



**EVB03.2**

# **Bolton Level 2 Strategic Flood Risk Assessment Site Summary**

**Nominal Risk Site Assessments**

## **Final Report**

Prepared for  
Bolton Council

Date  
September 2026

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# 1 Introduction

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for Local Plan sites considered to be at nominal flood risk. The content of this report assumes the reader has already consulted the 'Bolton Level 1 SFRA' (2026) and read the 'Bolton Level 2 SFRA Main Report' (2026) and is therefore familiar with the terminology used in this report.

This report summarises the risk from all sources of flood risk to each potential development site. There are nine sites considered to be at nominal surface water risk, all of which are within Flood Zone 1 of the Flood Map for Planning and not shown to be at additional risk from rivers due to the impacts of climate change.

One site is recorded to have been shown to be at risk of flooding from reservoirs, namely site 505. Groundwater flood risk has been assessed using JBA's 5m Groundwater Emergence Map. United Utilities' records of historic sewer flooding incidents have been aggregated by ward to provide an overview of sewer flood risk to each site.

Each site is at nominal risk from surface water, according to the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map. At the time of writing, the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map does not include hazard information suitable for planning purposes. Therefore, this Level 2 SFRA considers the third generation RoFSW hazard mapping in addition to the Flood Map for Planning - Surface Water Spatial Planning extents and depths, as the best available information. Updated surface water hazard information should be confirmed at the site-specific FRA stage.

## 2 Site 021

| Site summary                |                       |
|-----------------------------|-----------------------|
| Location                    | Darwen Road #4        |
| Existing site use           | Garages / car parking |
| Existing site vulnerability | Less vulnerable       |
| Proposed site use           | Housing               |
| Proposed site vulnerability | More vulnerable       |
| Site area                   | 0.23 hectares         |

