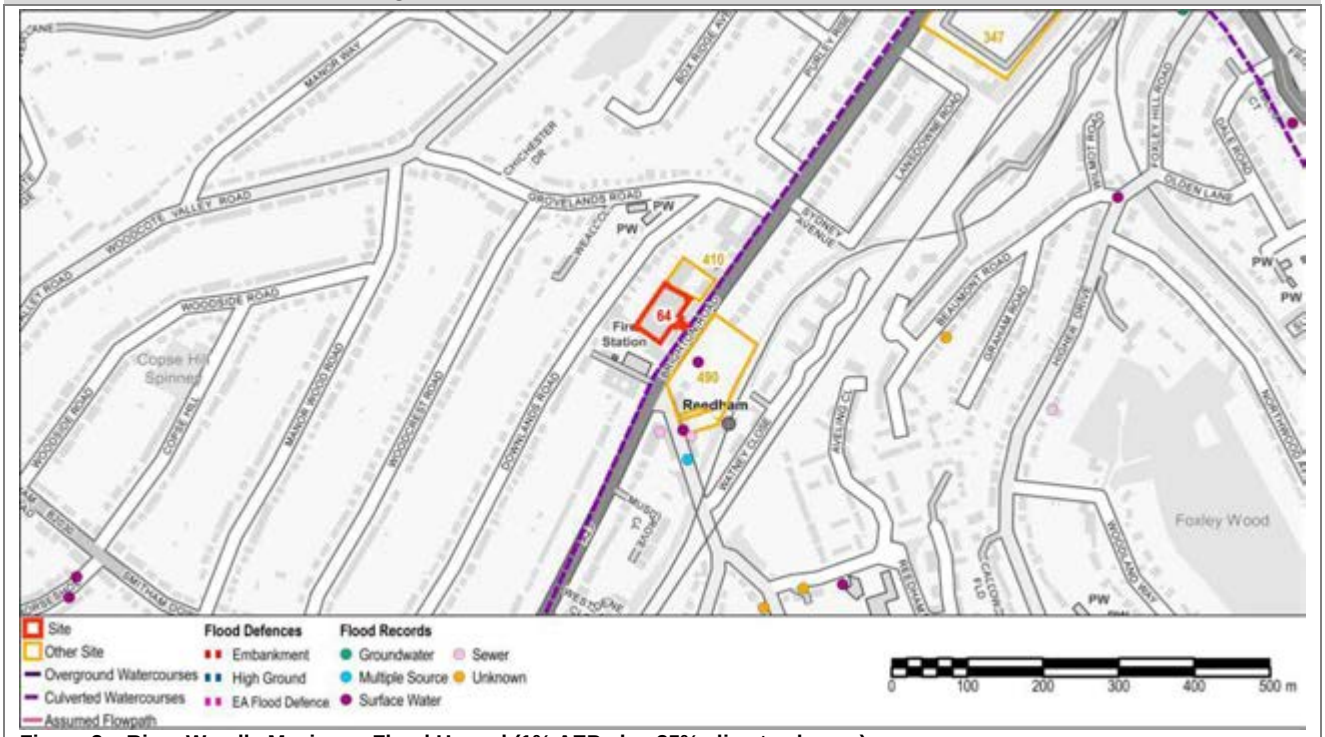


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

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

Site Name: 112a and 112b Brighton Road

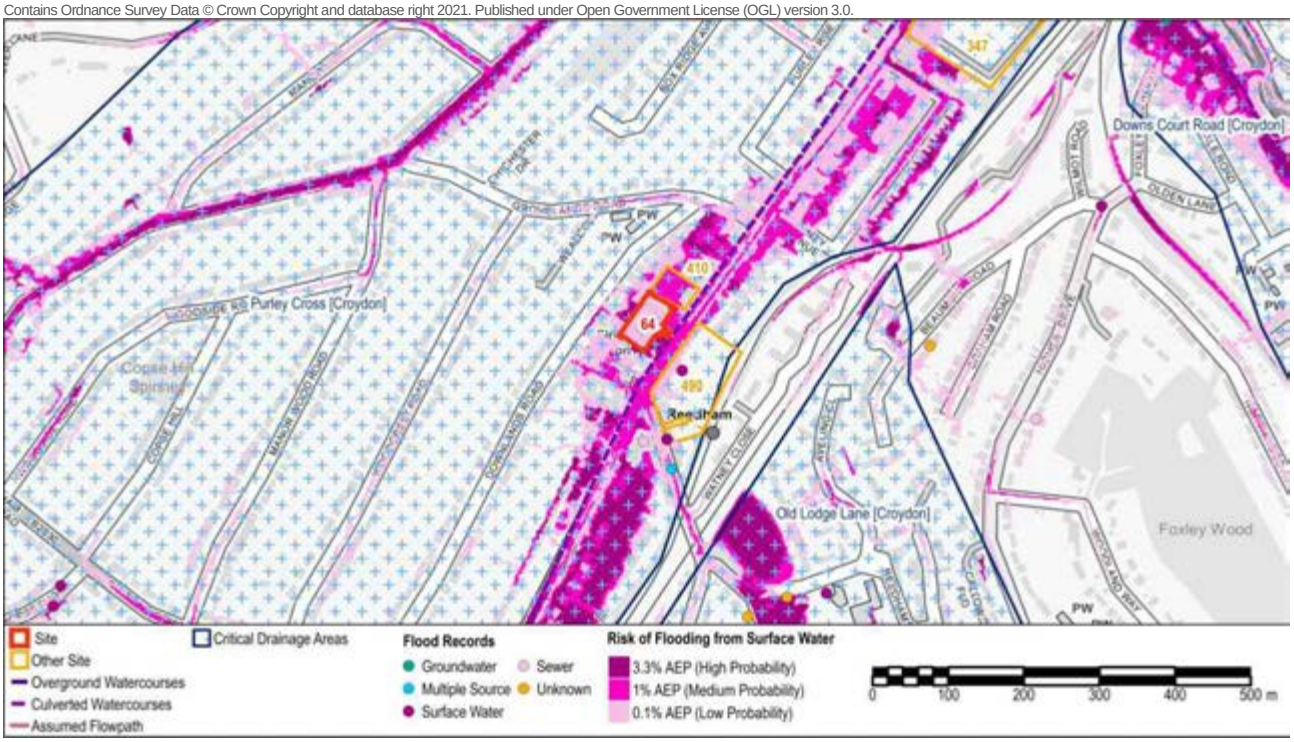


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

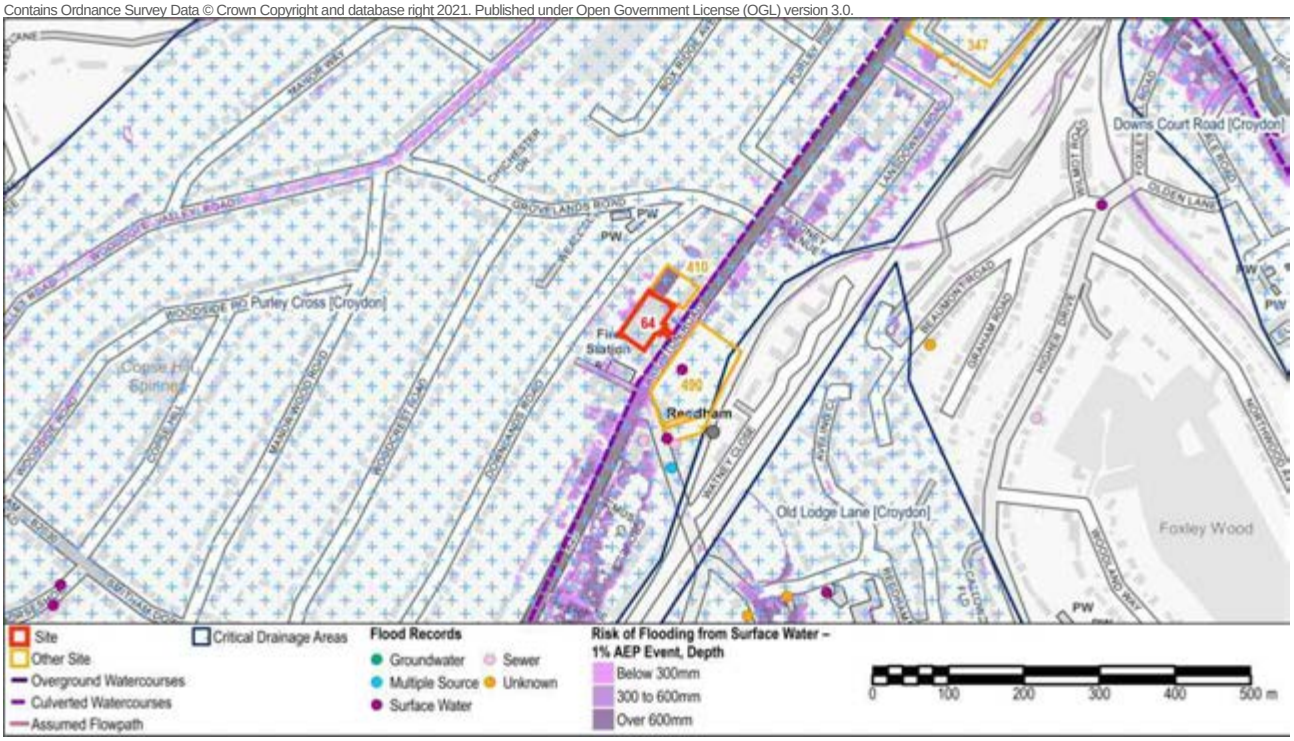


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: 112a and 112b Brighton Road

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

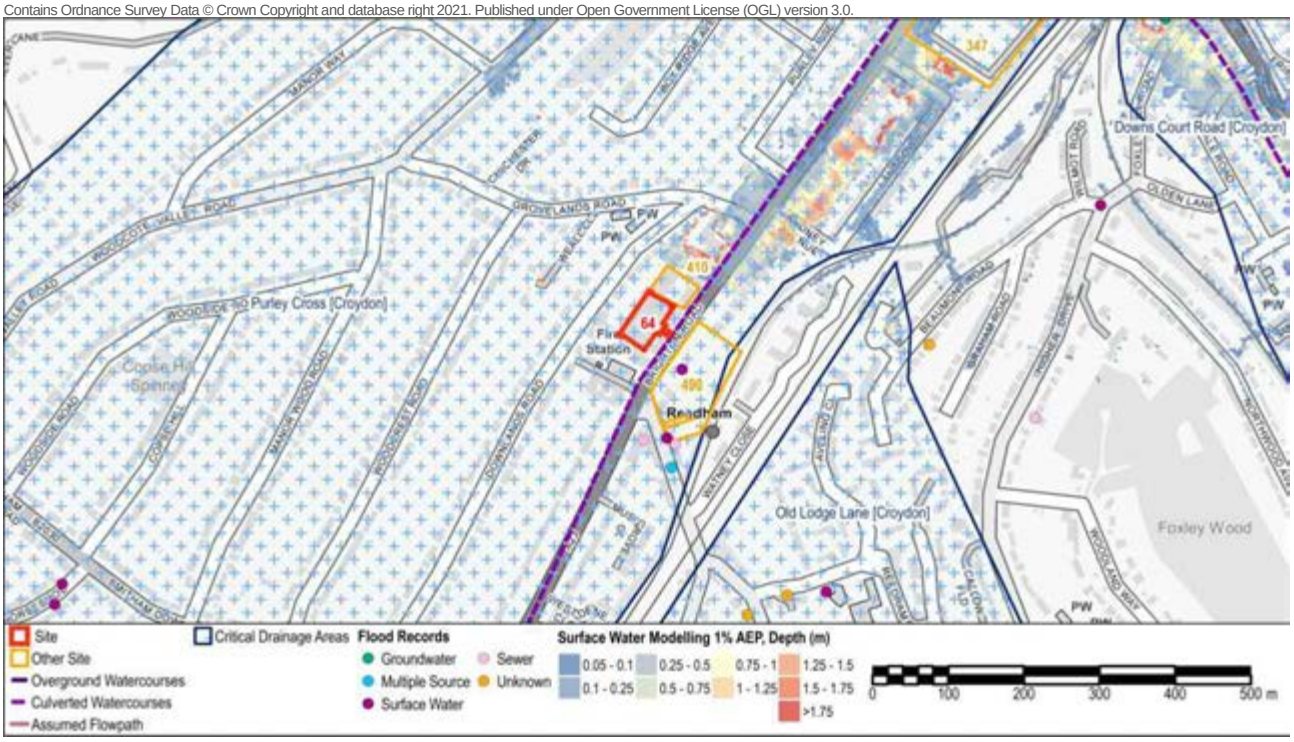


Figure 7 - Surface Water Modelling 1% AEP Flood Depth

Site Name: 112a and 112b Brighton Road

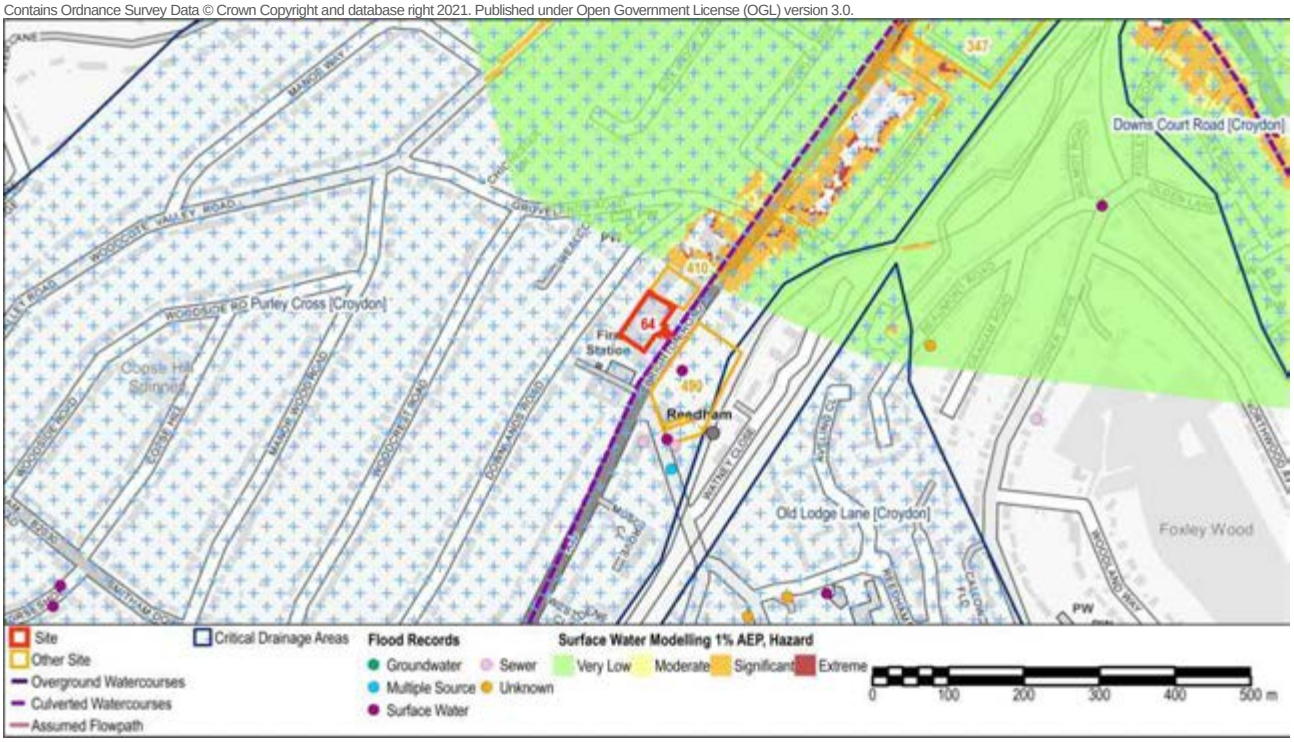


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

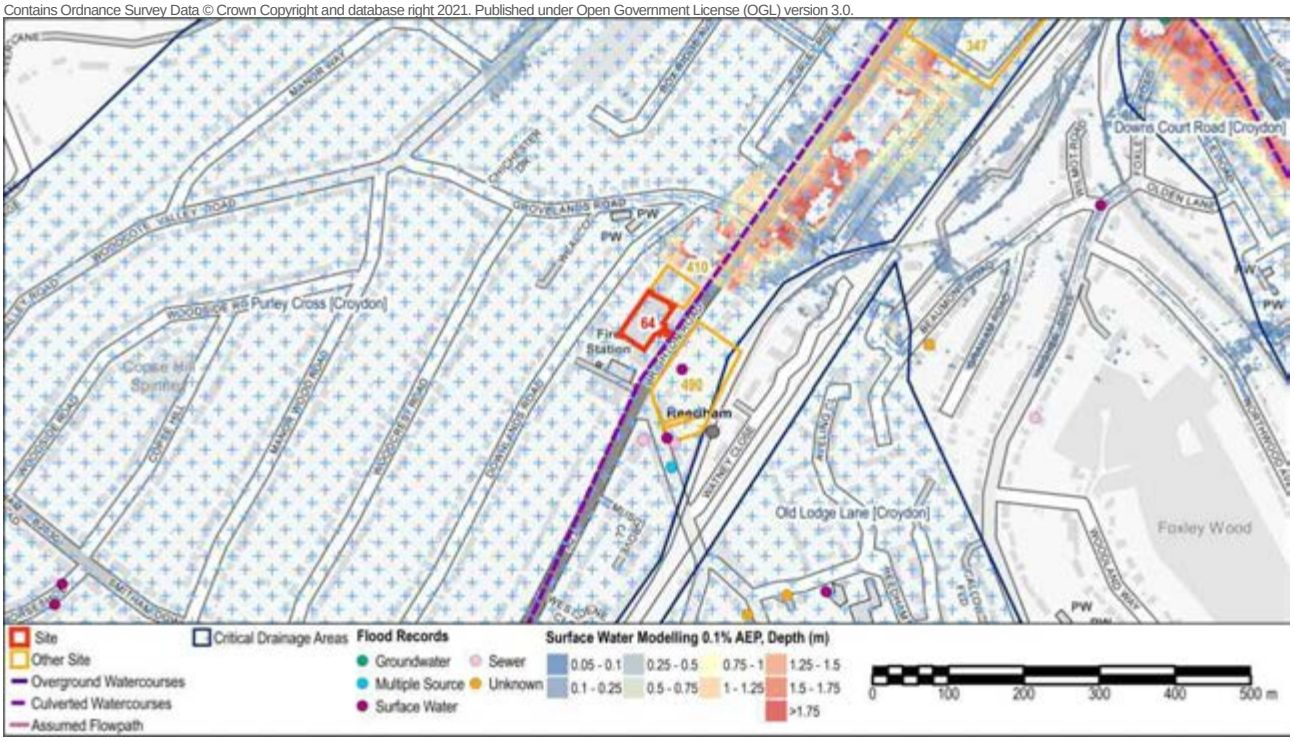


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: 112a and 112b Brighton Road

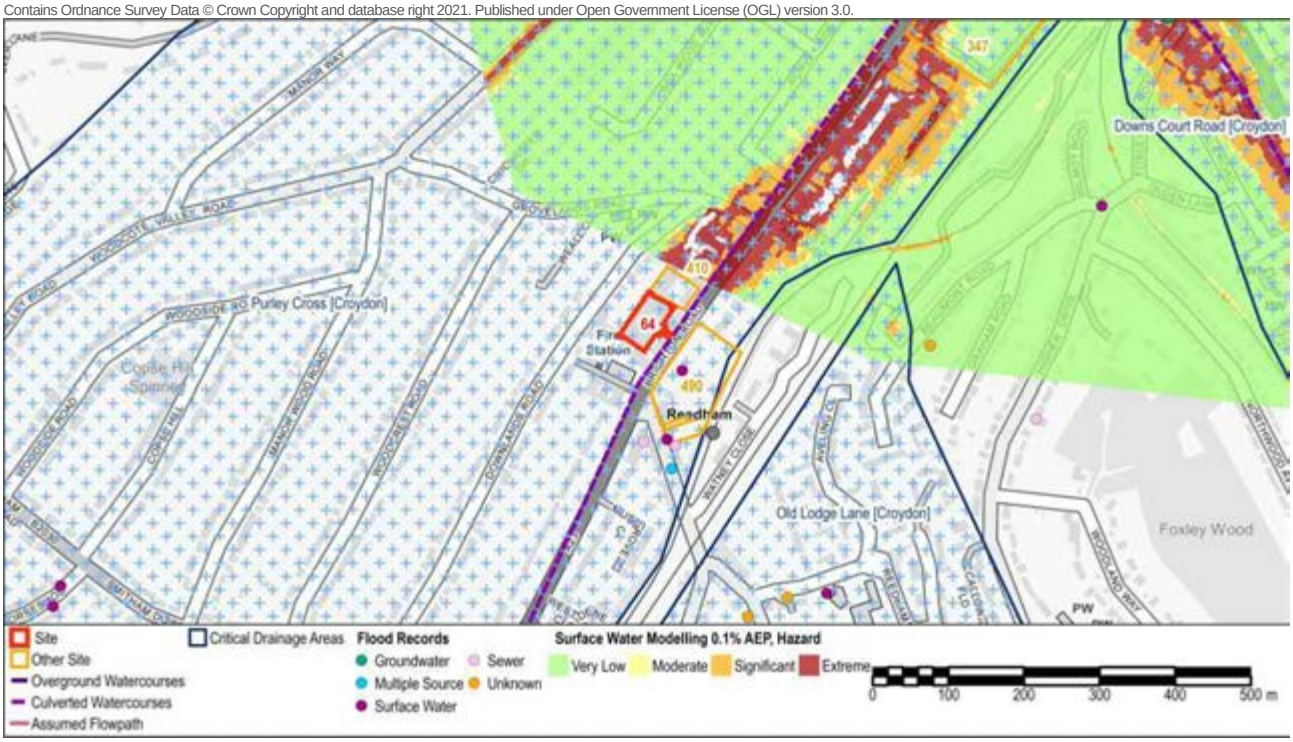


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		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 site is defined as Flood Zone 1, Low probability of river flooding.

The Risk of Flooding from Surface Water mapping identifies the potential for surface water to flow and pond and flow east from Brighton Road adjacent to the site. There are records of surface water flooding in proximity to the site and it is located within a Critical Drainage Area (Group8_040, Purley Cross [Croydon]). There are records of flooding from a range of sources including surface water, sewers, multiple sources and unknown sources within 500m of the site.

The surface water modelling completed by Arcadis (July 2020) does not extend south to cover the site. However, it does show that the risk associated with the flow paths in this area and along Brighton Road have hazard ratings of Significant and Extreme during the 1% AEP and 0.1% AEP events.

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- Planning for the site 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 in collaboration with other plots within the area.
- 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 set 600mm above ground levels.
- 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 access routes for the site are at risk of flooding with a Significant or Extreme hazard rating during the 1% and 0.1% AEP events. Development proposals 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 in the local area (Figure 9).
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response.

Site Name: 112a and 112b Brighton Road

- 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 on the site.

Site Name: The Forestdale Centre

Site ID:	85	**Area (ha):**	0.94
Proposed Use:	Residential incorporating a new shopping parade with retail, finance, and food & drink.	**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%

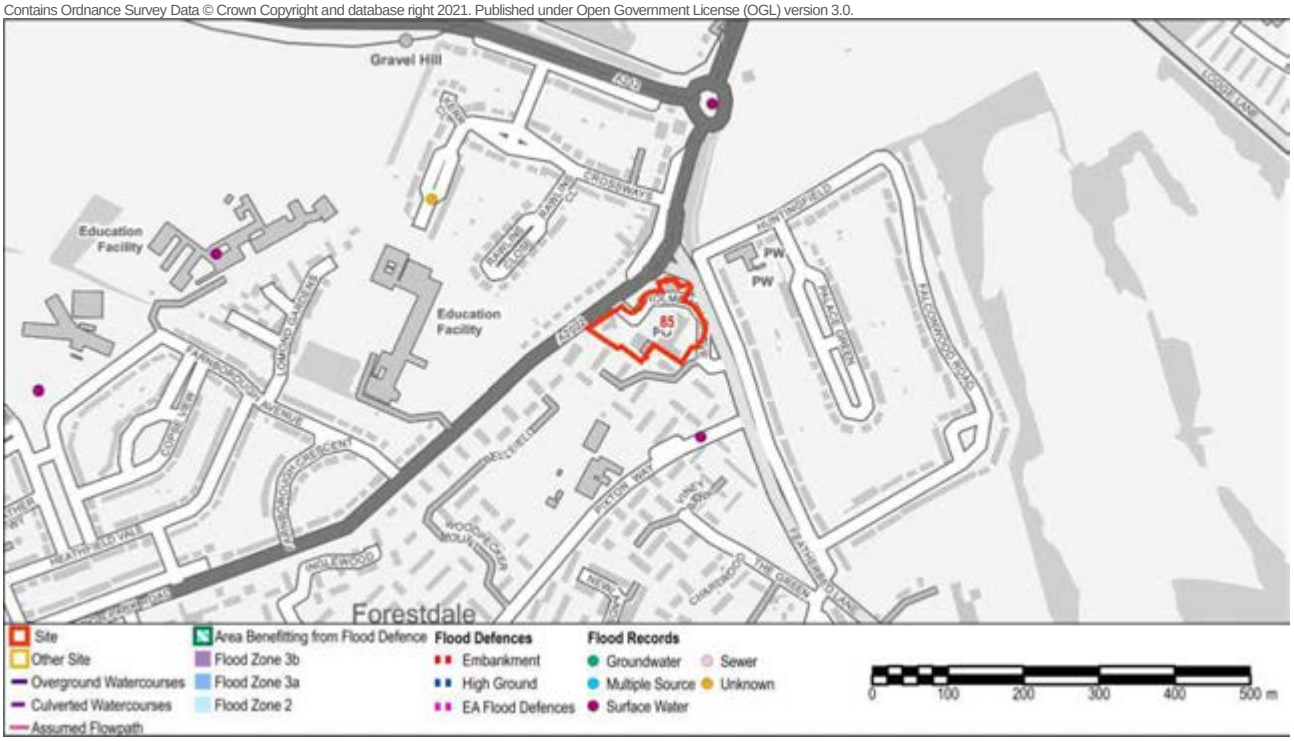


Figure 1 - Flood Zones and Flood Records

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

River Flooding

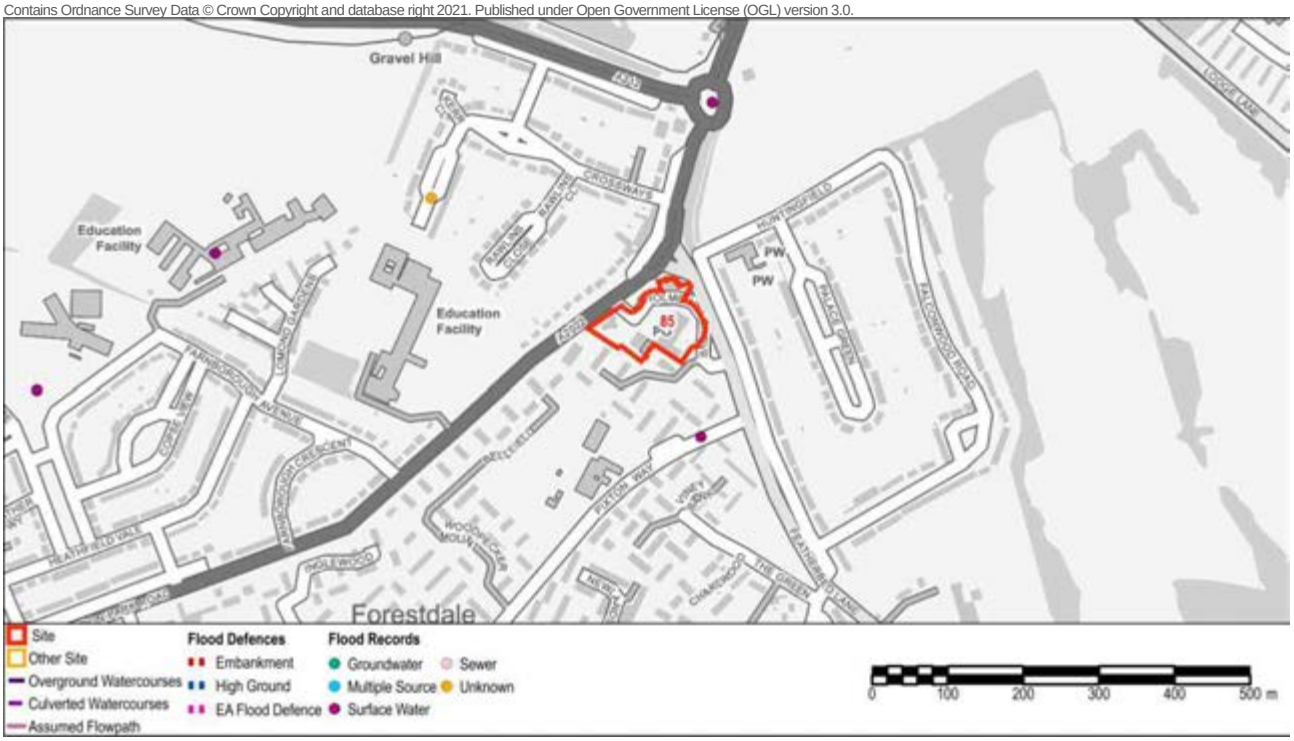


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Refer to the London Borough of Croydon Level 1 and Level 2 SFRA Reports for full details and limitations of the datasets used in this site assessment.