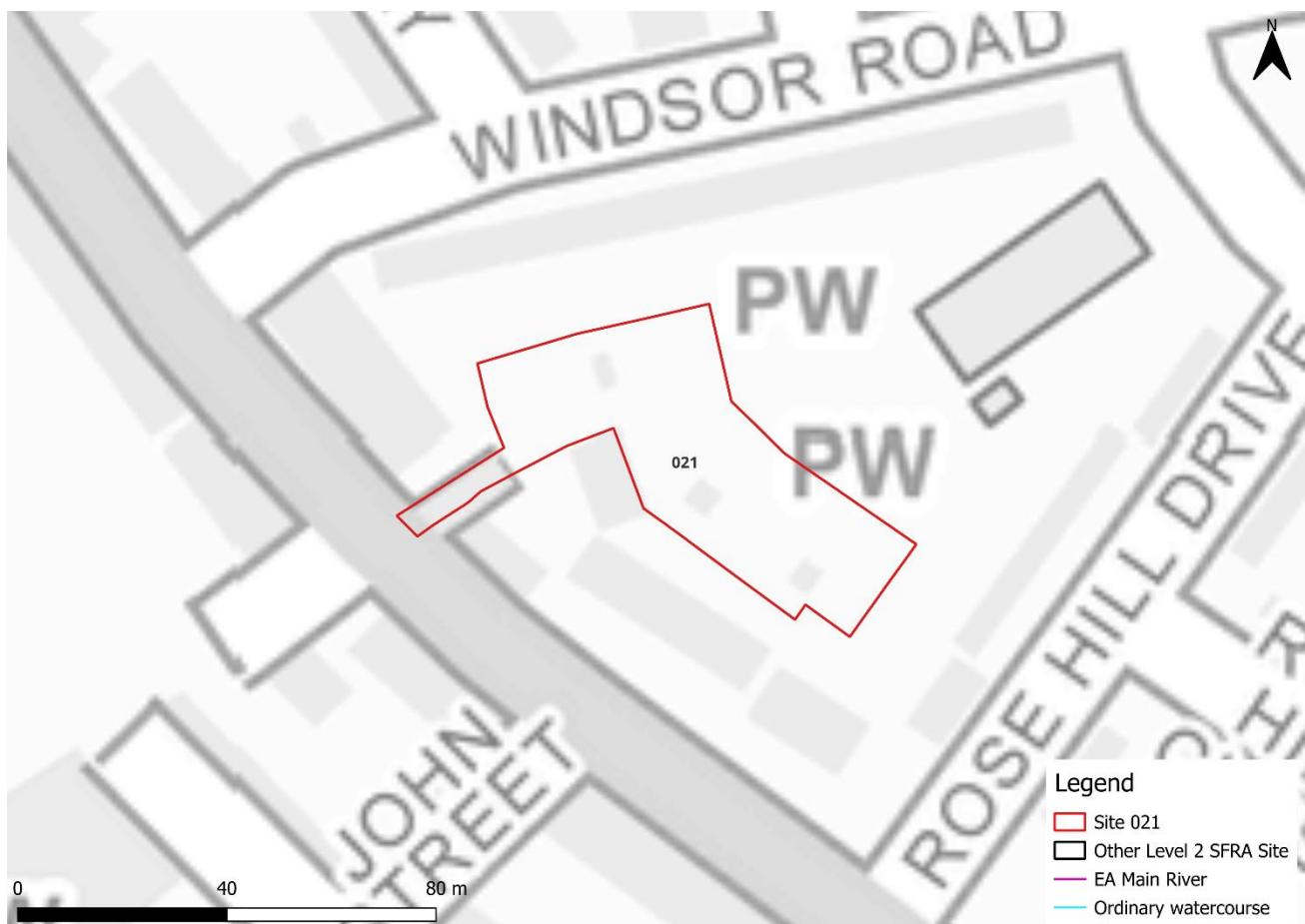


Figure 2-1: Site 021 Existing site location boundary

### 2.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 2-1). Surface water risk is confined to the access and escape route to the site, along Darwen Road (Figure 2-2). Maximum flood depths along this route are shown to rarely

exceed 0.15 m (Figure 2-3). Within the site, surface water hazard is shown to be low, with areas of moderate hazard along Darwen Road (Figure 2-4).

Based on available information, safe access and escape routes should be available from Darwen Road to the southwest of the site, given the shallow surface water depths.

Table 2-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 99                           | 1                  | 0                | 0                  |

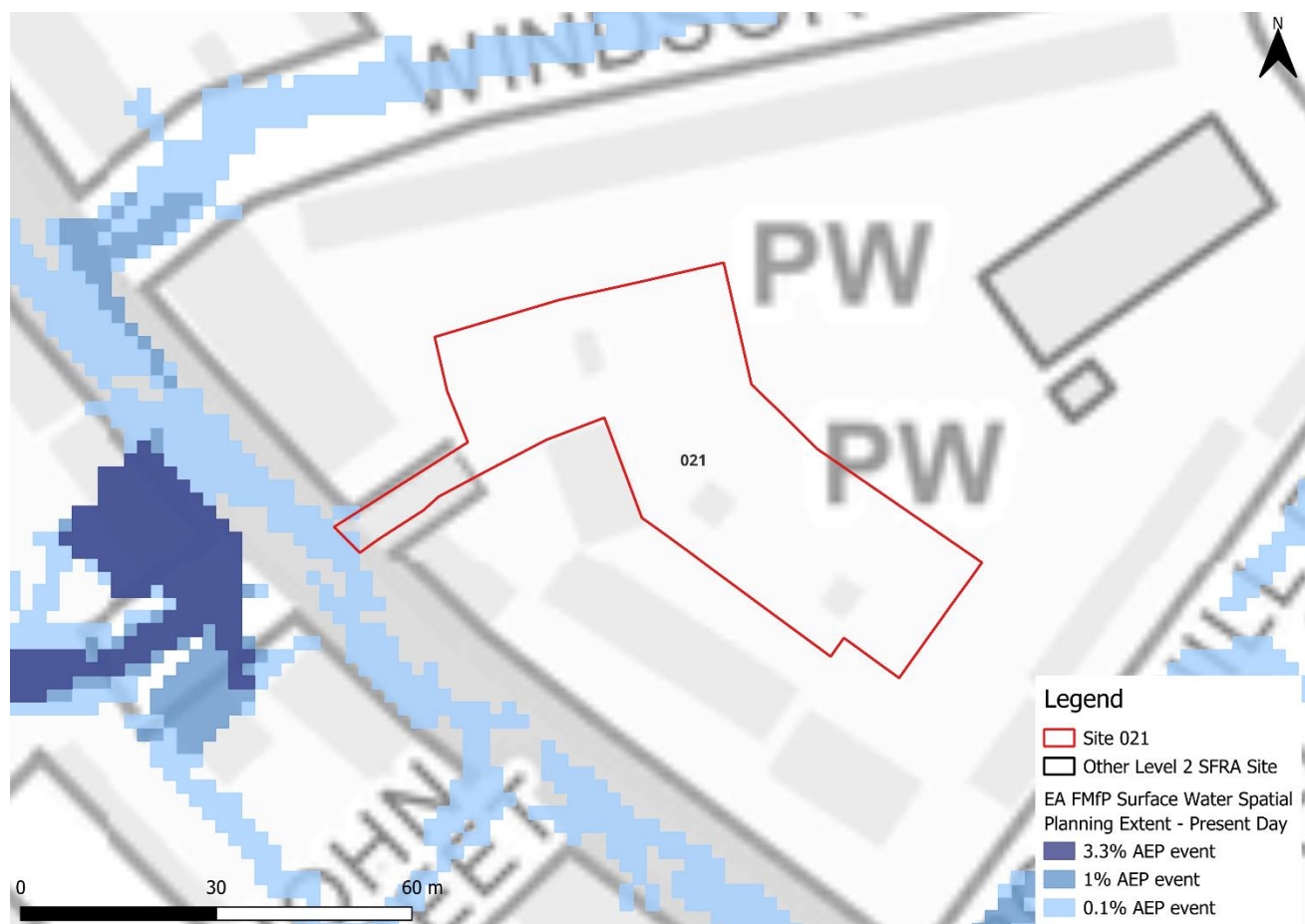


Figure 2-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

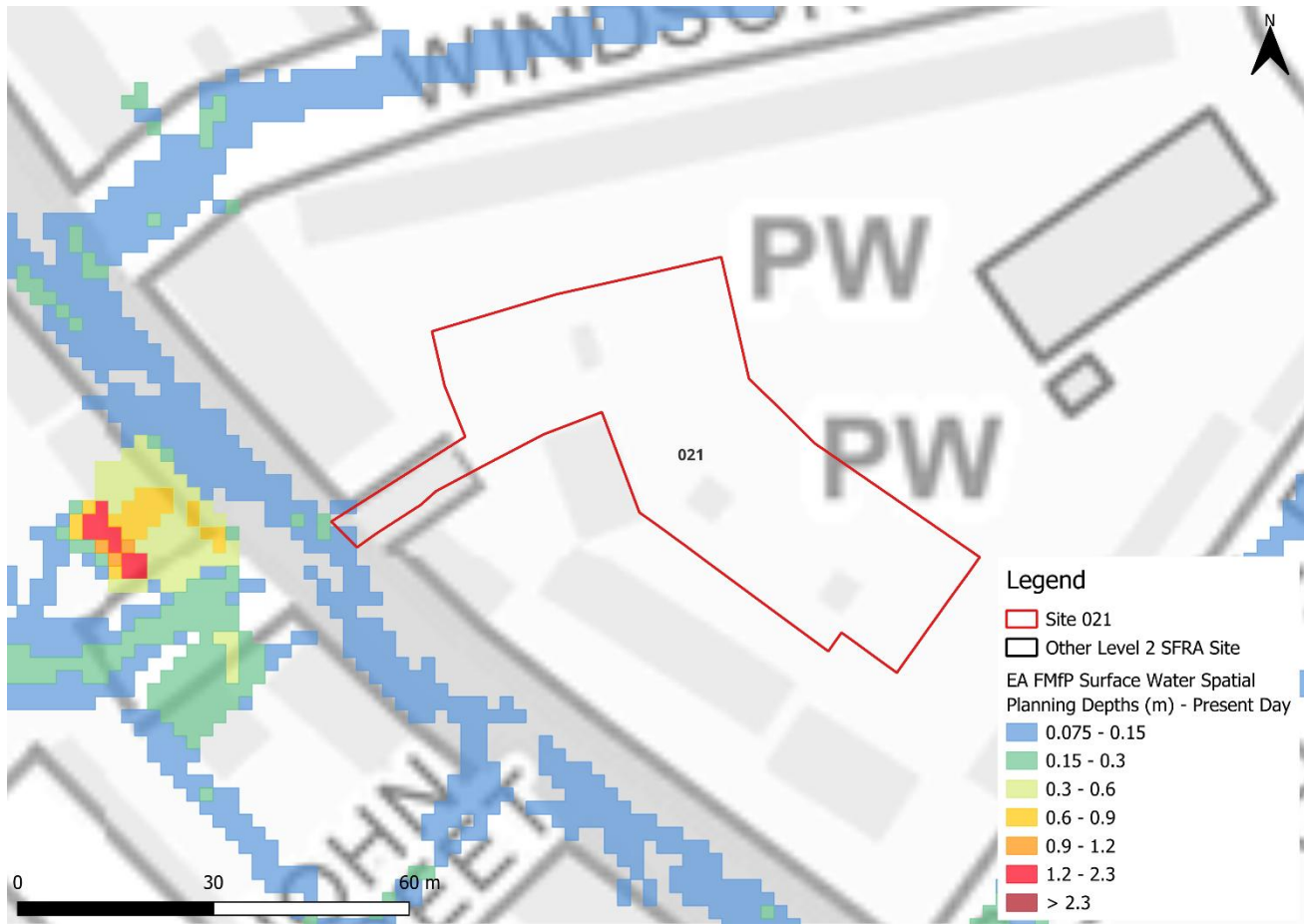


Figure 2-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event

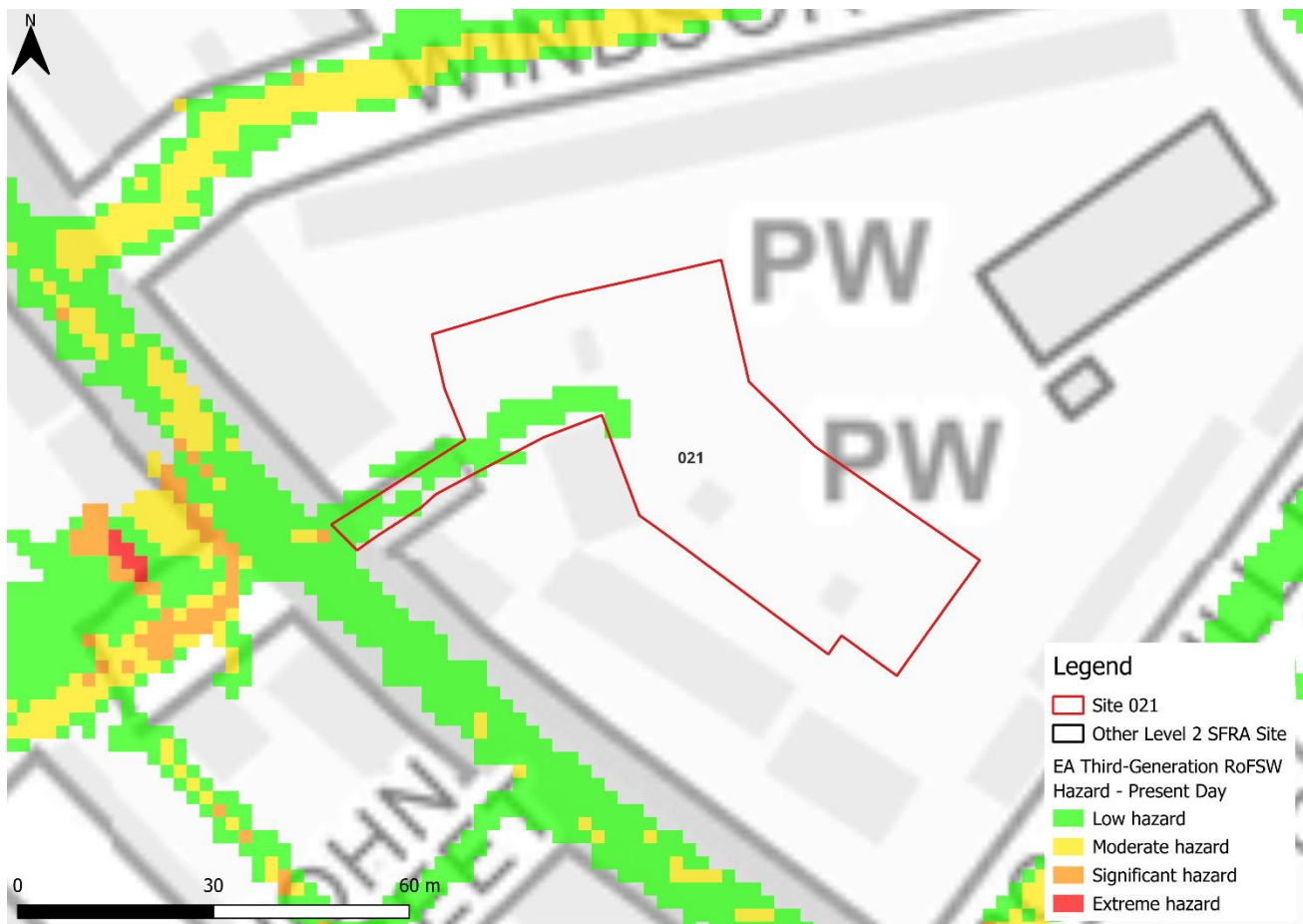


Figure 2-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water flood hazard<sup>1</sup>

### 2.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

## 2.2 Groundwater

The entire site is located within an area where there is no risk of groundwater emergence (Figure 2-5). Infiltration SuDS may therefore be suitable at this site.

<sup>1</sup> Based on Section 7.5 Hazard rating. What is the Risk of Flooding from Surface Water map? Report version 2.0. April 2019. Environment Agency.