Site Name: The Forestdale Centre

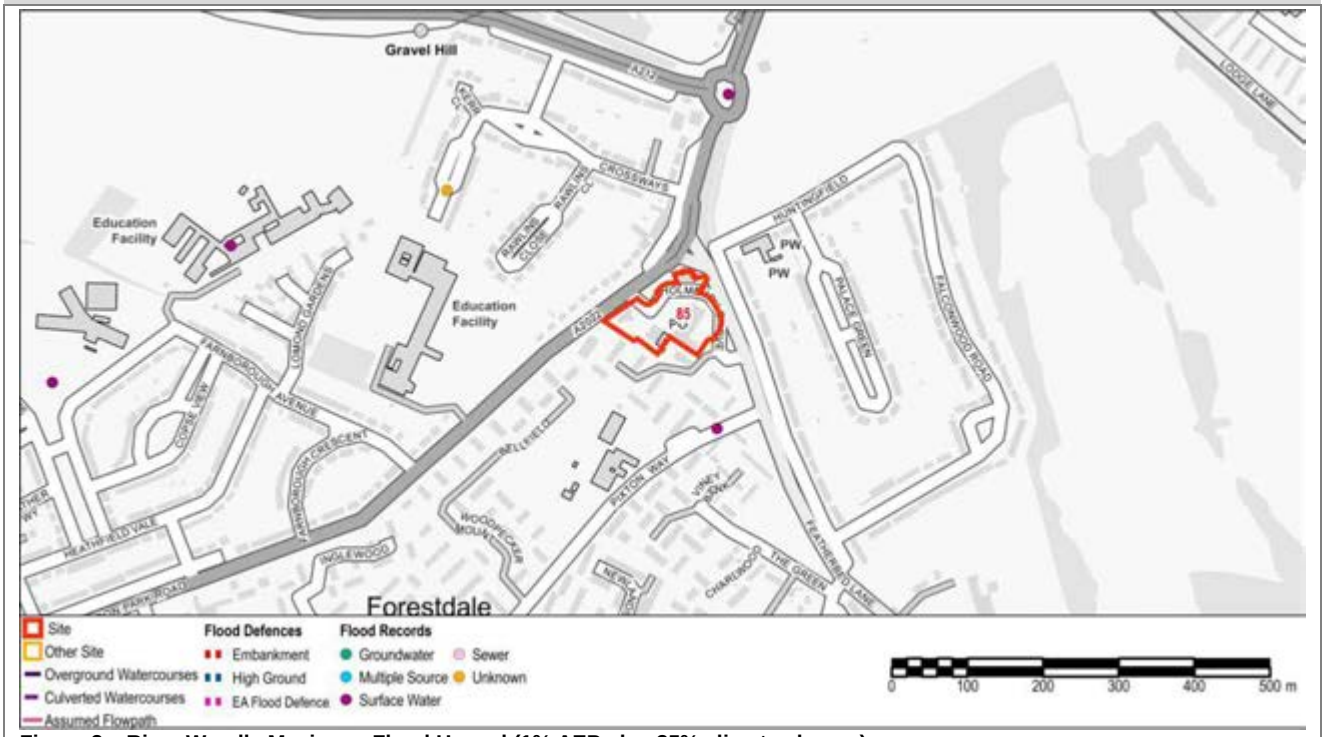


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

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

Site Name: The Forestdale Centre

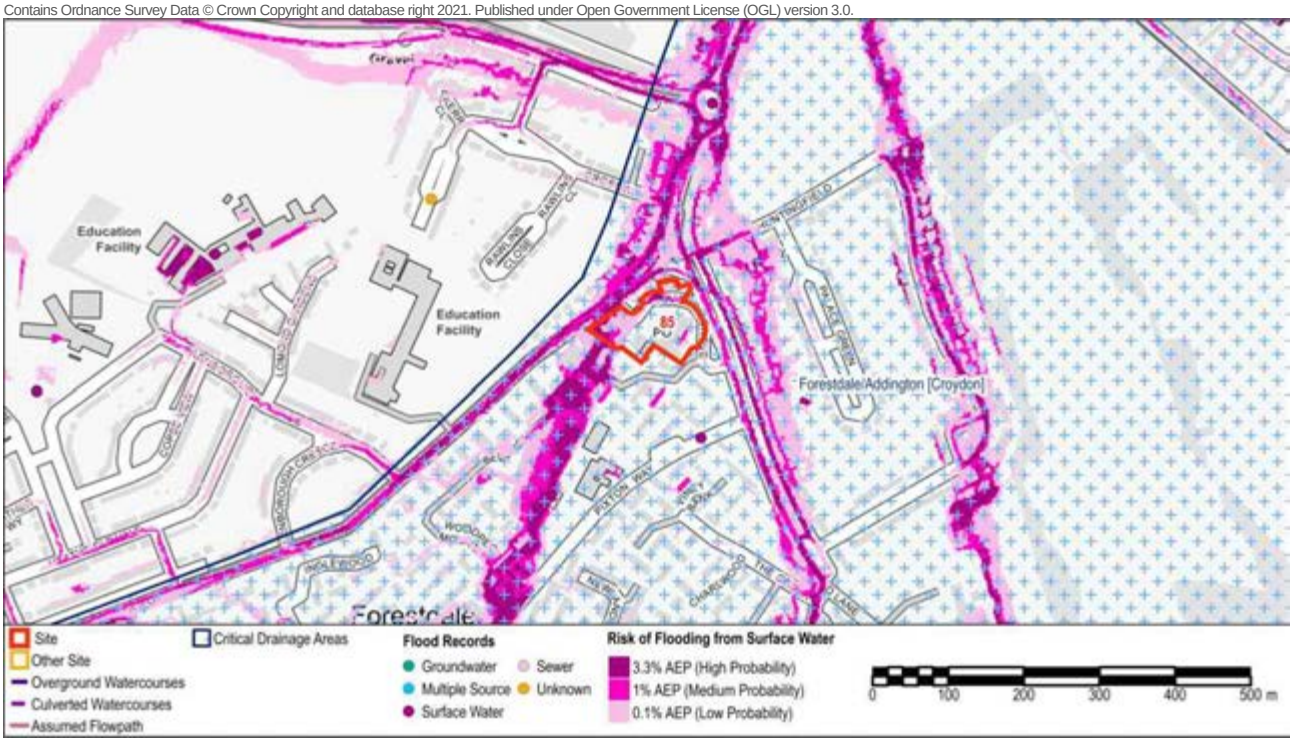


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

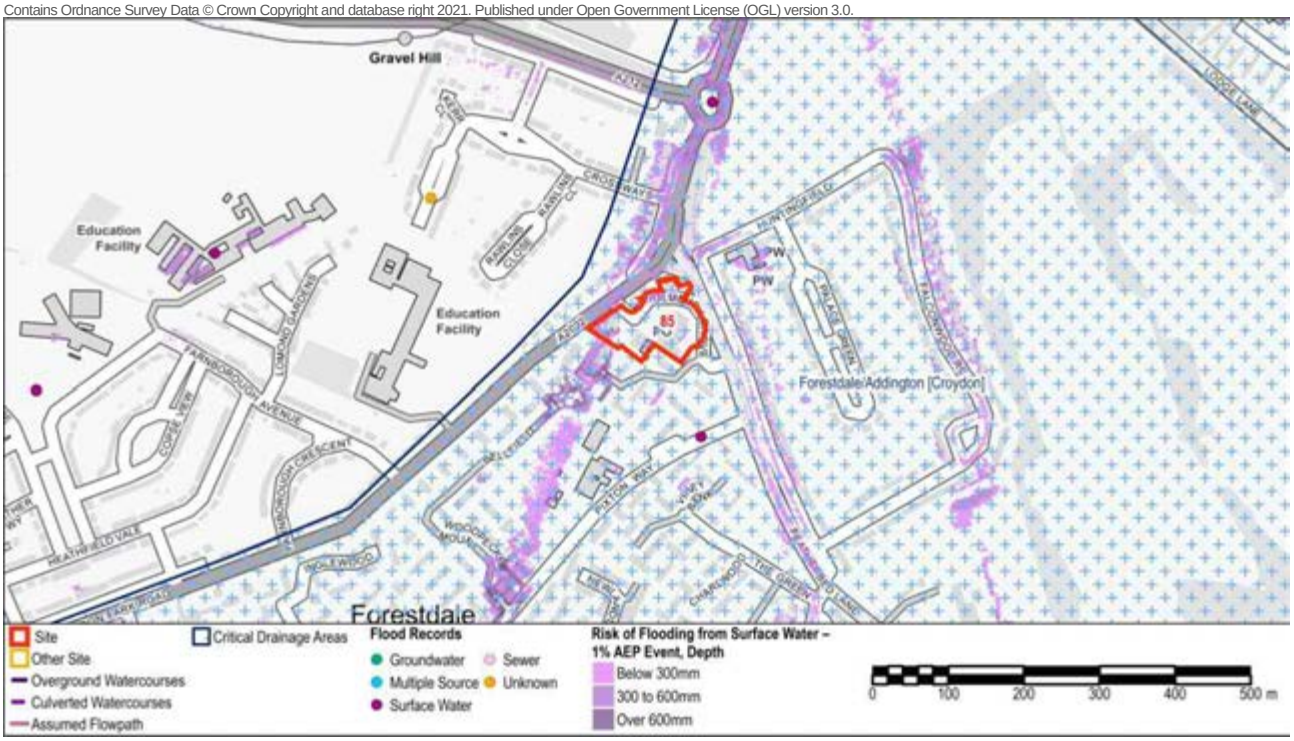


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: The Forestdale Centre

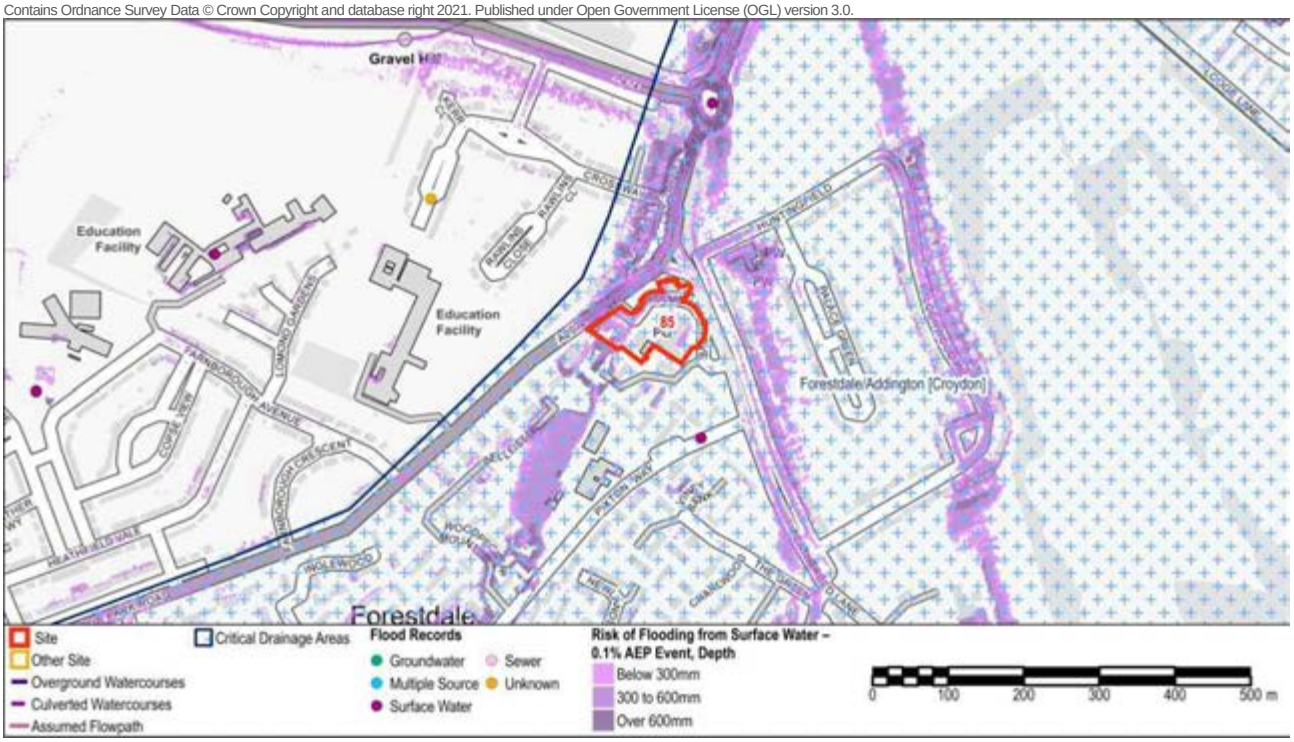


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

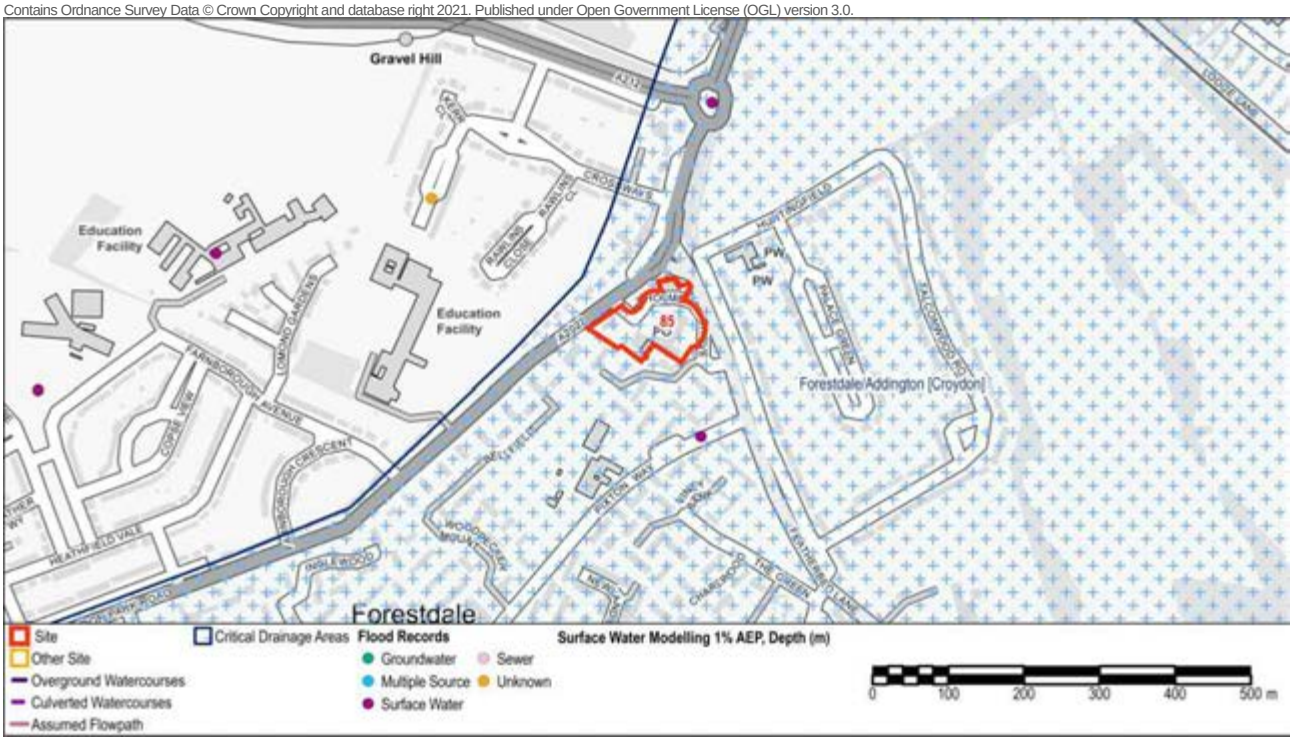


Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: The Forestdale Centre

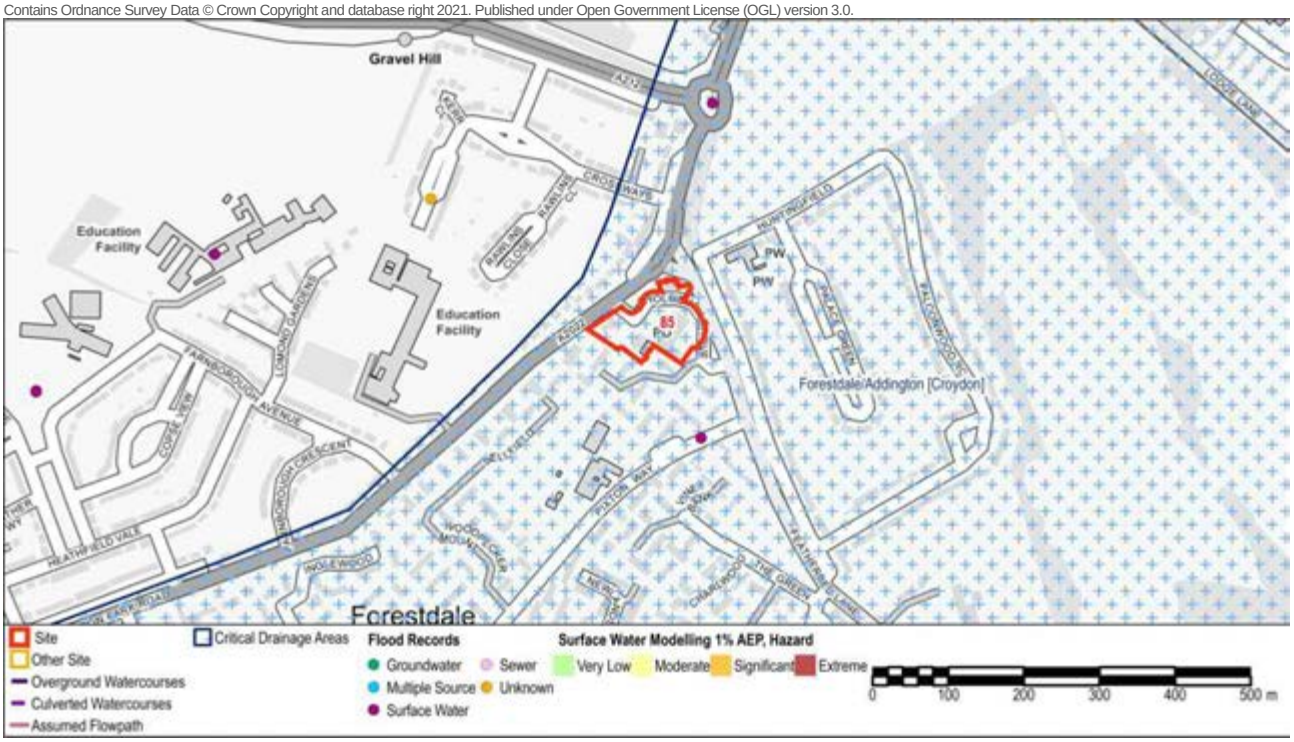


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

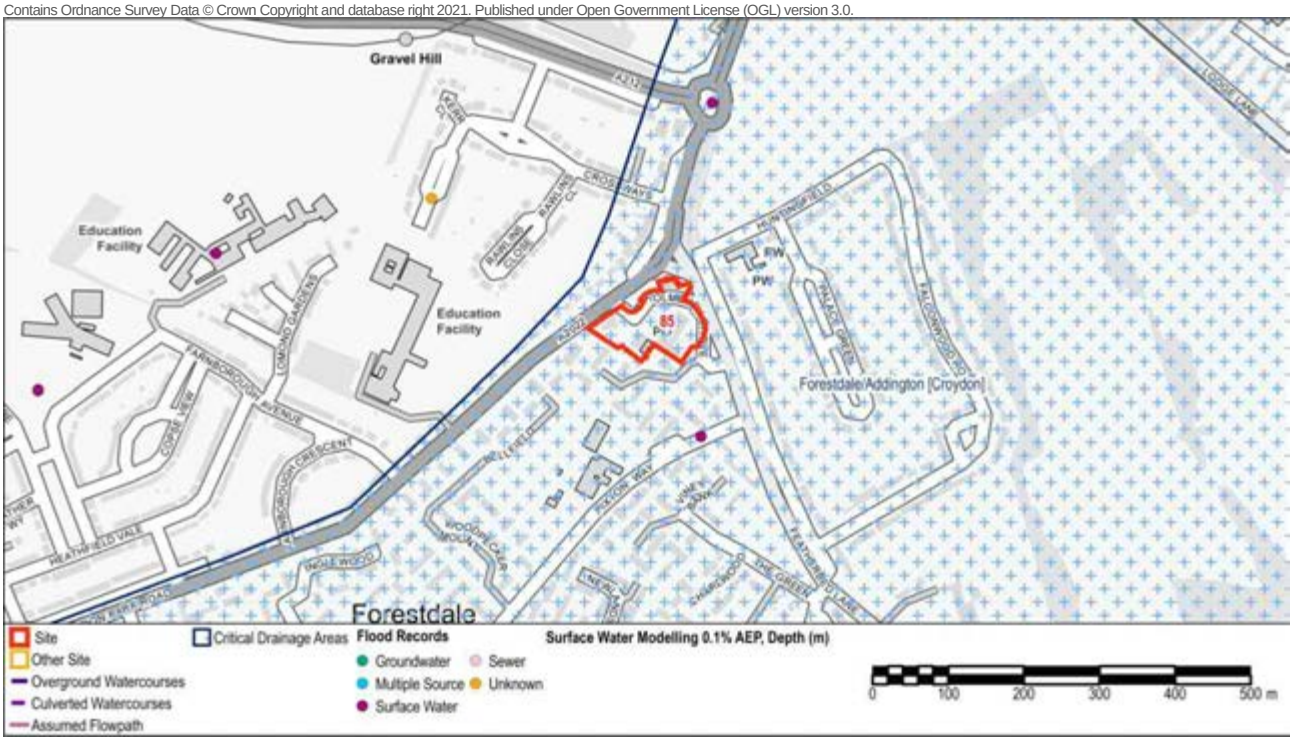


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: The Forestdale Centre

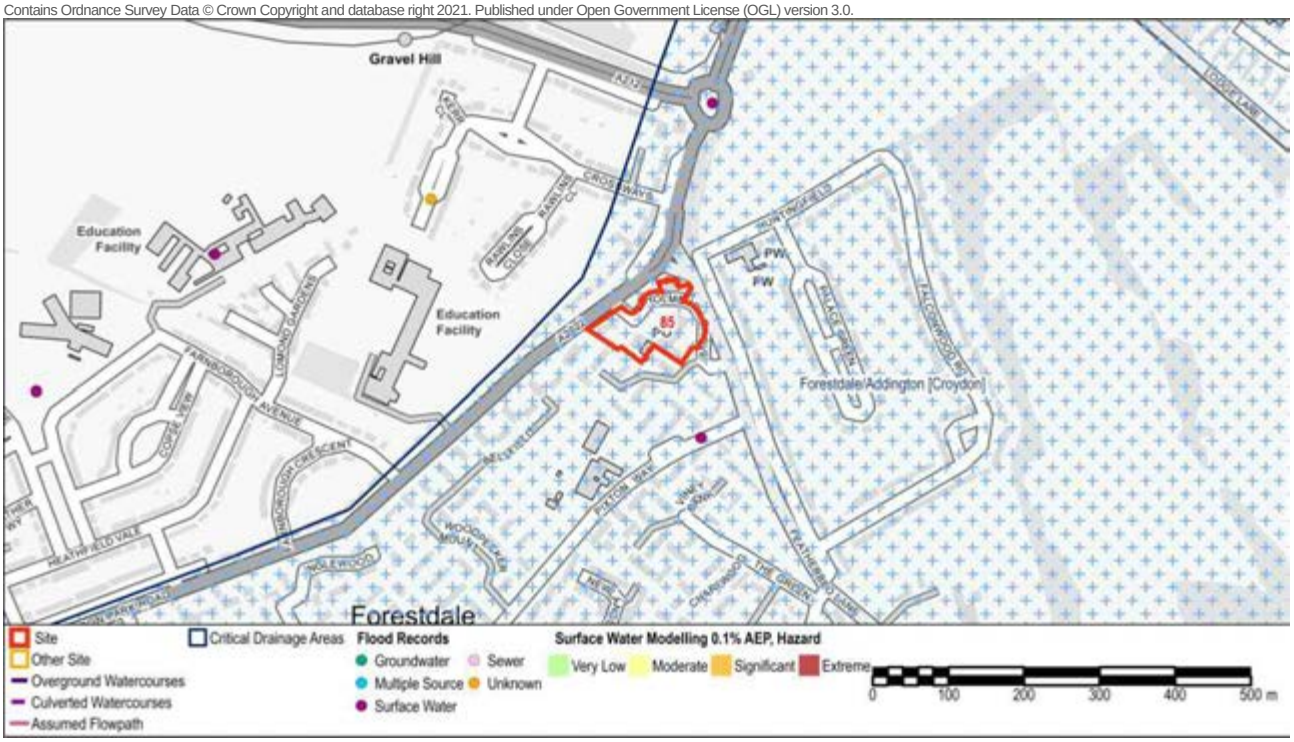


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

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

The site is defined as Flood Zone 1, Low probability of river flooding.

The Risk of Flooding from Surface Water mapping identifies the potential for surface water to flow from south through the western part of the site and along Holmbury Grove.

There are records of surface water flooding in proximity to the site and it is located within a Critical Drainage Area (Group8_045, Forestdale/Addington [Croydon]).
There are records of flooding from a range of sources including surface water, groundwater and unknown sources within 500m of the site.

The site is not covered by the surface water modelling undertaken by Arcadis (July 2020).

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- A sequential approach should be applied within the site, steering development towards those areas at lower risk of surface water flooding before consideration of areas at greater risk.
- Planning for the site 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 in collaboration with other plots within the area.
- 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 set 600mm above the ground levels.
- 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.
- The Risk of Flooding from Surface Water mapping shows the risk of flooding along the access routes to the site. Development proposals should consider how safe access/egress can be provided. 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 or above.

Site Name: The Forestdale Centre

- 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 on the site.

Site Name: CACFO, 40 Northwood Road

Site ID:	106	**Area (ha):**	0.15
Proposed Use:	Residential and community use (to retain equivalent floor space or functionality of the community 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%

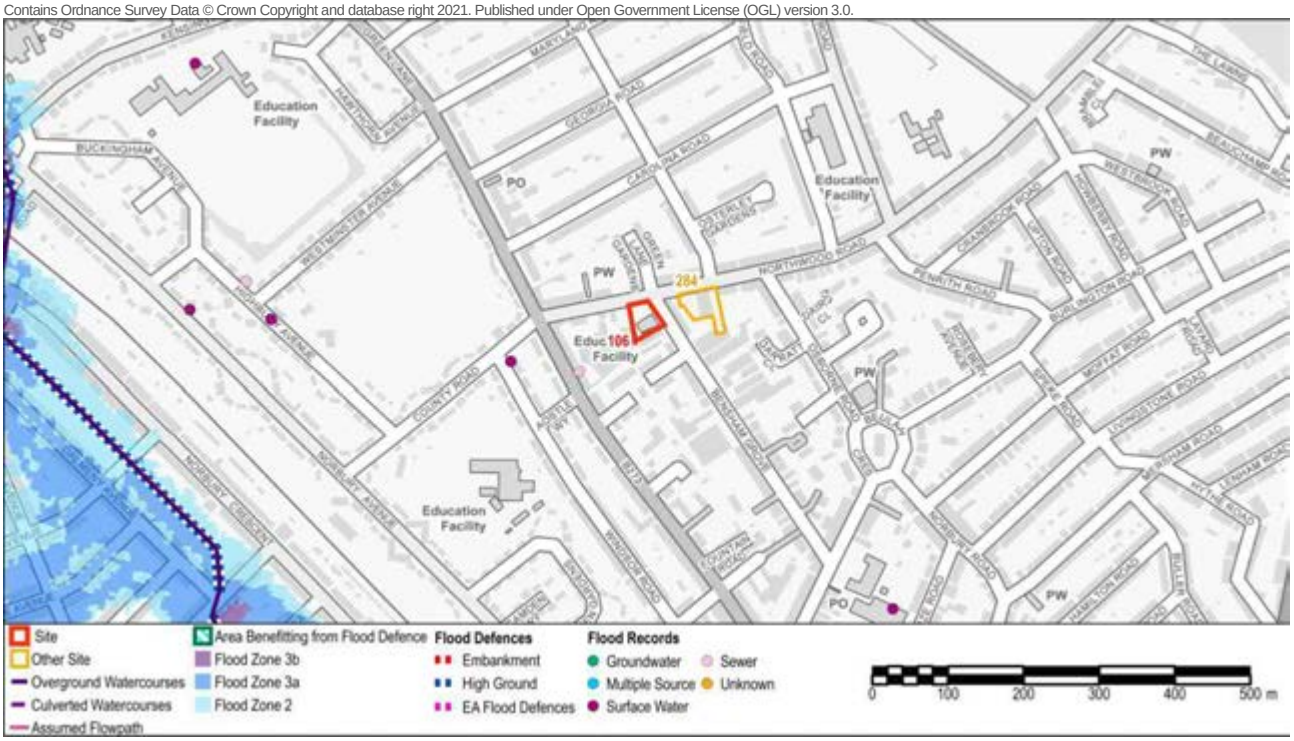


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 4; Groundwater 0; Sewer 1; Multiple source 0; Unknown source 0

River Flooding

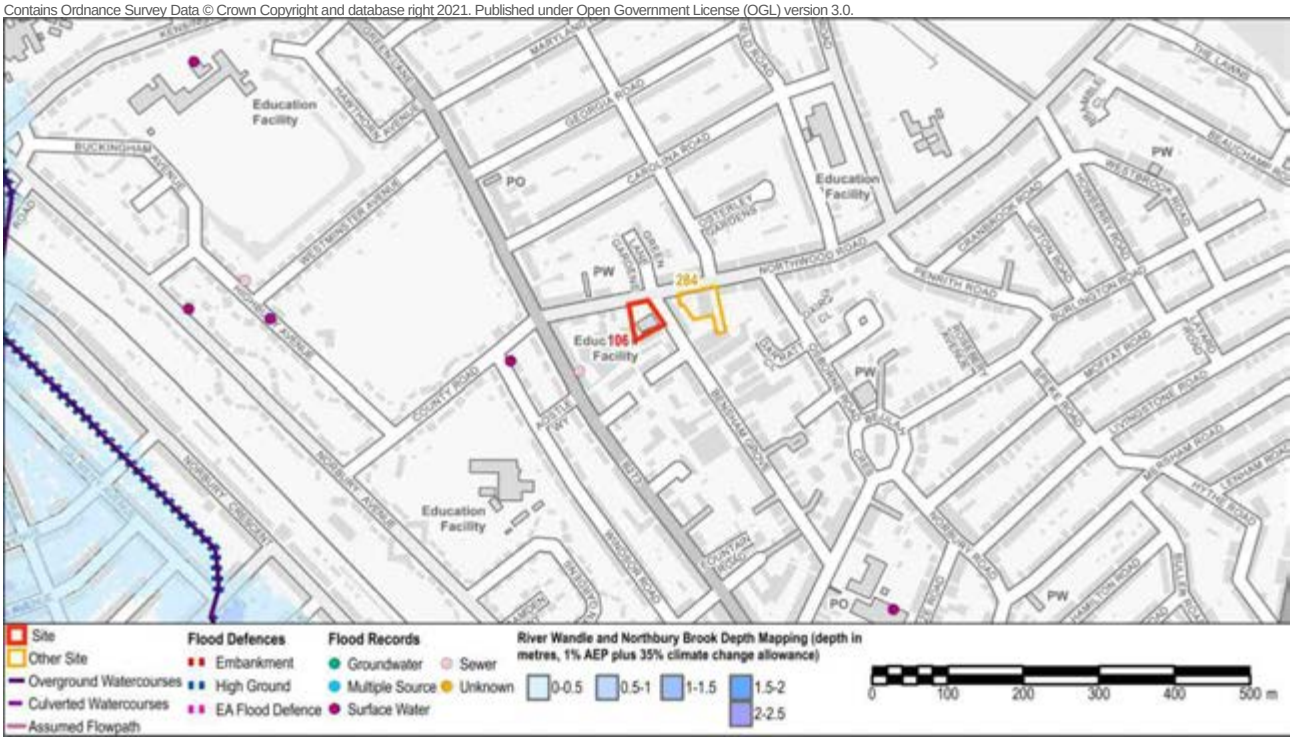


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change)

Refer to the London Borough of Croydon Level 1 and Level 2 SFRA Reports for full details and limitations of the datasets used in this site assessment.

Site Name: CACFO, 40 Northwood Road

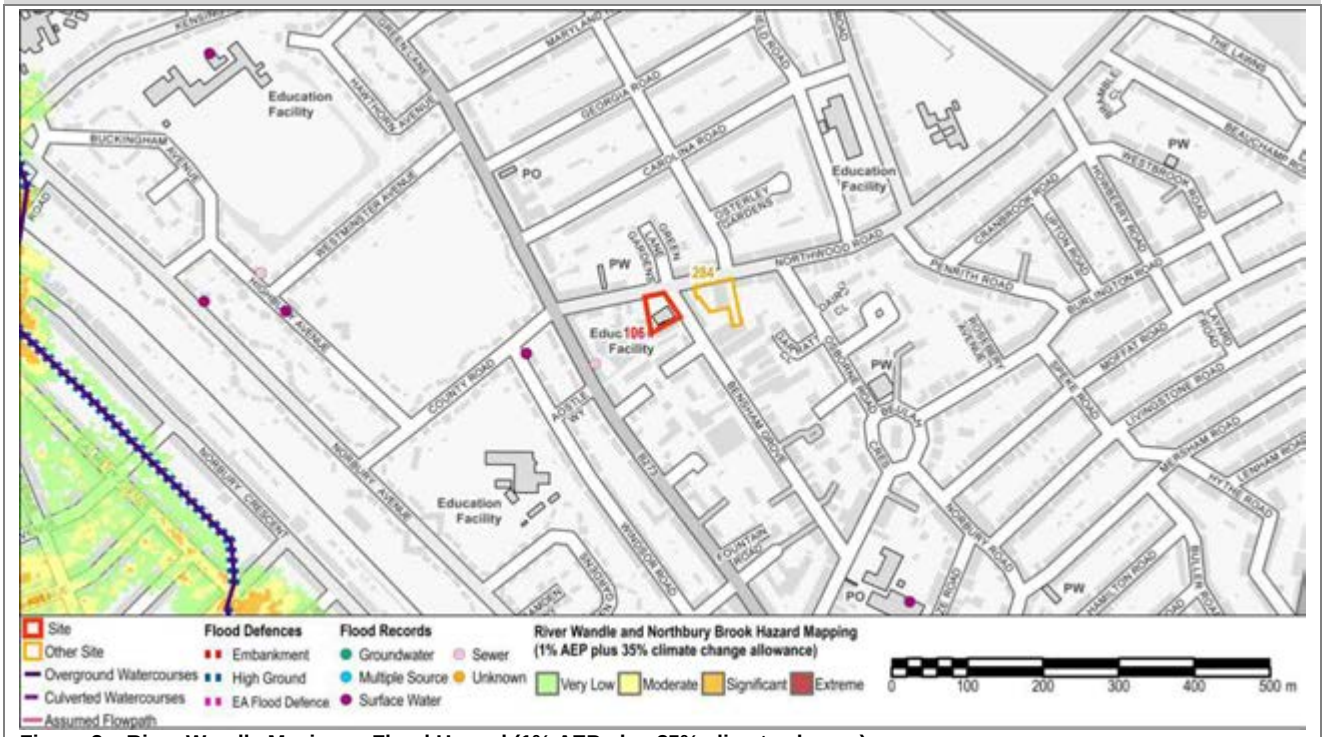


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change)

Surface Water Flooding	
Critical Drainage Area	Group8_049 - Norbury [Croydon]
Drainage Catchment	DC22

Site Name: CACFO, 40 Northwood Road

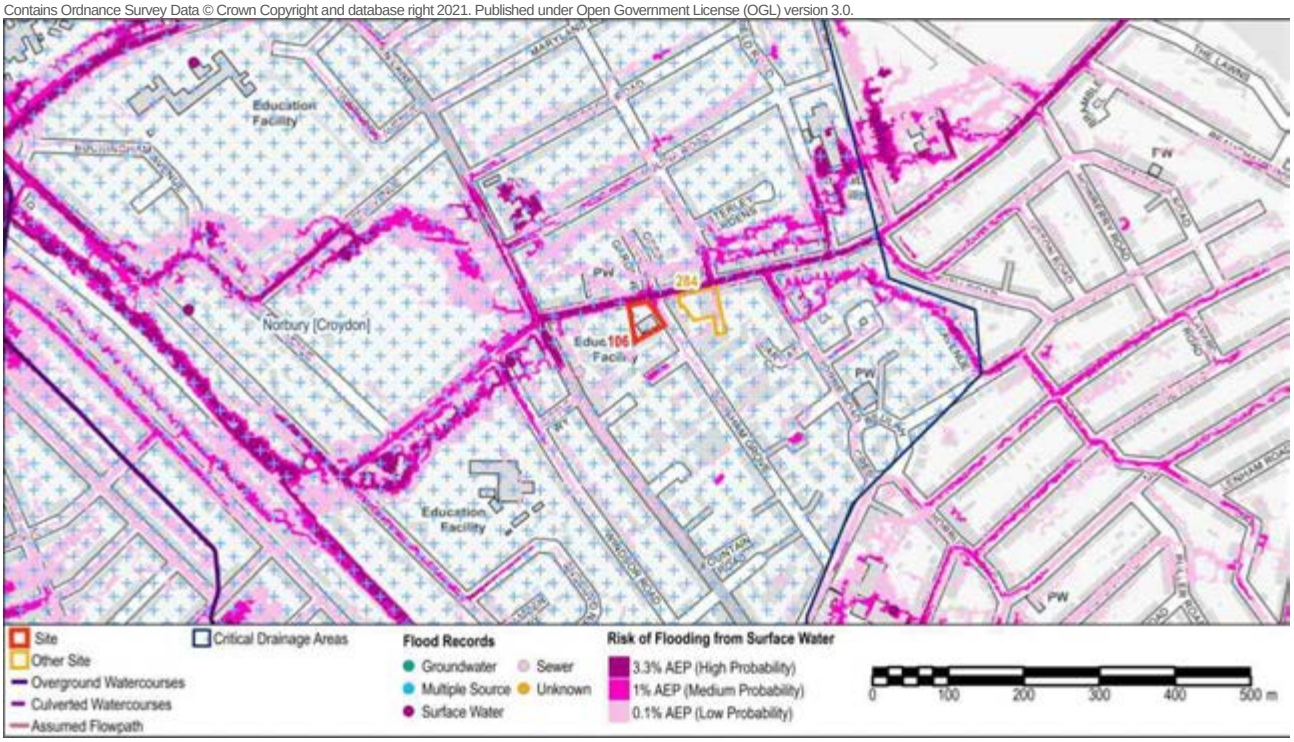


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

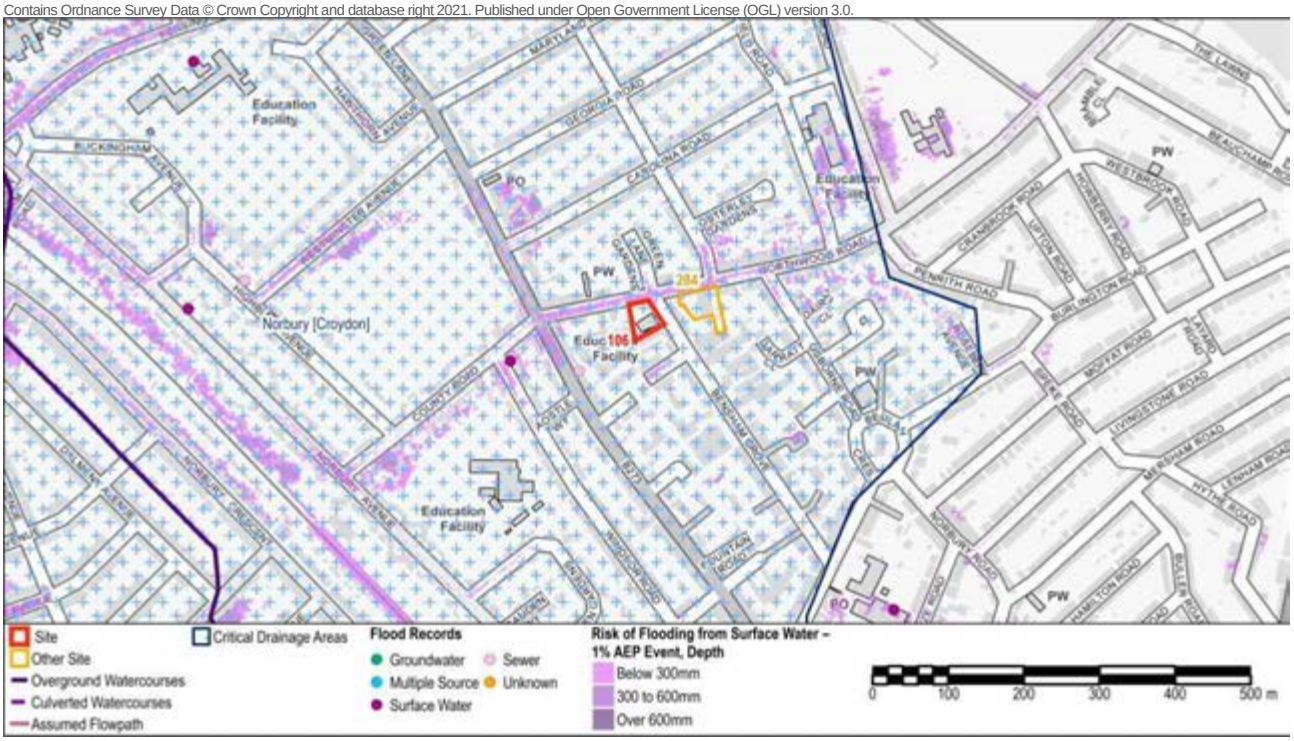


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: CACFO, 40 Northwood Road

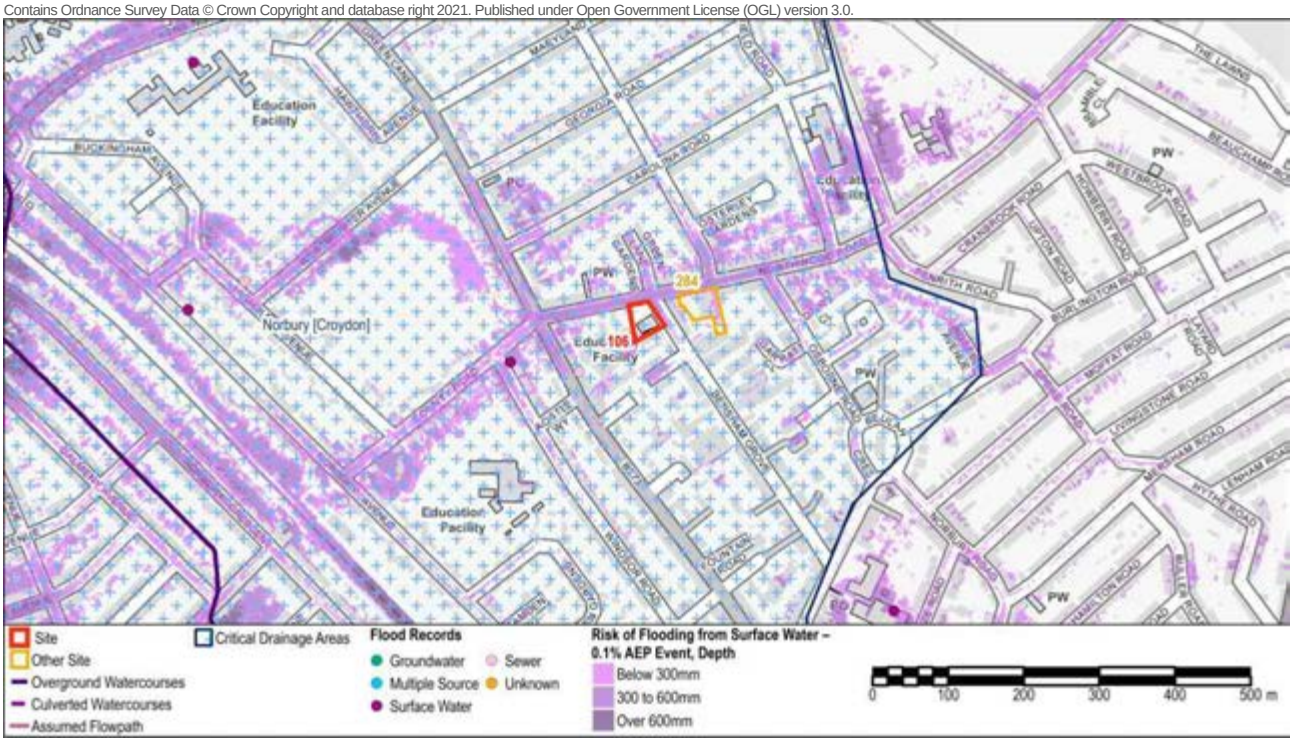


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

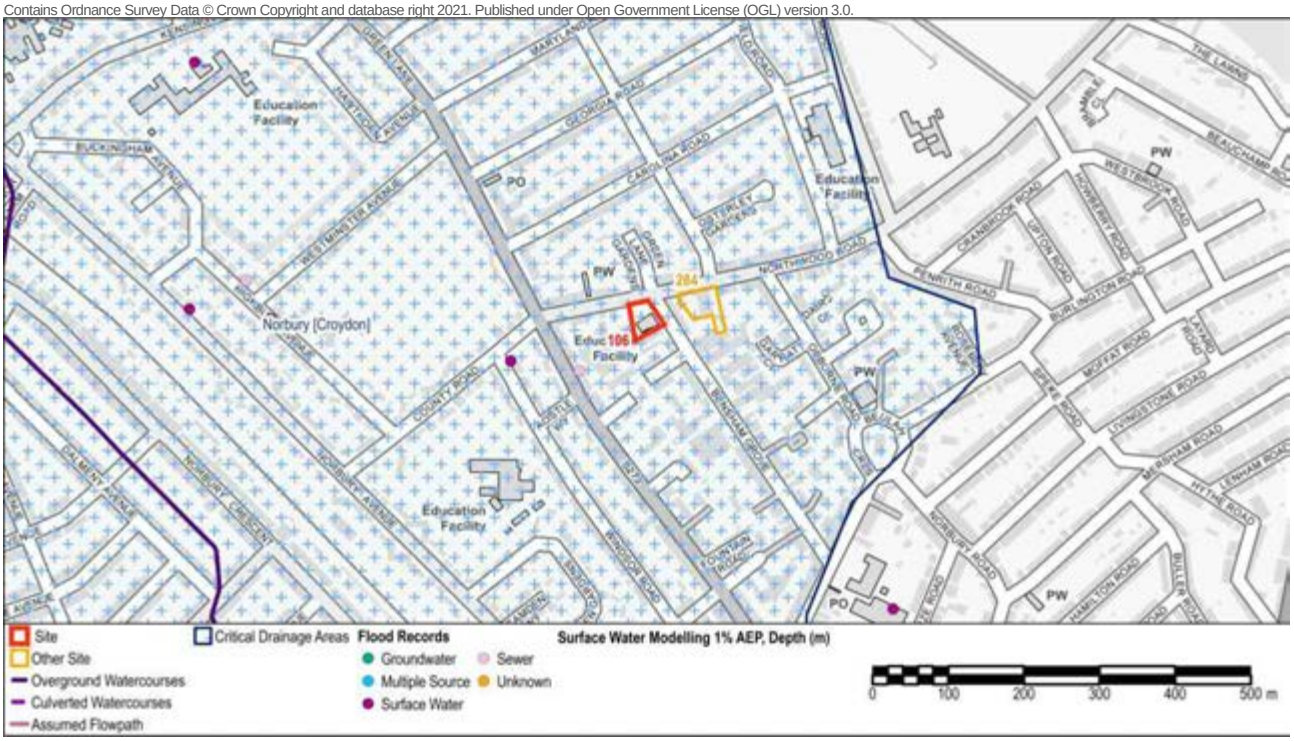


Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: CACFO, 40 Northwood Road

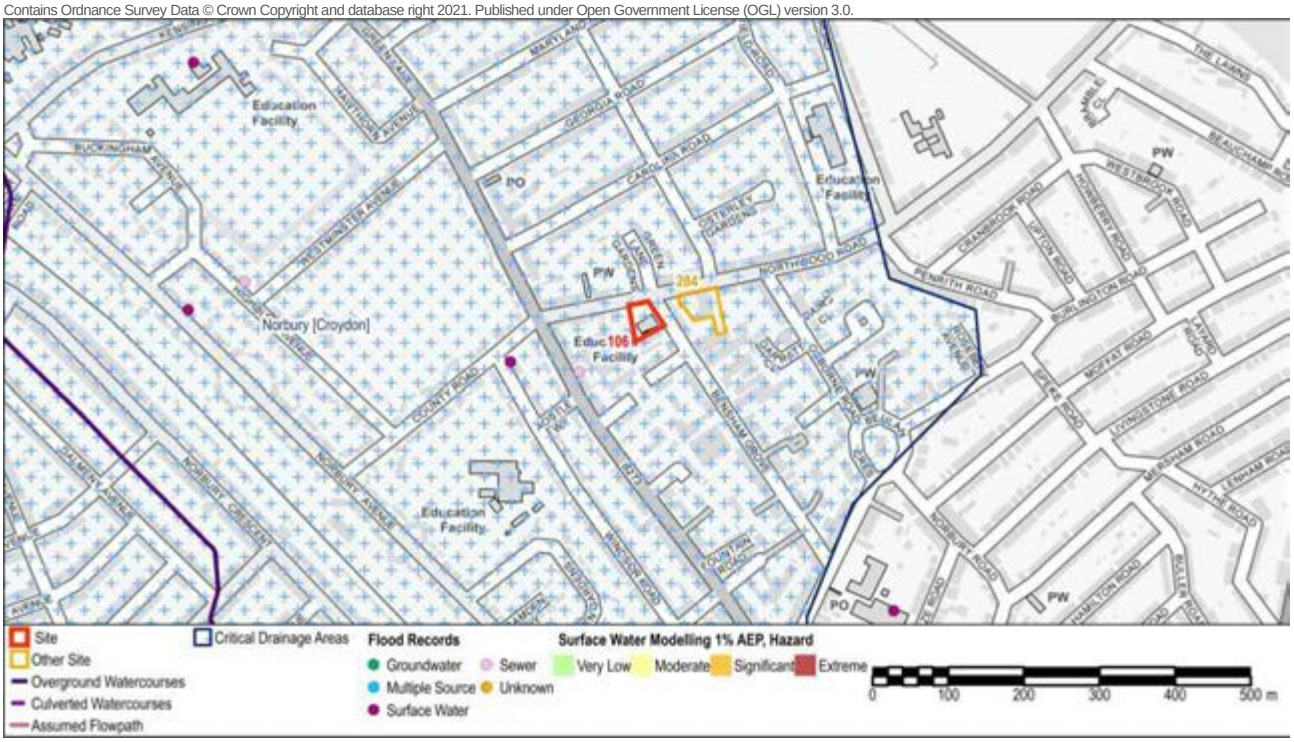


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

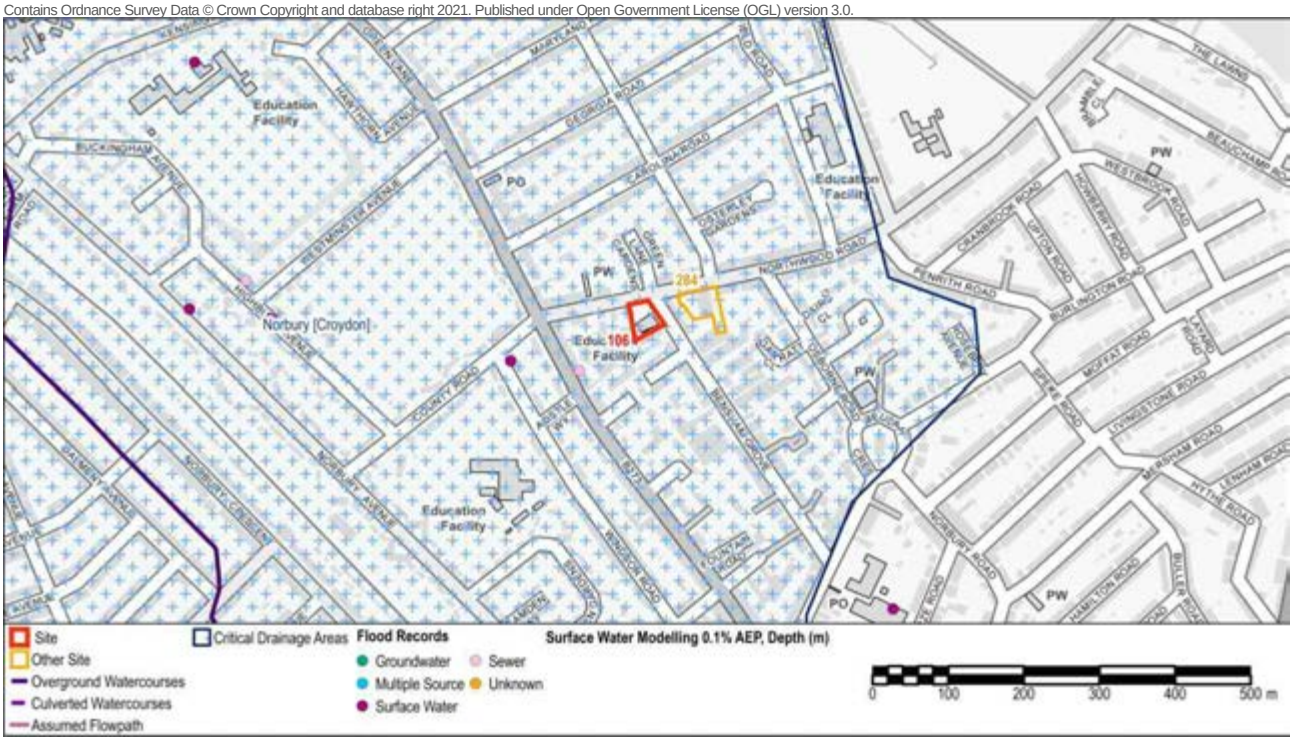


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: CACFO, 40 Northwood Road

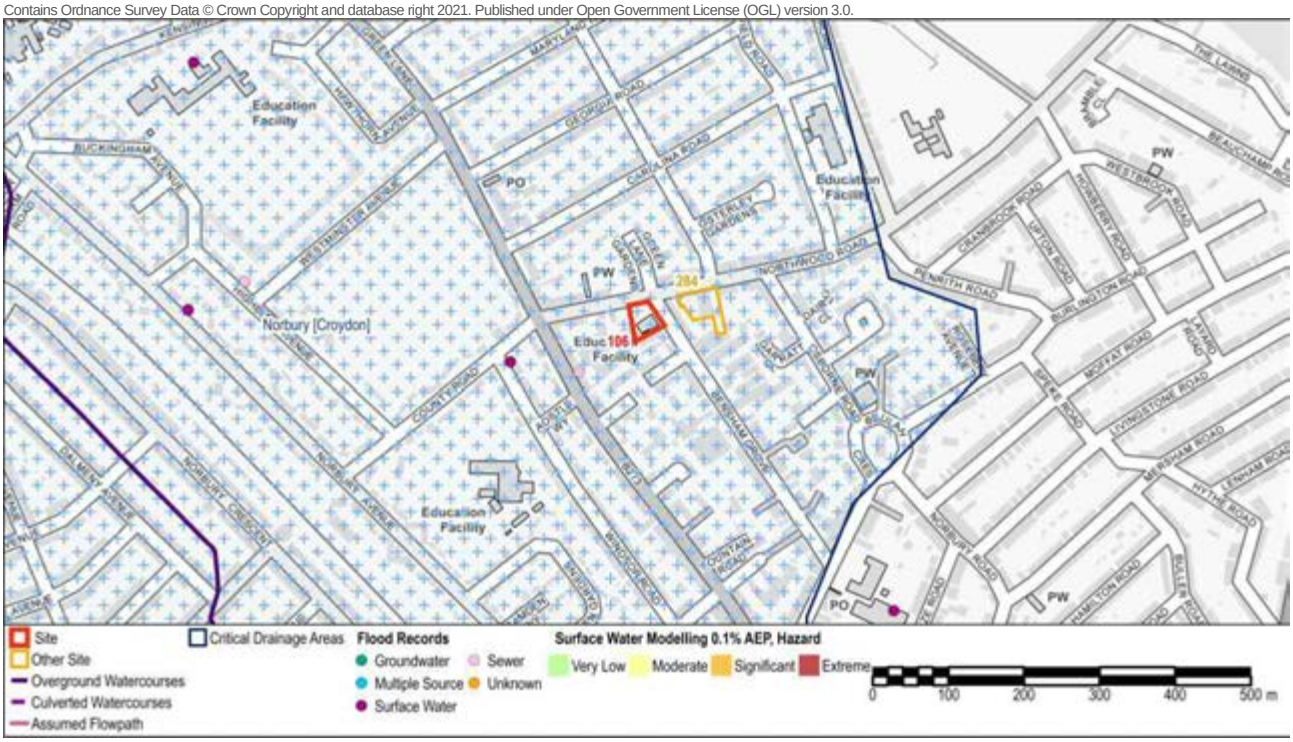


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

Groundwater Flooding			
Bedrock Geology	Thames Group	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		No	
Susceptibility to Groundwater Flooding (BGS)		None	

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 site is defined as Flood Zone 1, Low probability of river flooding.
The Risk of Flooding from Surface Water mapping identifies the potential for surface water to flow and pond on Northwood Road along the northern edge of the site.
There are records of surface water flooding in proximity to the site and it is located within the Norbury Critical Drainage Area (CDA).
The site is not covered by the surface water modelling undertaken by Arcadis (July 2020).

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- Planning for the site 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 in collaboration with other plots within the area.
- 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 set 600mm above the ground level.
- 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.
- The Risk of Flooding from Surface Water mapping shows the risk of flooding along the access routes to the site. Development proposals should consider how safe access/egress can be provided. 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 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.
- The risk of groundwater flooding and groundwater levels should be further assessed as part of a Site Investigation for specific development proposals on the site.

Site Name: Prospect West and car park to the rear of, 81-85 Station Road

Site ID:	123	**Area (ha):**	0.61
Proposed Use:	Residential (with healthcare facility if required by NHS).	**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%

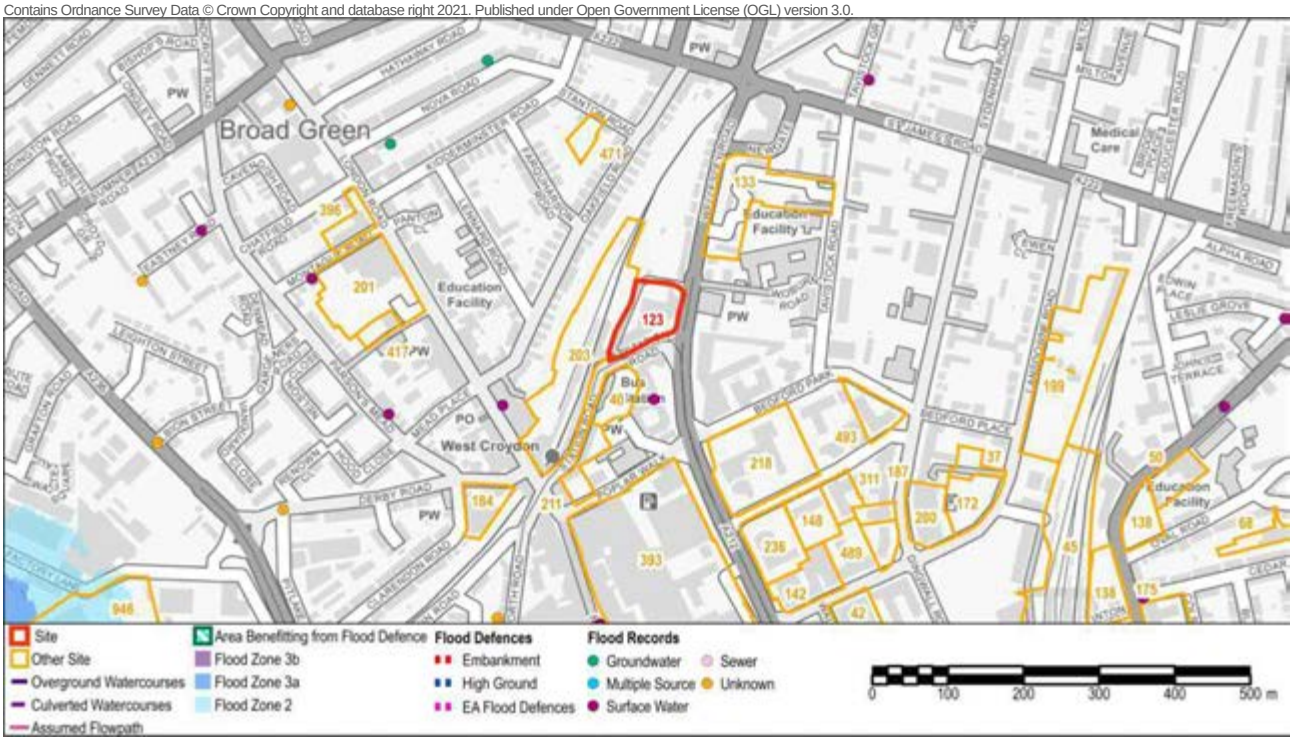


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 6; Groundwater 2; Sewer 1; Multiple source 0; Unknown source 2

River Flooding

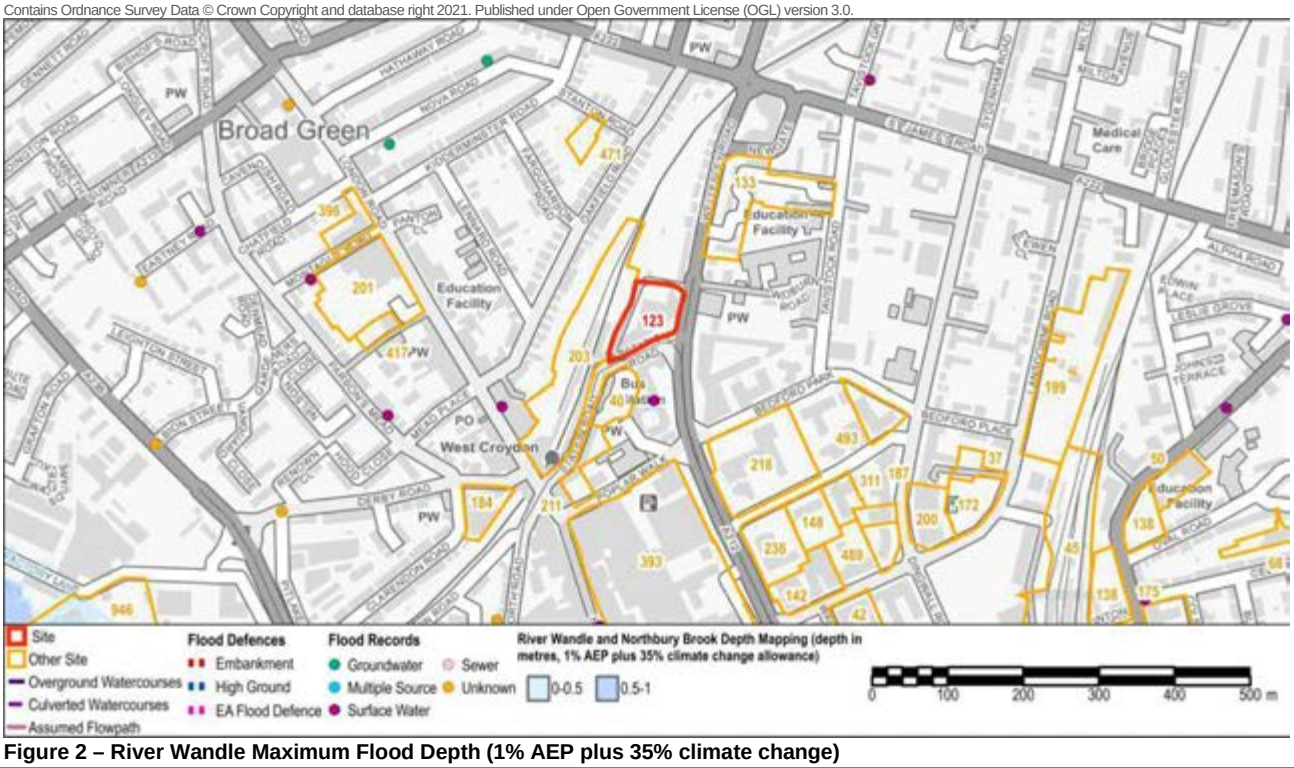


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change)