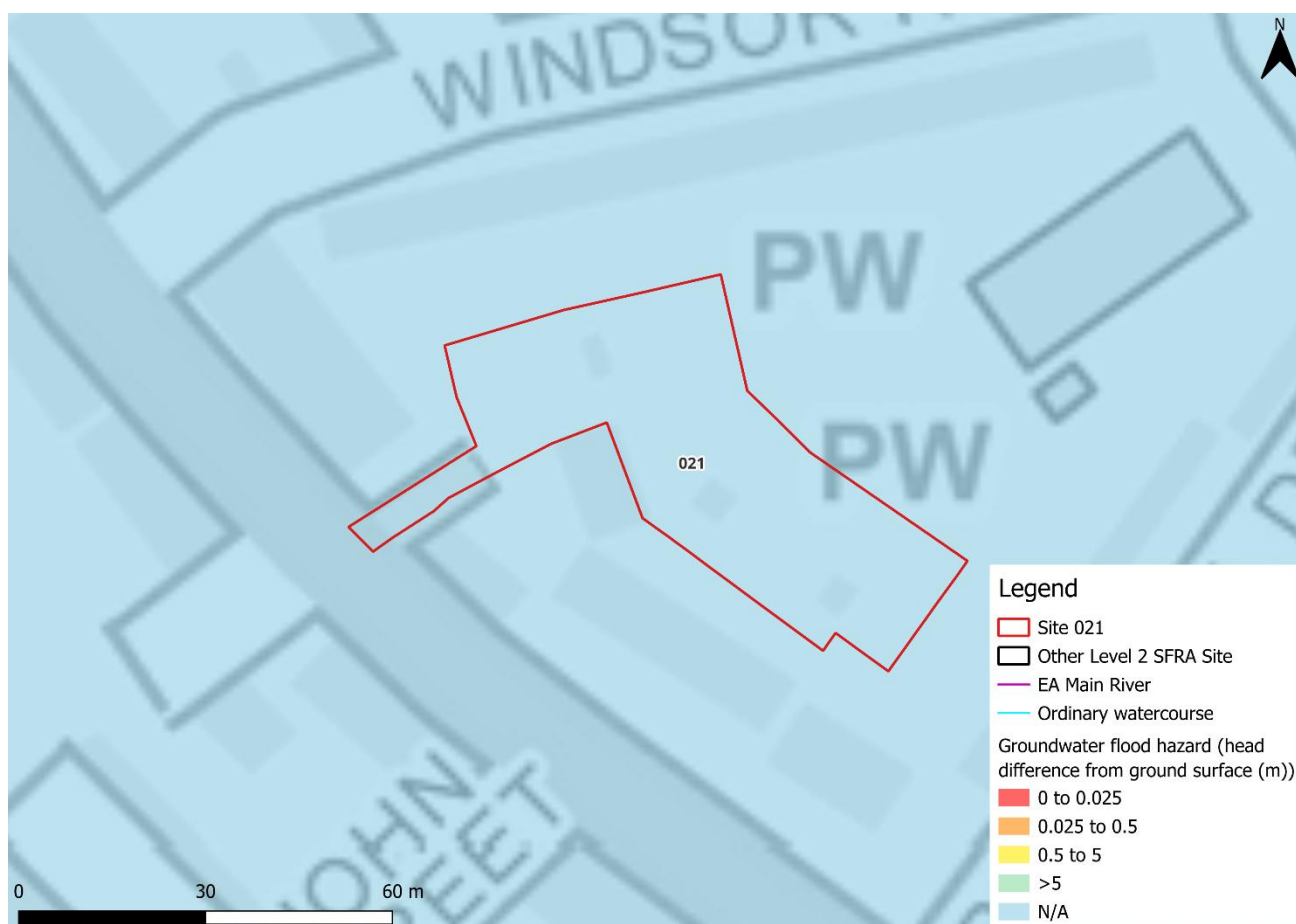


Figure 2-5: JBA 5m Groundwater Emergence Map

### 2.3 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are six recorded sewer flooding incidents that have occurred within the Bromley Cross Ward within which the site is located.

### 2.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is predominantly confined to the access and escape route to the site along Darwen Road, with largely shallow depths. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.

### 3 Site 026

| Site summary                |                                               |
|-----------------------------|-----------------------------------------------|
| Location                    | Site of former St Catherine's Academy Primary |
| Existing site use           | Disused brownfield                            |
| Existing site vulnerability | Less vulnerable                               |
| Proposed site use           | Housing                                       |
| Proposed site vulnerability | More vulnerable                               |
| Site area                   | 1.82 hectares                                 |