Site Name: Prospect West and car park to the rear of, 81-85 Station Road

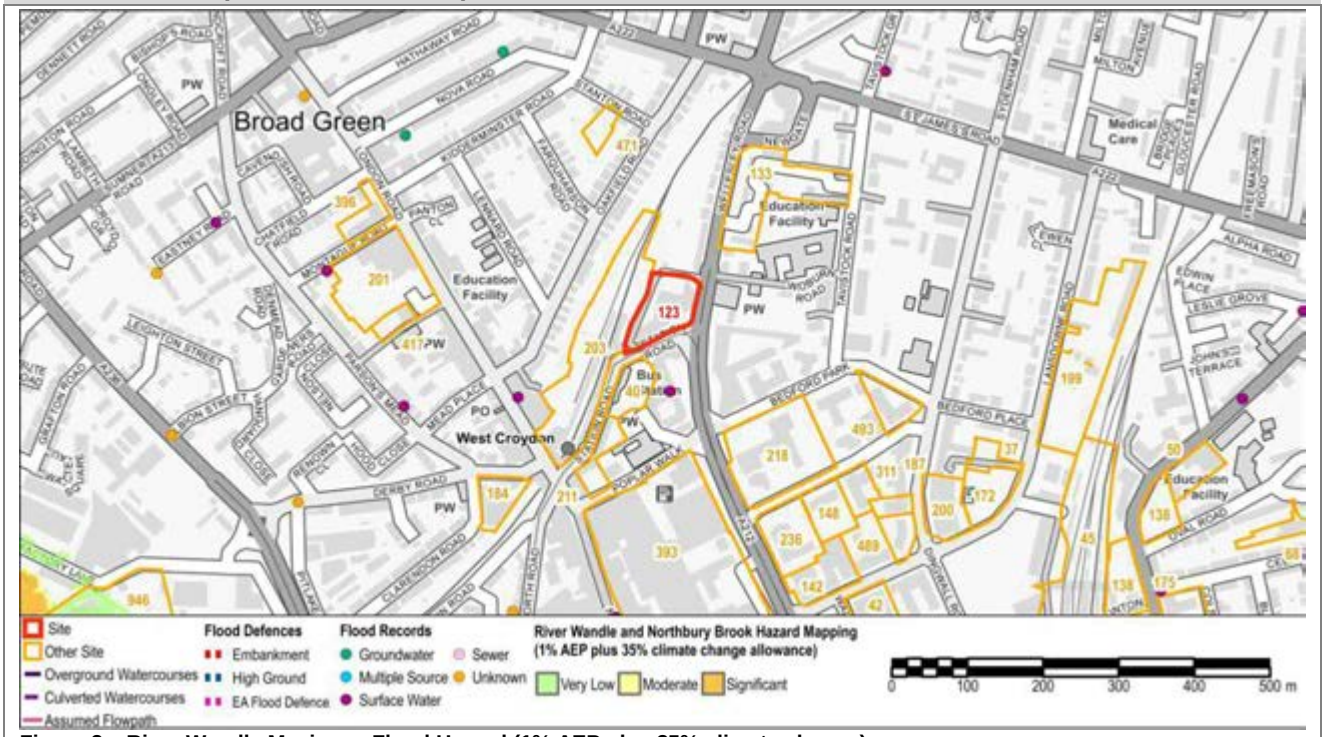


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change)

Surface Water Flooding	
Critical Drainage Area	Group8_042 - South & Central Croydon [Croydon]
Drainage Catchment	DC38

Site Name: Prospect West and car park to the rear of, 81-85 Station Road

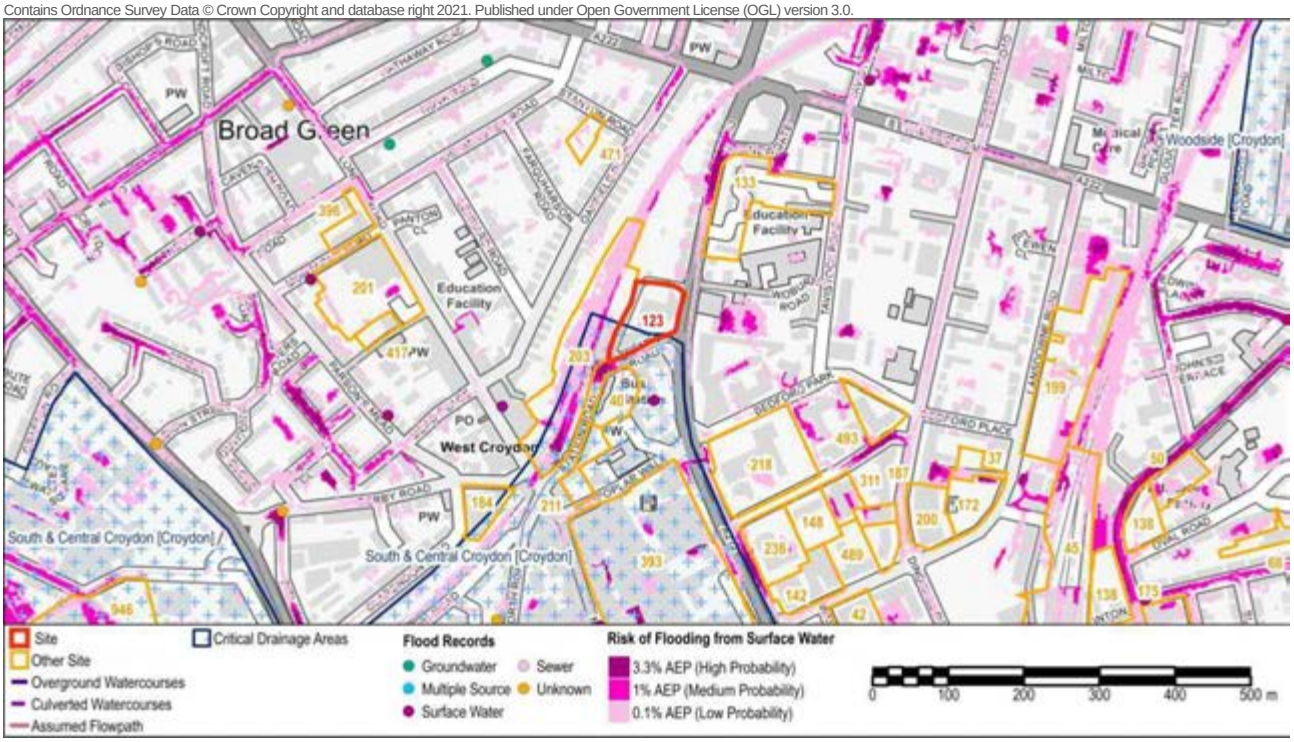


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

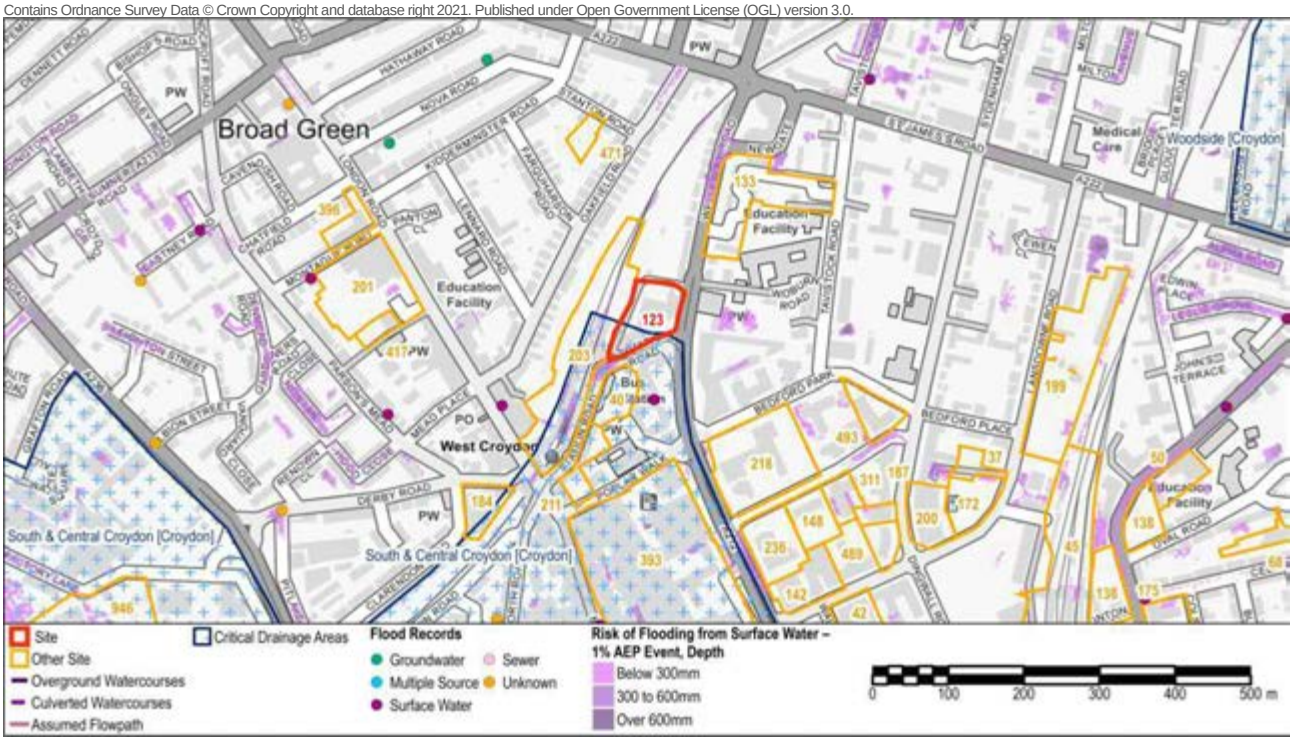


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Prospect West and car park to the rear of, 81-85 Station Road

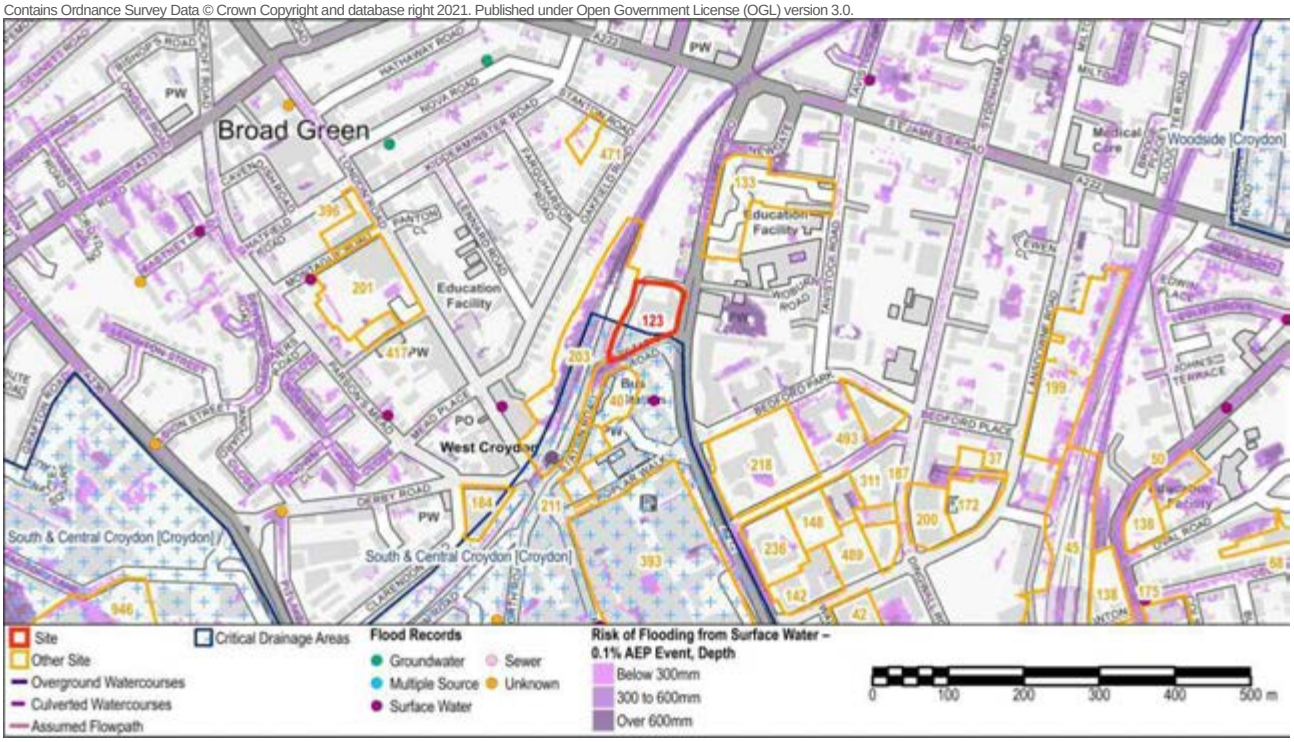


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

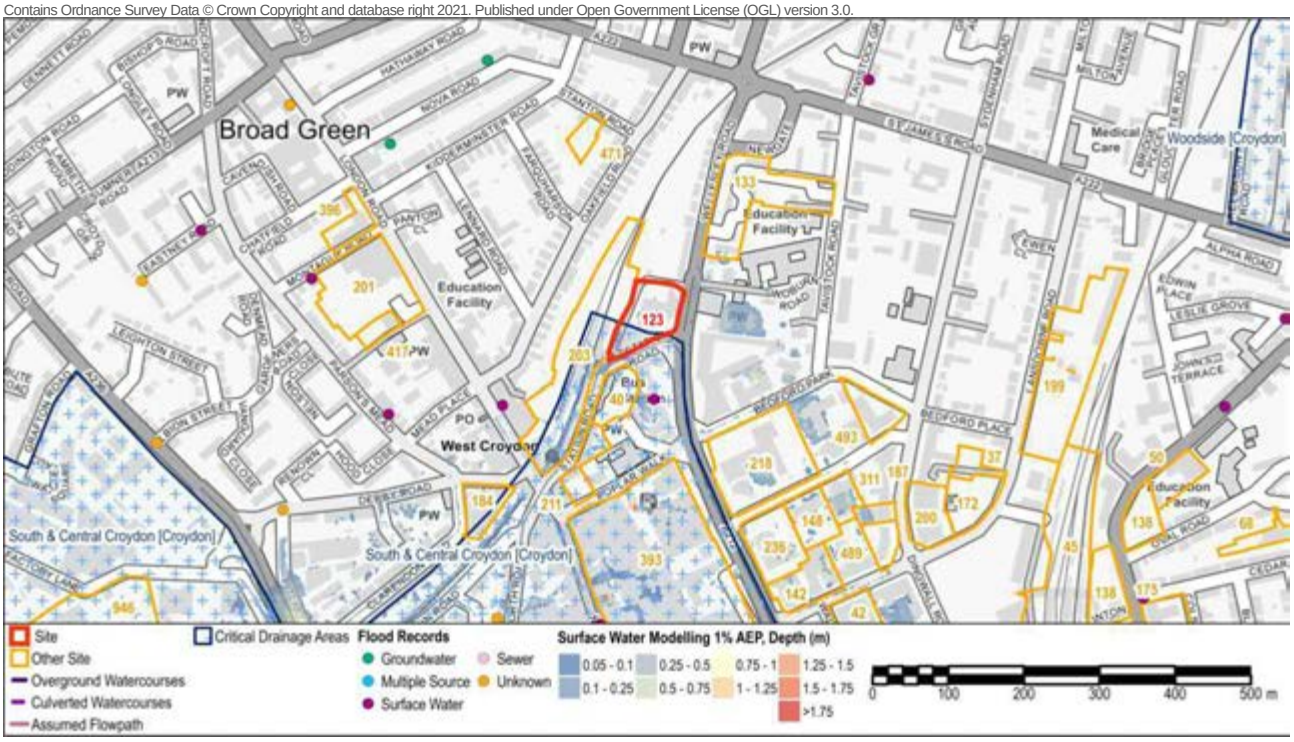


Figure 7 - Surface Water Modelling 1% AEP Flood Depth

Site Name: Prospect West and car park to the rear of, 81-85 Station Road

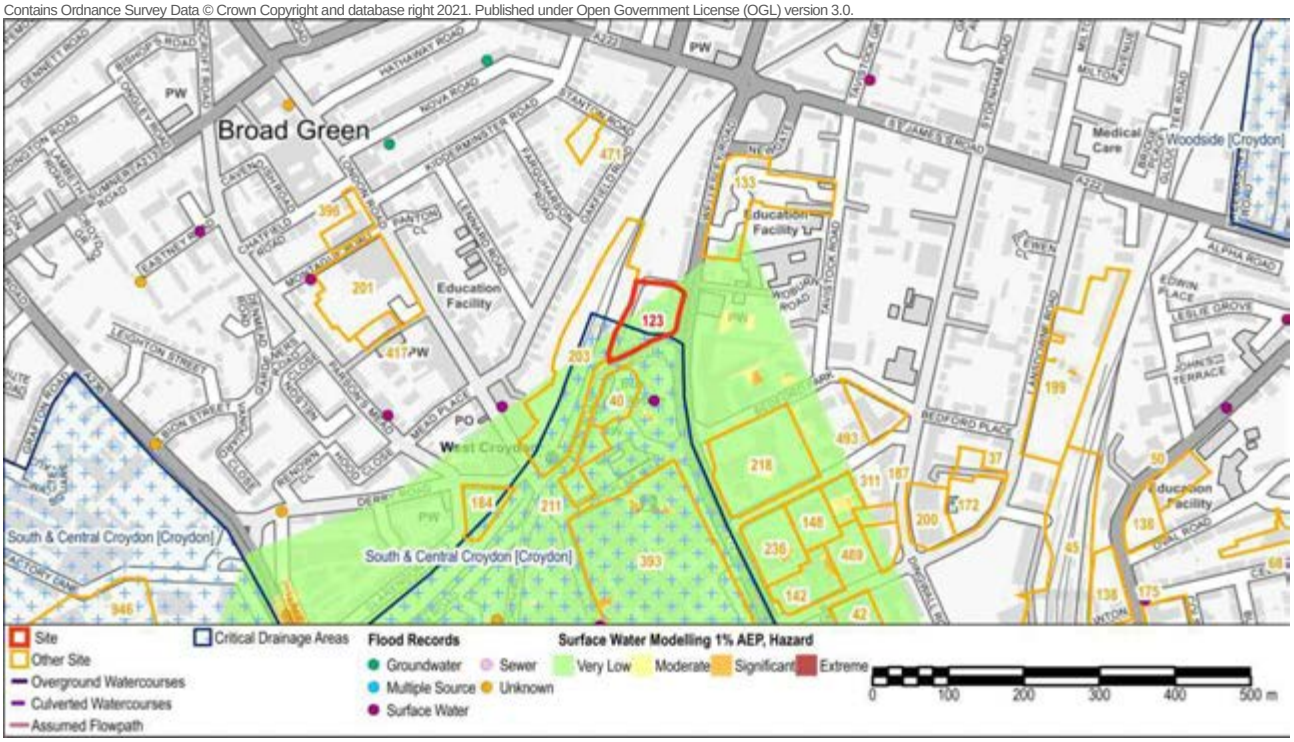


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

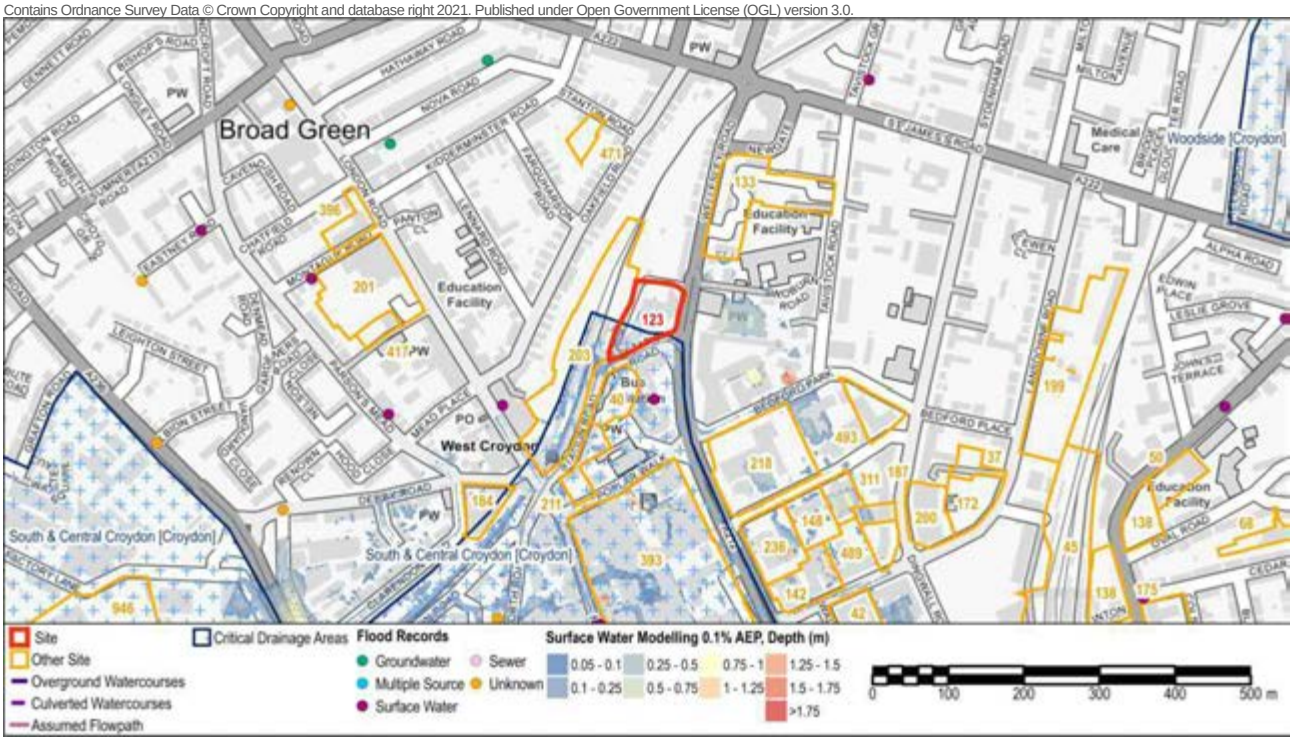


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: Prospect West and car park to the rear of, 81-85 Station Road

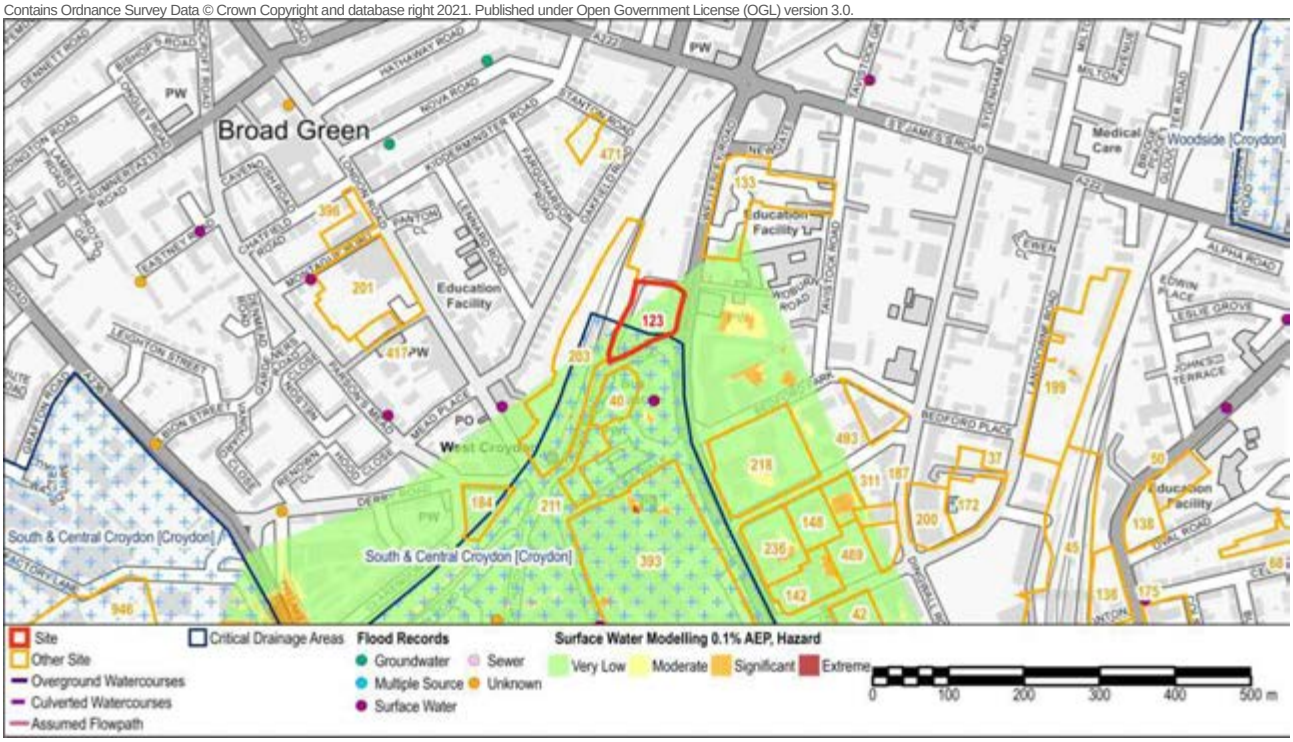


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	Thames Group	**Superficial Geology**	Sand And Gravel
Increased Potential for Elevated Groundwater		No	
Susceptibility to Groundwater Flooding (BGS)		Potential for groundwater flooding of property situated below ground level	

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 site is defined as Flood Zone 1, Low probability of river flooding.

There are records of flooding from a range of sources including surface water, groundwater, sewers and unknown sources within 500m of the site.

The Risk of Flooding from Surface Water mapping identifies the site to be at very low risk of surface water flooding, but there are risks to the surrounding area including along Station Road which provides access to the site. There are records of surface water flooding in proximity to the site and it is located within a Critical Drainage Area (Group8_042, South & Central Croydon).

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- Planning for the site 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 in collaboration with other plots within the area.
- 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 set 600mm above the ground level.
- 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.
- The Risk of Flooding from Surface Water mapping shows the risk of flooding along the access routes to the site. Development proposals should consider how safe access/egress can be provided. 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 or above.
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response. The flood warning and evacuation plan should set out the response of occupants upon receiving a flood warning (for example evacuating prior to a flood or remaining within their safe place of refuge).
- 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,

Site Name: Prospect West and car park to the rear of, 81-85 Station Road

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 on the site.

Site Name: 1-9 Banstead Road

Site ID:	130	**Area (ha):**	0.42
Proposed Use:	Residential development.	**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%

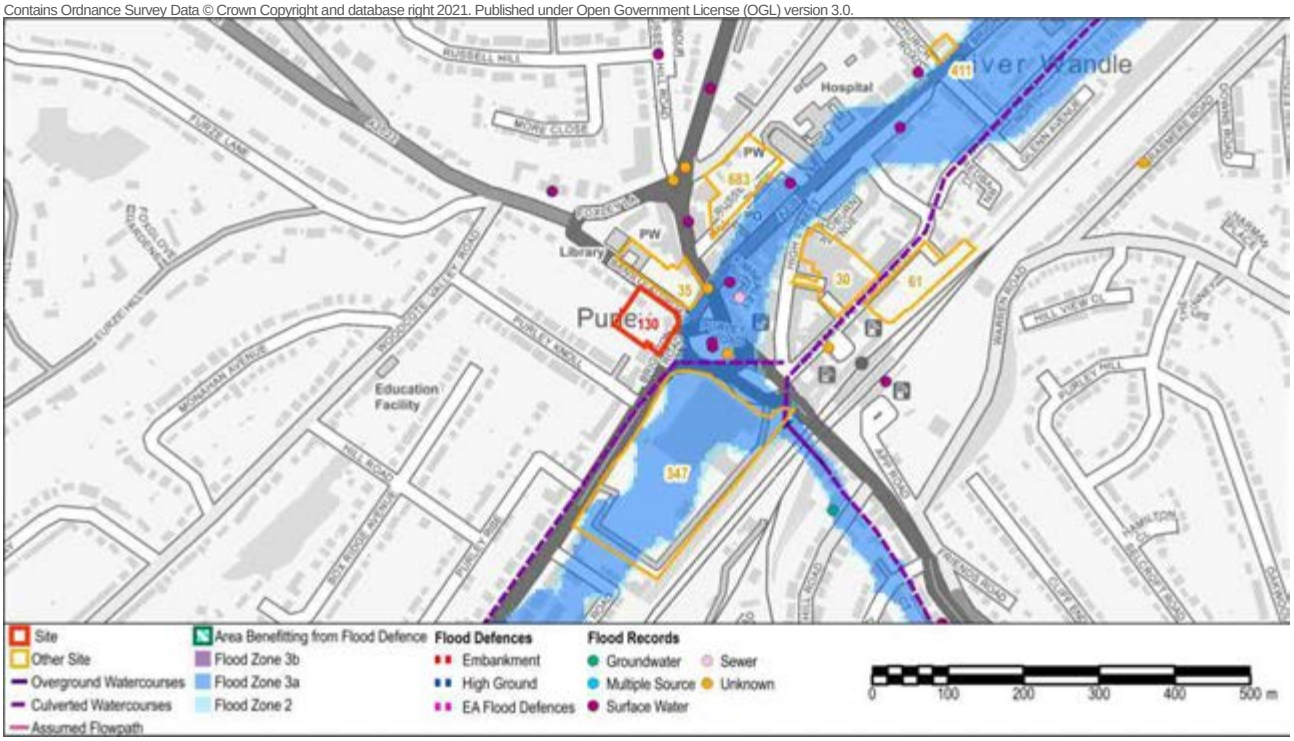


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 12; Groundwater 1; Sewer 2; Multiple source 0; Unknown source 6

River Flooding

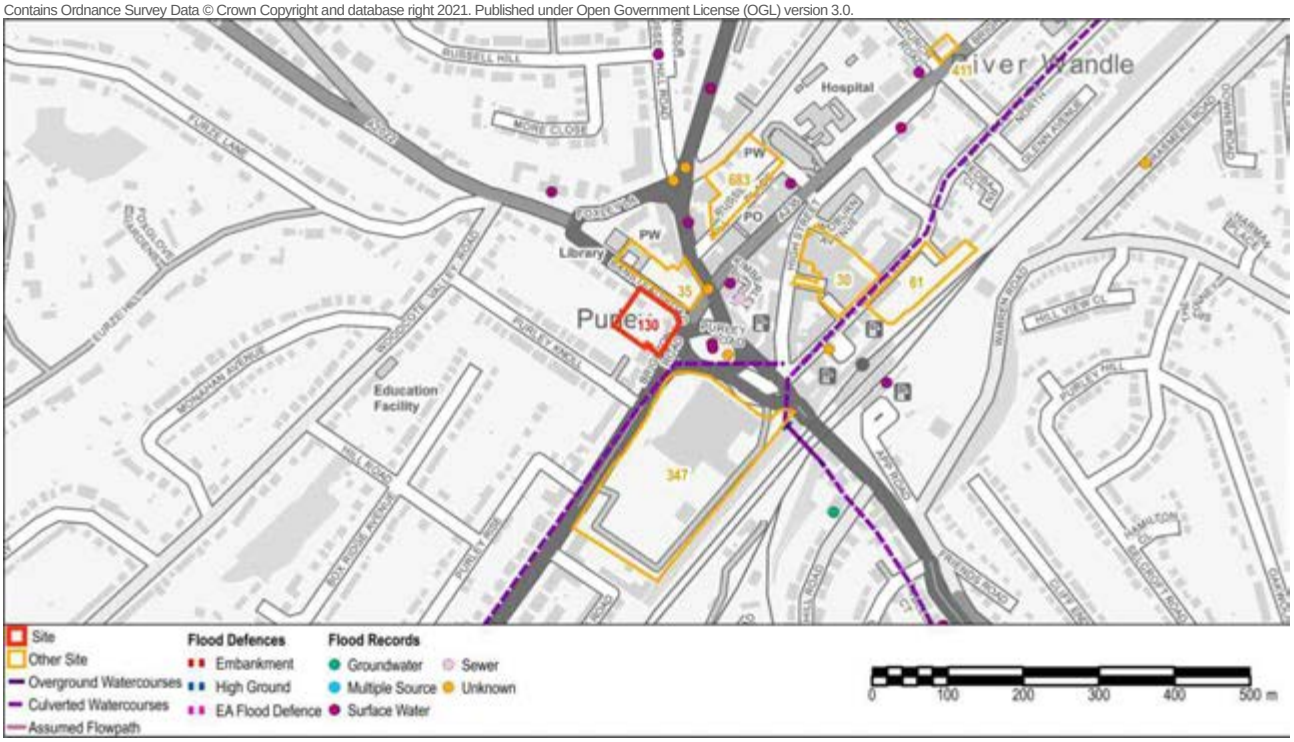


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

Site Name: 1-9 Banstead Road

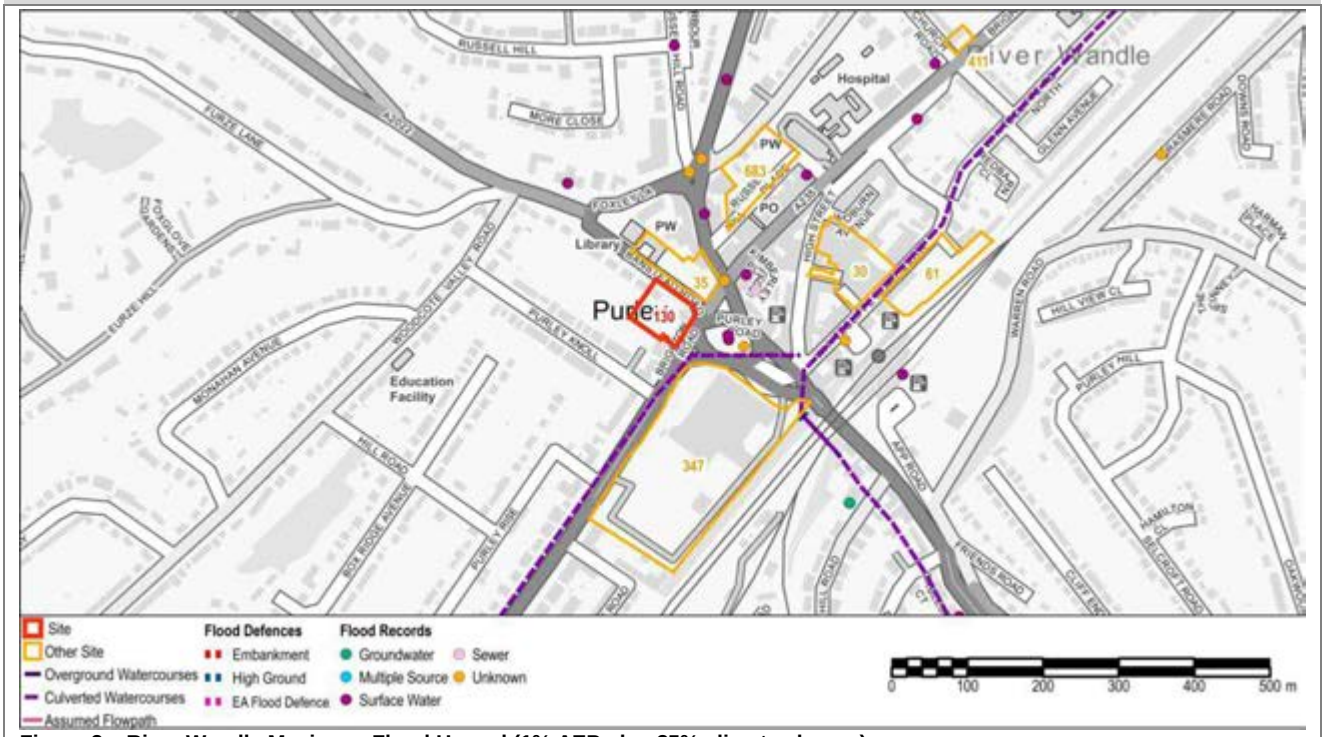


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change) Please note: Data does not extend to the extent of this figure.

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

Site Name: 1-9 Banstead Road

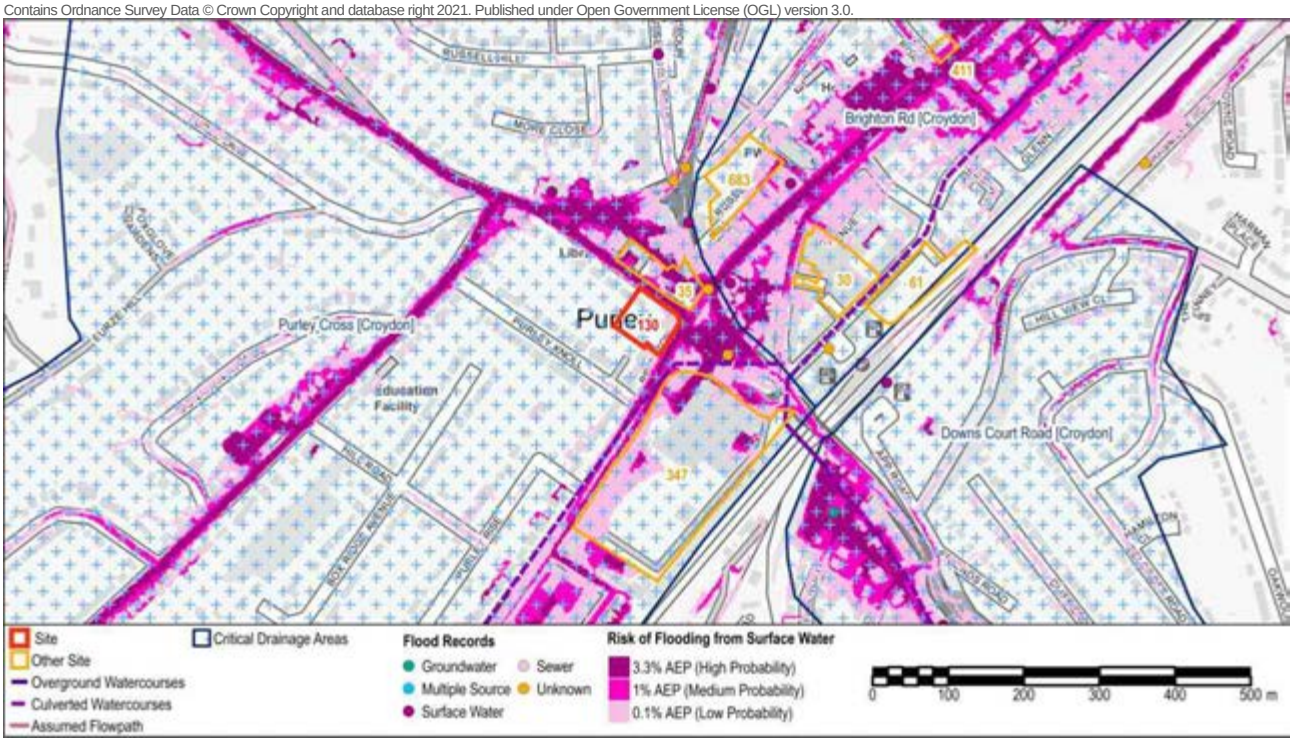


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

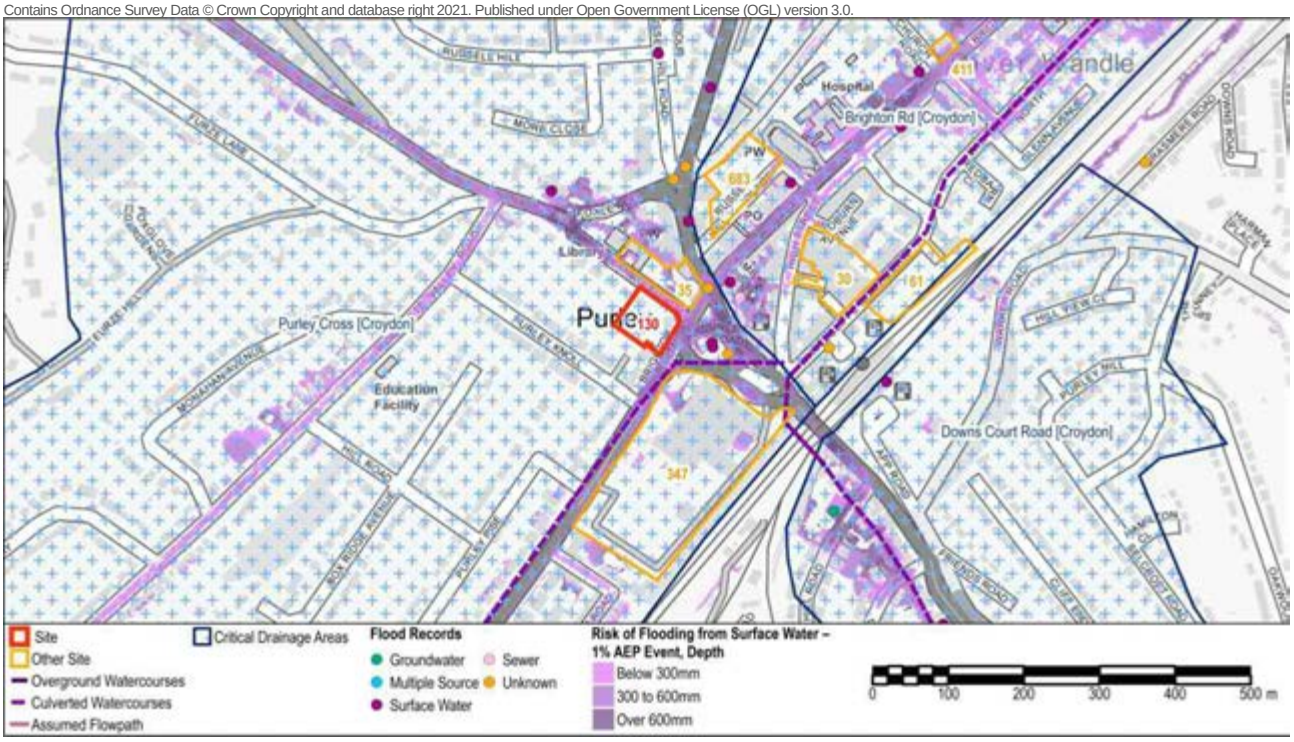


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: 1-9 Banstead Road

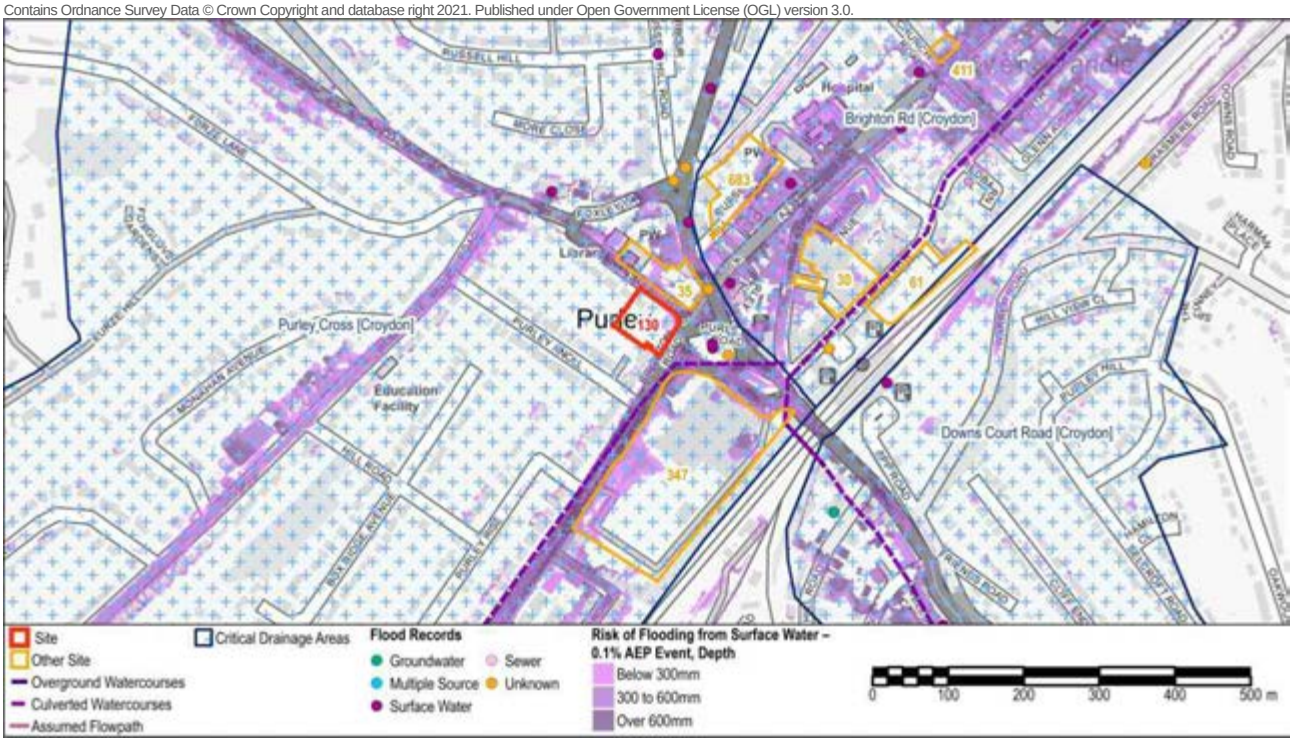


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

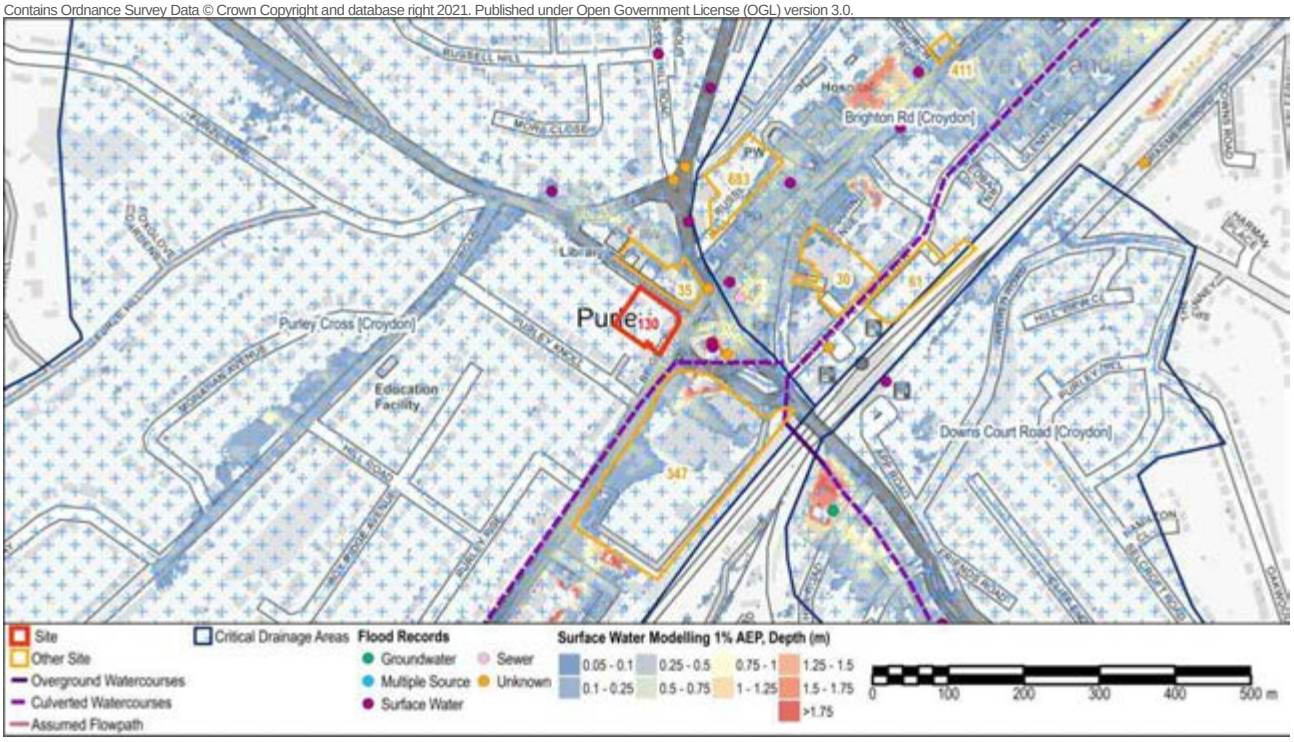


Figure 7 - Surface Water Modelling 1% AEP Flood Depth

Site Name: 1-9 Banstead Road

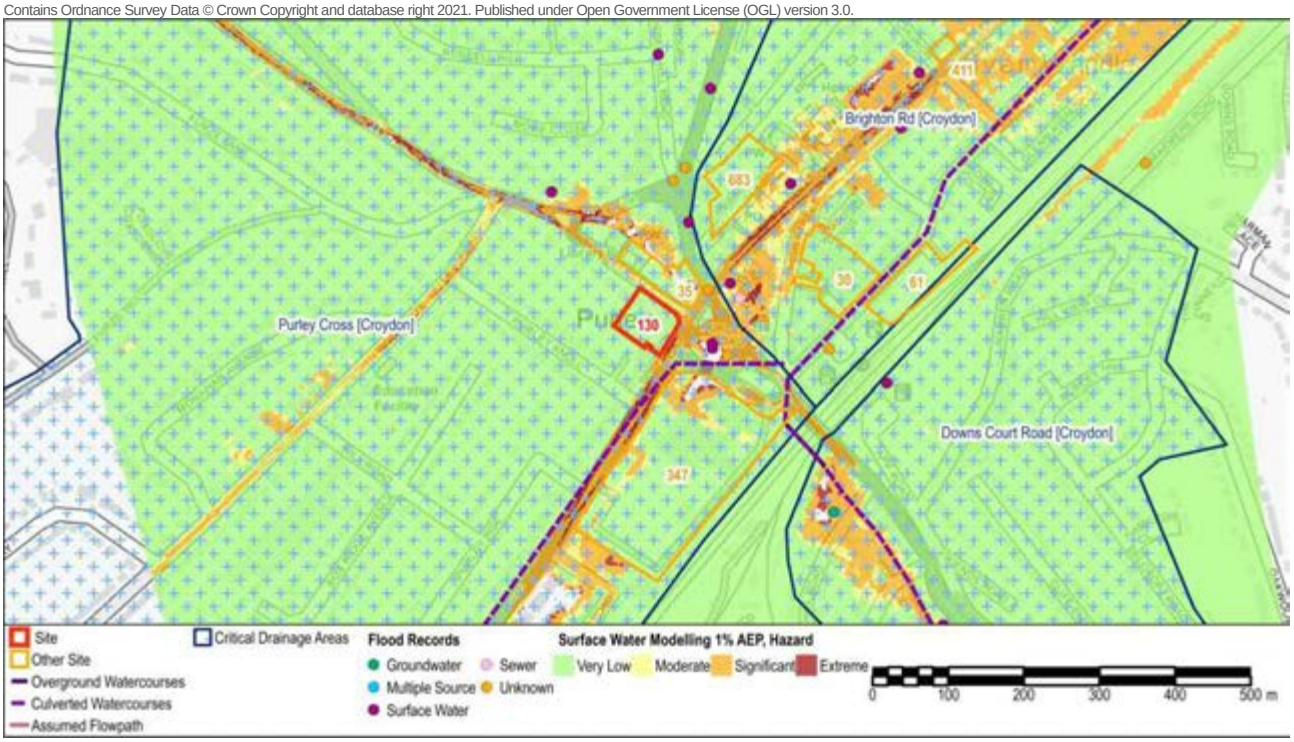


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard

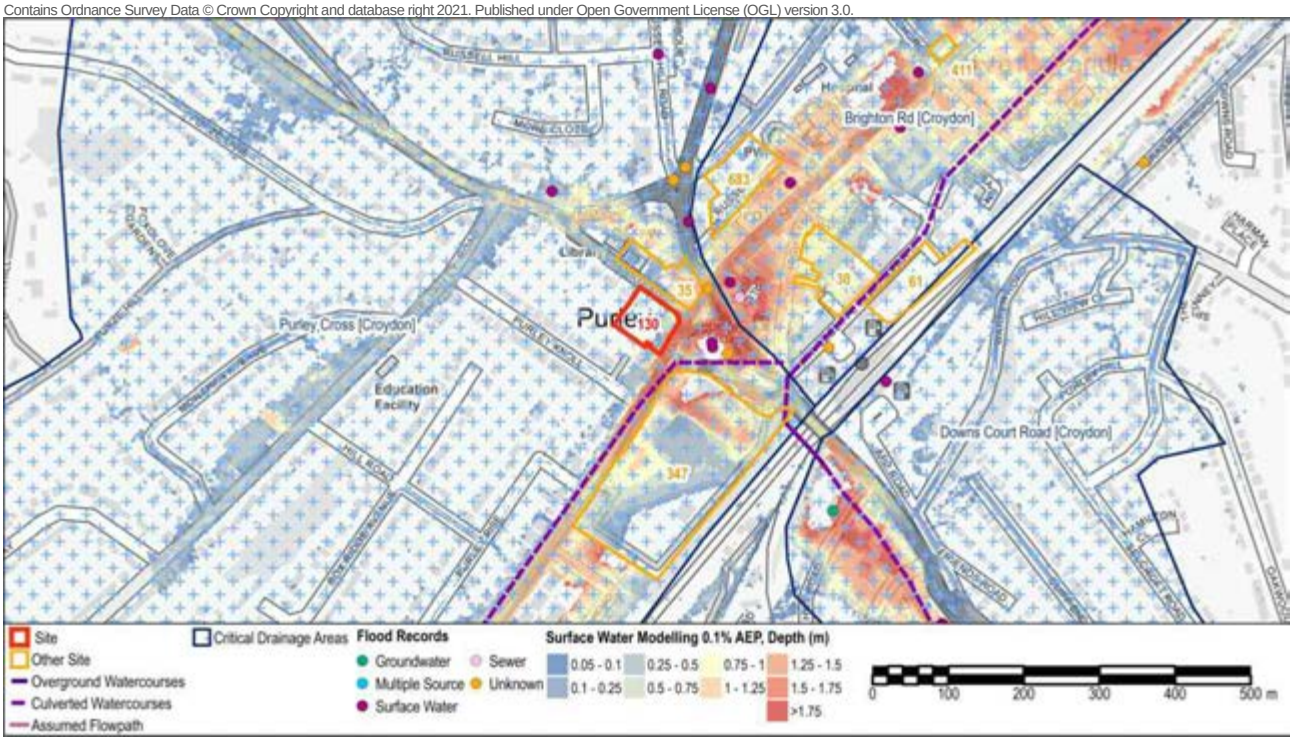


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth

Site Name: 1-9 Banstead Road

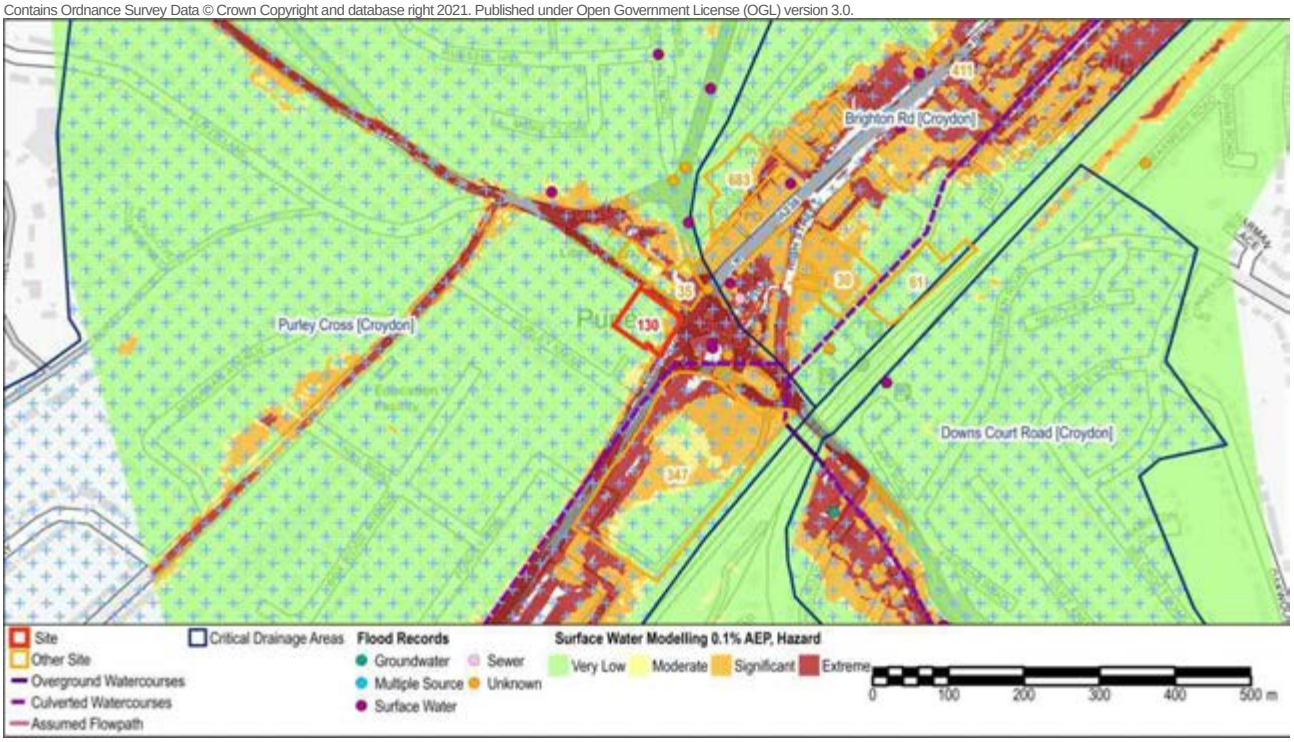


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard

Groundwater Flooding			
Bedrock Geology	White Chalk Subgroup	**Superficial Geology**	-
Increased Potential for Elevated Groundwater		Yes	
Susceptibility to Groundwater Flooding (BGS)		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 site is defined as Flood Zone 1, Low probability of river flooding.

A 1050mm diameter culvert runs in a northern direction along Brighton Road, conveying the intermittent sources of the River Wandle (the Caterham Bourne and Merstham Bourne) and runoff generated in the surroundings. The Caterham Bourne flows from east to west on the opposite side of the Purley Road 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 site. 12 surface water flood events have been recorded, one groundwater flooding incident and 6 of unknown source. Two unknown flood events have also been recorded in the north, along with a multiple source and a sewer flood record in the south. The site lies within the Purley Cross 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).

The Risk of Flooding from Surface Water mapping identifies that significant risk of surface water flooding along Banstead Road and Brighton Road adjacent to the site.
Surface water modelling undertaken by Arcadis (July 2020) is included in Figures 7-10 and shows the risk to the area surrounding the site. During the 1% AEP and 0.1% AEP hazard ratings along Banstead Road and Brighton Road, as well as the eastern part of the site reach Significant and Extreme with flood depths up to 1.25m.

Site Specific Recommendations

The proposed uses for the site include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- Planning for the site 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 in collaboration with other plots within the area.
- 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.

Site Name: 1-9 Banstead Road

- Finished floor levels for More Vulnerable development should be set 600mm above ground levels. Where surface water modelling is available, finished floor levels should be set above the 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 the main access routes for the site, (Banstead Road, Brighton Road) are at risk of flooding with a Significant or Extreme hazard rating during the 1% and 0.1% AEP events. Development proposals 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 on the site.

Site Name: Supermarket, car park, 54 Brigstock Road

Site ID:	136	**Area (ha):**	0.7
Proposed Use:	Residential, retail along Brigstock Road, and employment 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%

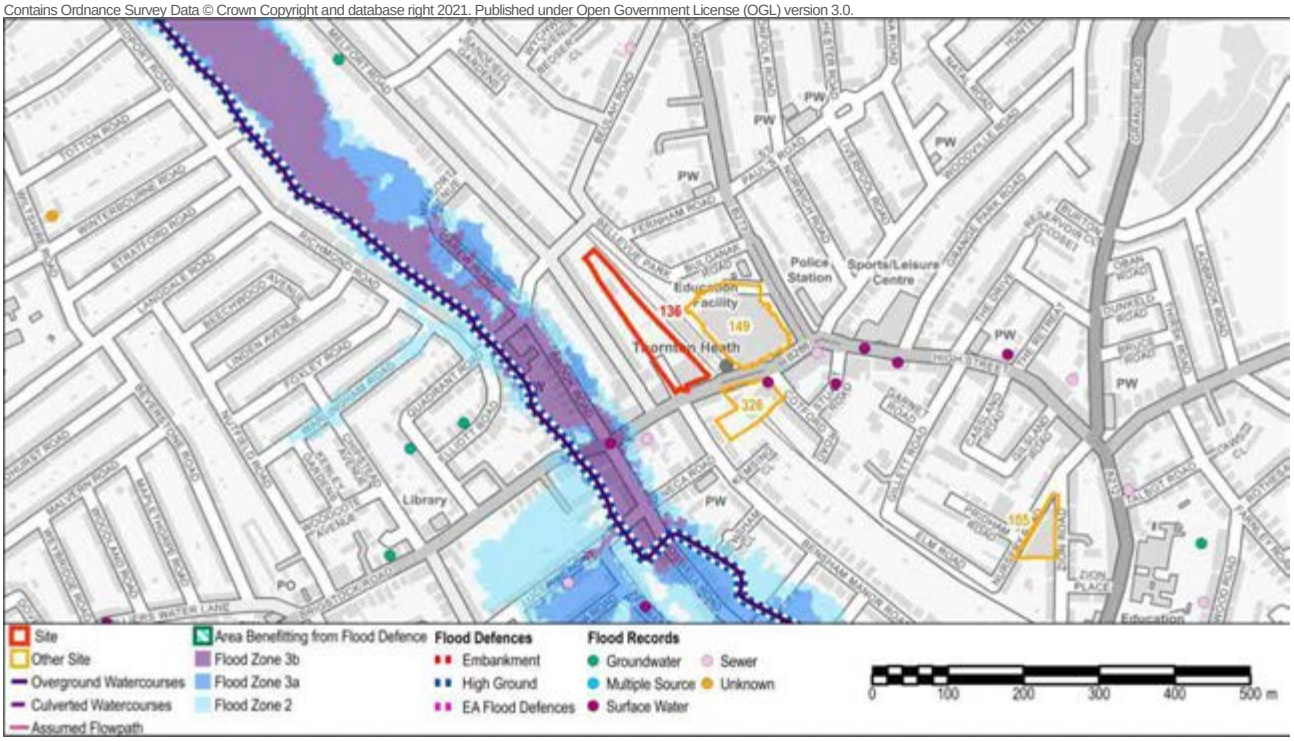


Figure 1 - Flood Zones and Flood Records

Flood Warning Area	None
Flood Records within 500m of the site:	Surface Water 8; Groundwater 5; Sewer 5; Multiple source 0; Unknown source 0

River Flooding

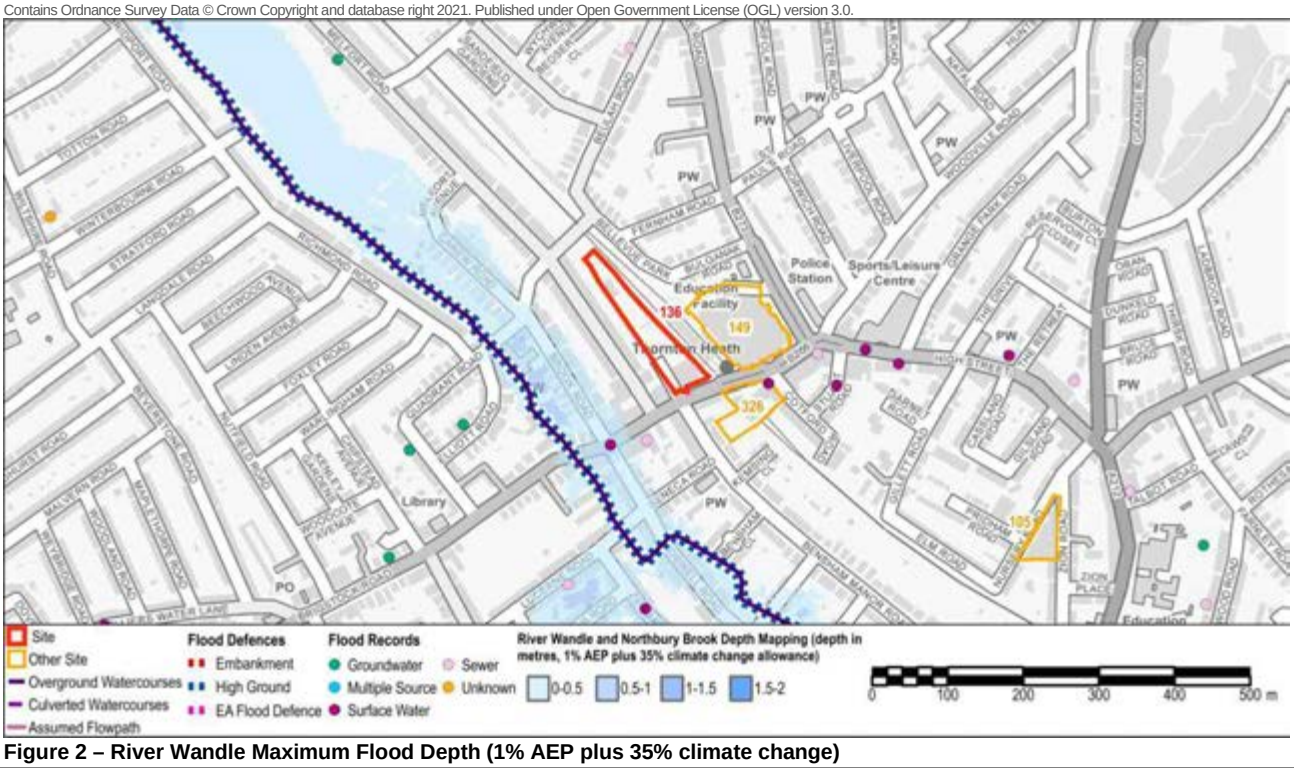


Figure 2 – River Wandle Maximum Flood Depth (1% AEP plus 35% climate change)

Site Name: Supermarket, car park, 54 Brigstock Road

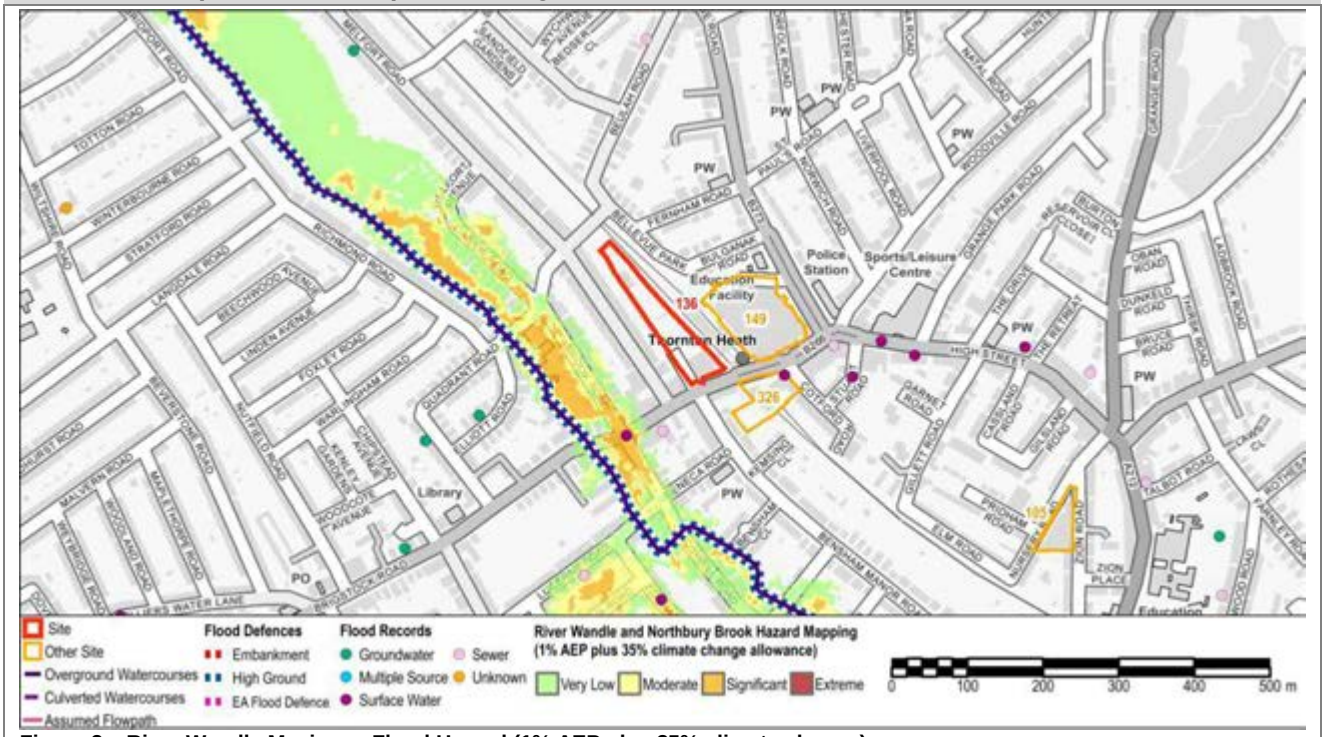


Figure 3 – River Wandle Maximum Flood Hazard (1% AEP plus 35% climate change)

Surface Water Flooding	
Critical Drainage Area	Group8_049 - Norbury [Croydon]
Drainage Catchment	DC22

Site Name: Supermarket, car park, 54 Brigstock Road

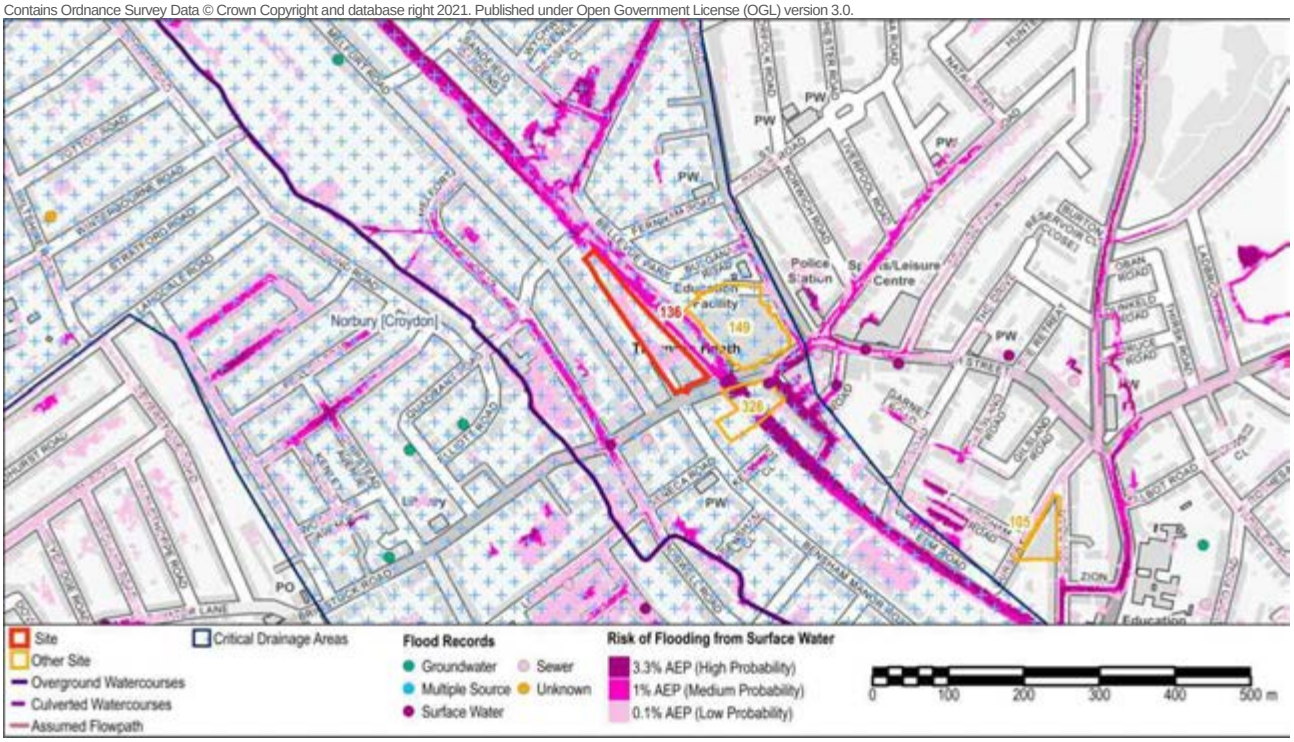


Figure 4 - Risk of Flooding from Surface Water (RoFSW) Flood Extents

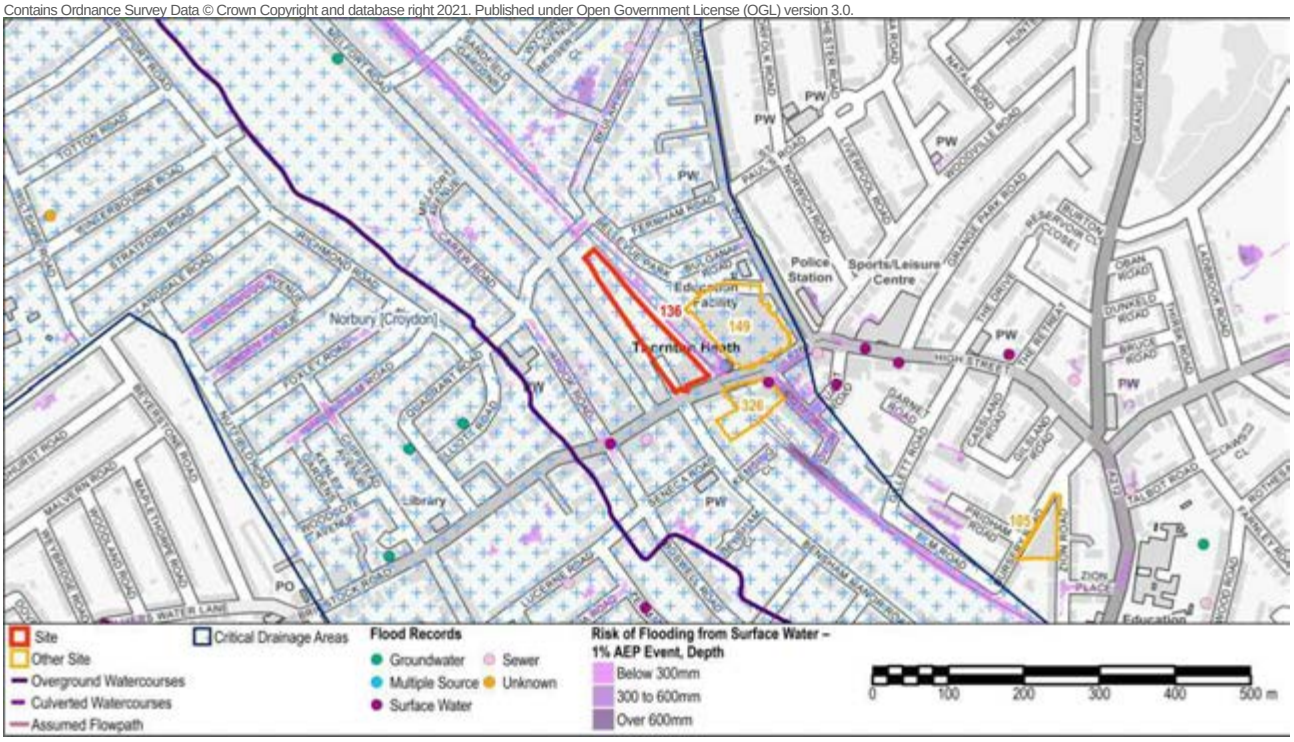


Figure 5 - Risk of Flooding from Surface Water (RoFSW) 1% AEP Flood Depth

Site Name: Supermarket, car park, 54 Brigstock Road

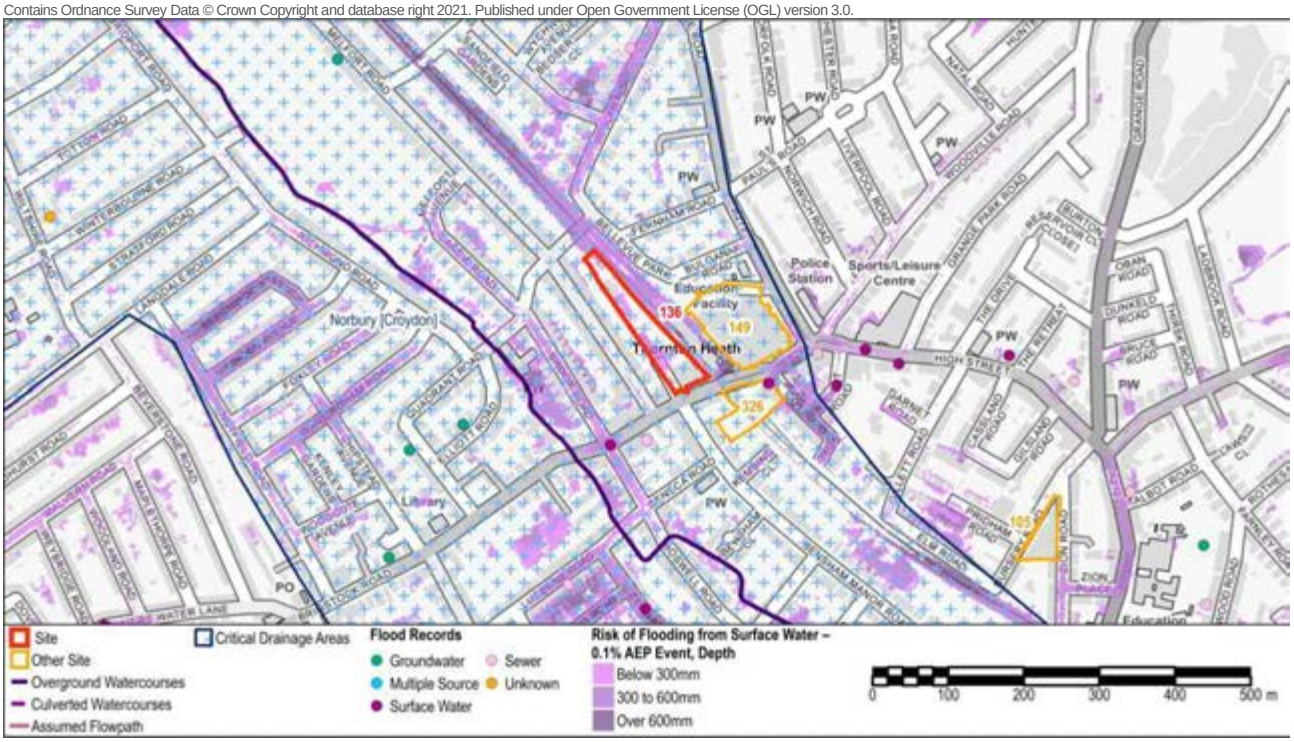


Figure 6 - Risk of Flooding from Surface Water (RoFSW) 0.1% AEP Flood Depth

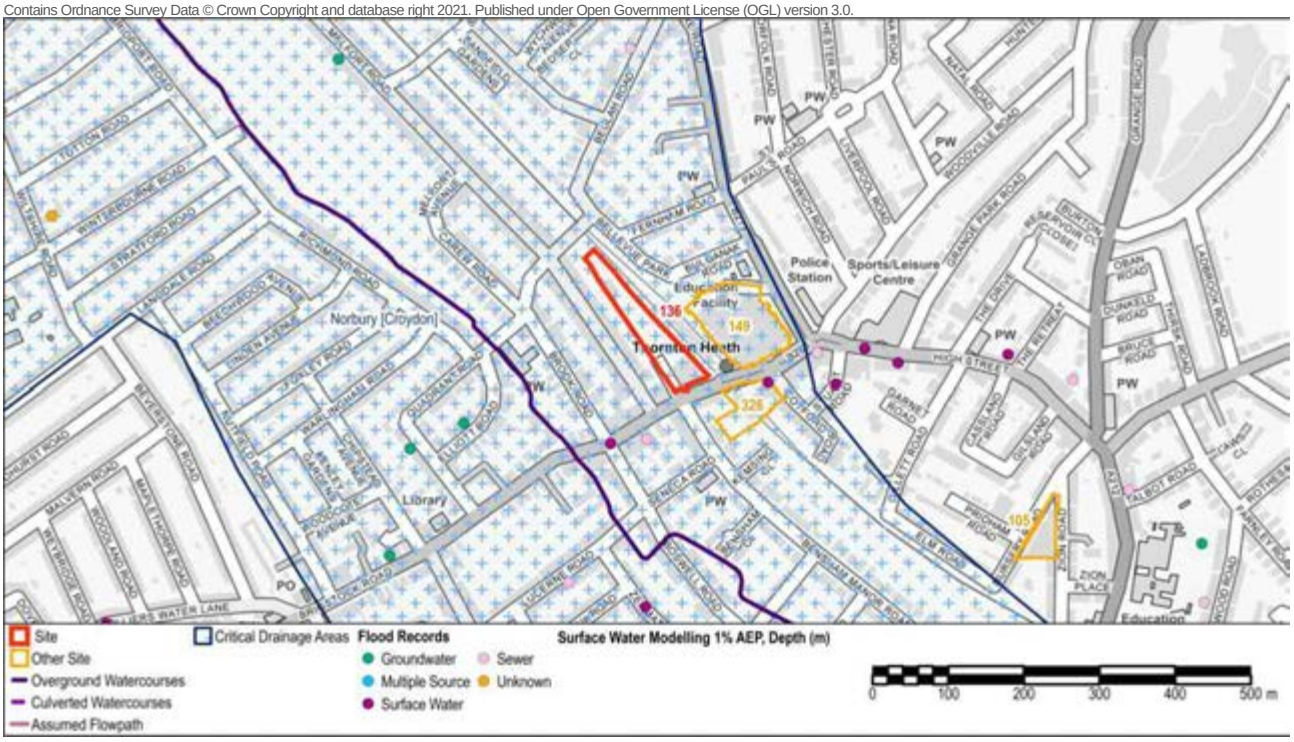


Figure 7 - Surface Water Modelling 1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: Supermarket, car park, 54 Brigstock Road

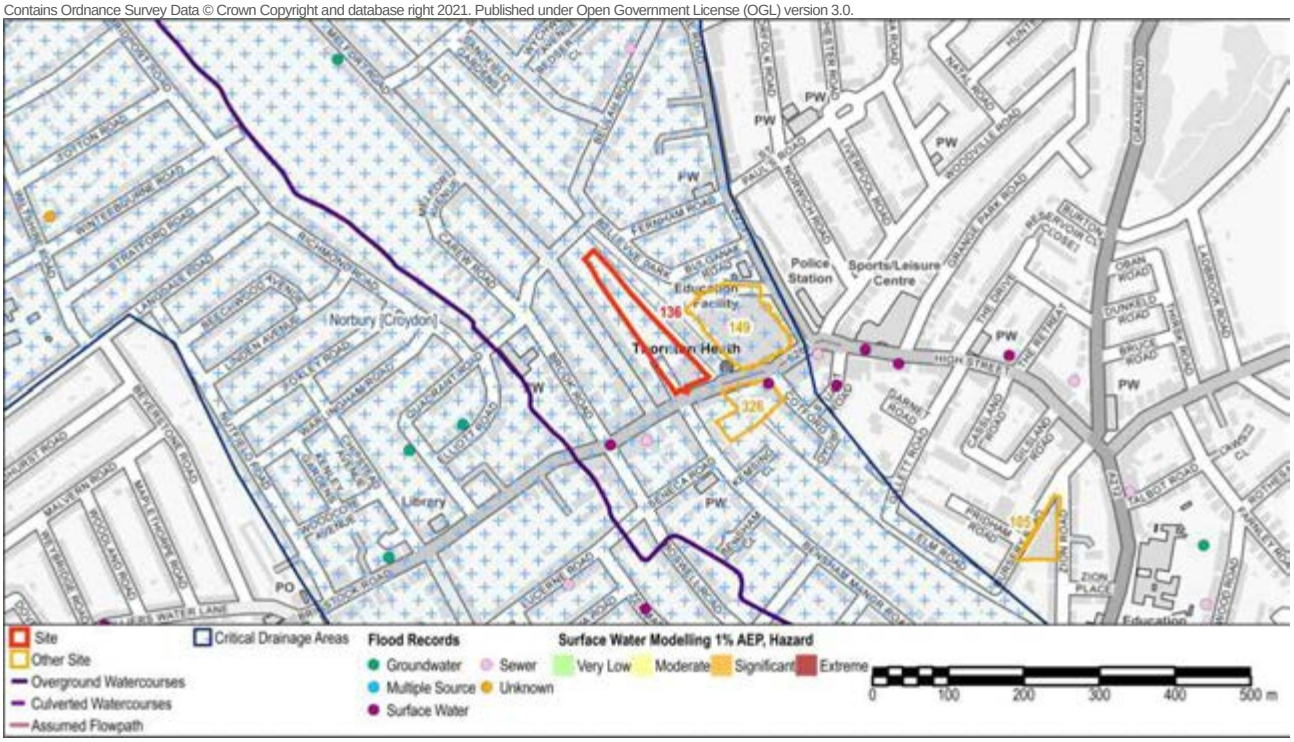


Figure 8 - Surface Water Modelling 1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

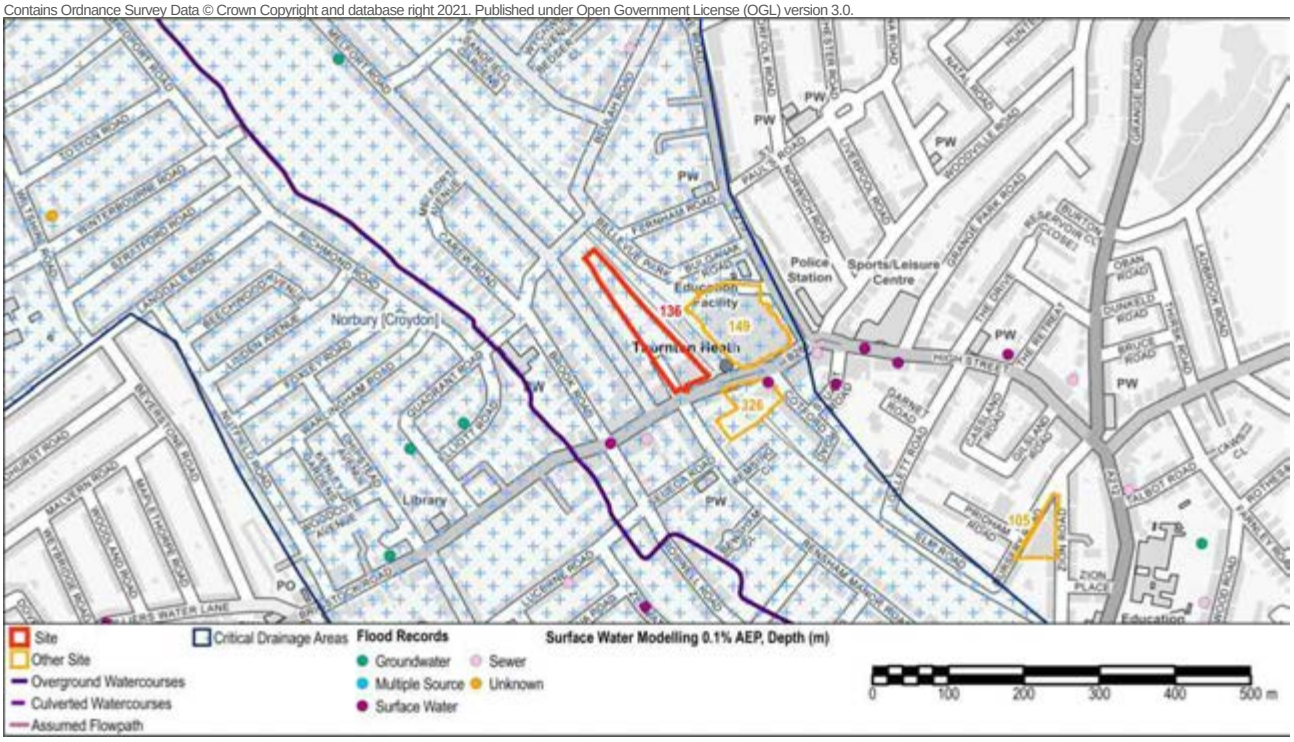


Figure 9 - Surface Water Modelling 0.1% AEP Flood Depth Please note: Data does not extend to the extent of this figure.

Site Name: Supermarket, car park, 54 Brigstock Road

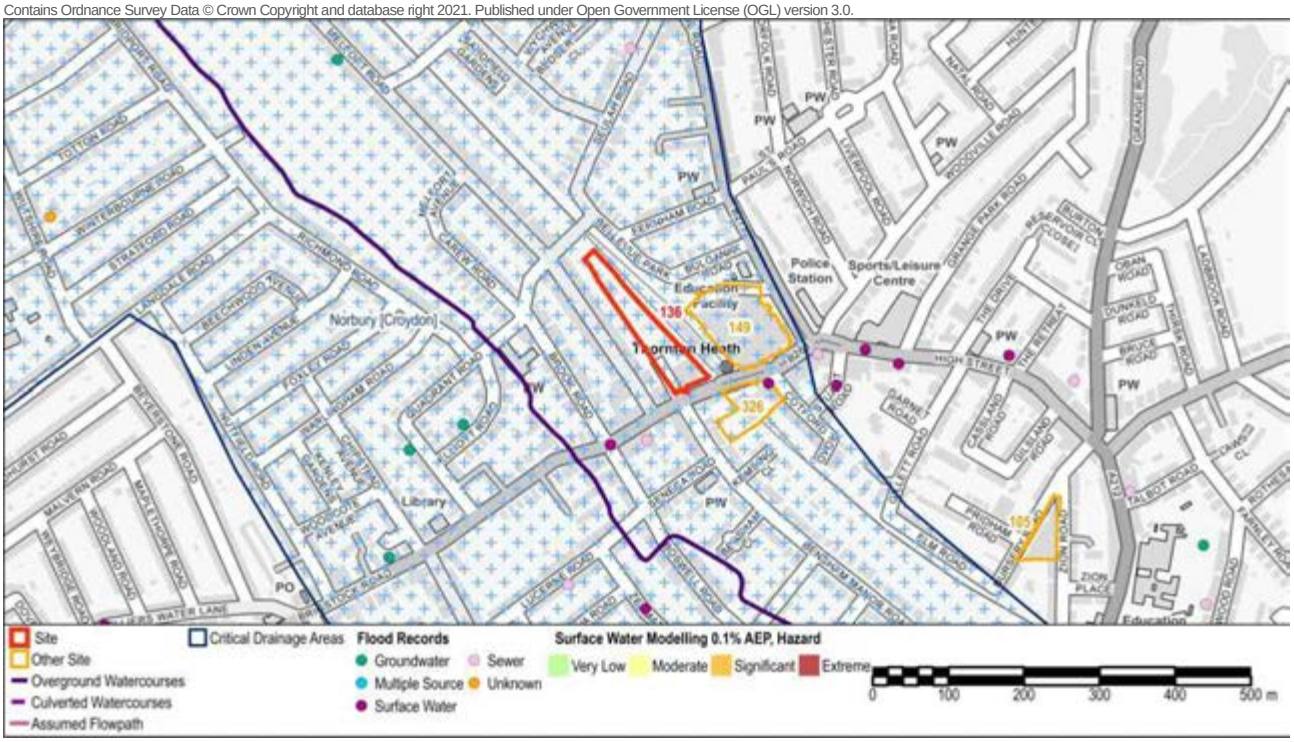


Figure 10 - Surface Water Modelling 0.1% AEP Flood Hazard Please note: Data does not extend to the extent of this figure.

Groundwater Flooding			
Bedrock Geology	Lambeth Group, Thames Group	**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 site is defined as Flood Zone 1, Low probability of river flooding. There are records of flooding from a range of sources including surface water, groundwater and sewer within 500m of the site.

The Risk of Flooding from Surface Water mapping identifies the potential for surface water to flow from south to west through the site. There are records of surface water flooding in proximity to the site and it is located within a Critical Drainage Area (Group8_049, Norbury[Croydon]).

Site Specific Recommendations

The proposed uses for the site may include residential which is classified as More Vulnerable. More Vulnerable development is permitted in Flood Zone 1 and the Exception Test is not required. However, 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 for the site:

- A sequential approach should be applied within the site, steering development towards those areas at lower risk of surface water flooding before consideration of areas at greater risk.
- Planning for the site 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 in collaboration with other plots within the area.
- 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 set 600mm above ground levels. Where surface modelling is available, finished floor levels should be set above the 1% AEP flood level including 300mm freeboard.
- 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.
- Development proposals should consider how safe access/egress can be provided during surface water flooding events. In addition, given the potential for surface water to have rapid onset, a place of safe refuge should be provided at first floor level or above.
- Flood warning and evacuation plans should be prepared, in accordance with the Council's wider emergency planning response. The flood warning and evacuation plan should set out the response of occupants upon receiving a flood warning (for example evacuating prior to a flood or remaining within their safe place of refuge).

Site Name: Supermarket, car park, 54 Brigstock Road

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