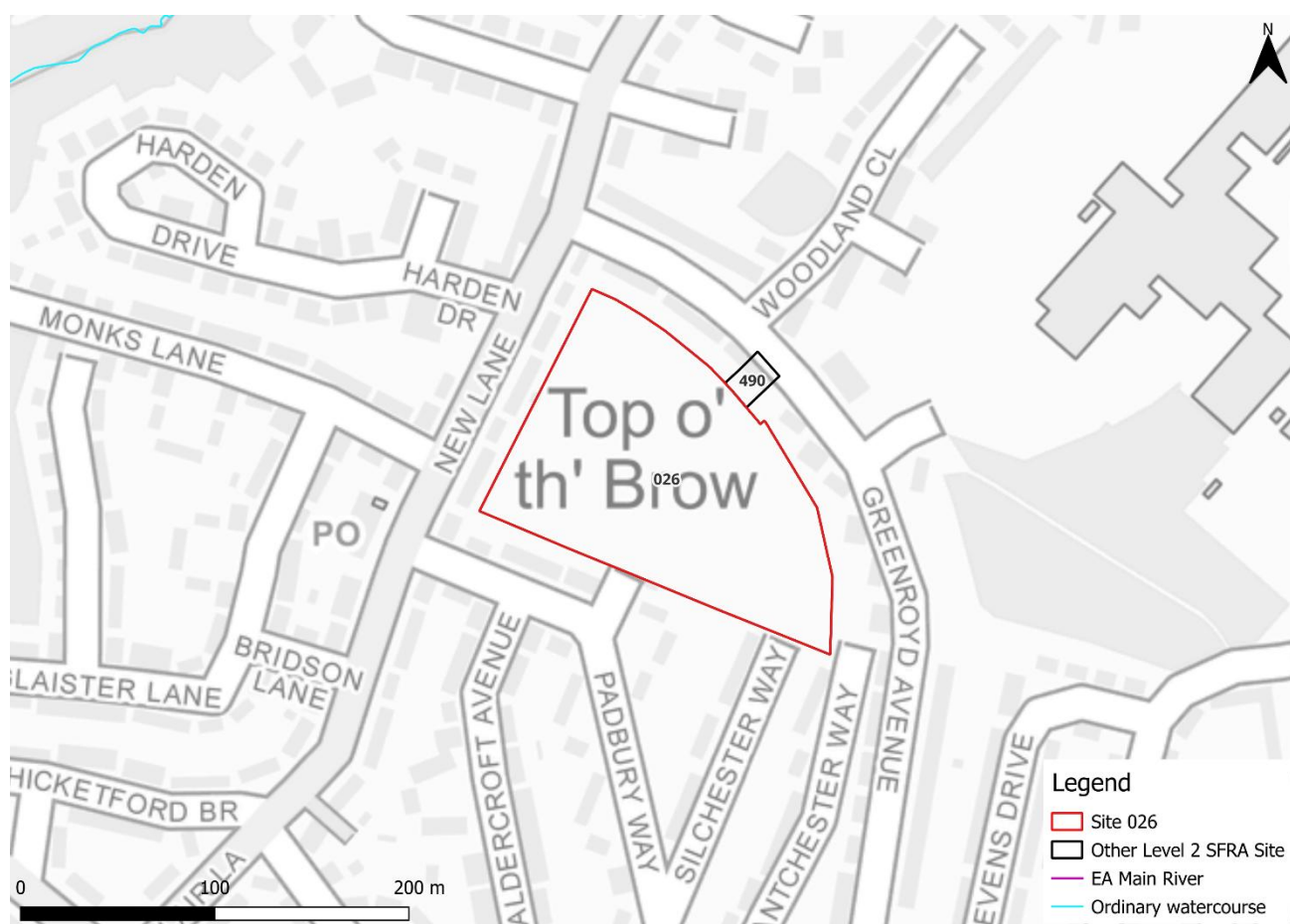


Figure 3-1: Site 026 Existing site location boundary

#### 3.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 3-1). There are some areas of ponding through the site in the 0.1% AEP event (Figure 3-2). Maximum flood depths within the site are shown to be less than 0.15 m (Figure 3-3).

Surface water flood hazard is shown to be 'significant', based on the third generation map, however there are clear differences in comparison to the Flood Map for Planning - Surface Water Spatial Planning map (Figure 3-4).

Based on available information, safe access and escape routes should be available from Padbury Way to the south of the site.

Table 3-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 98                           | 2                  | 0                | 0                  |

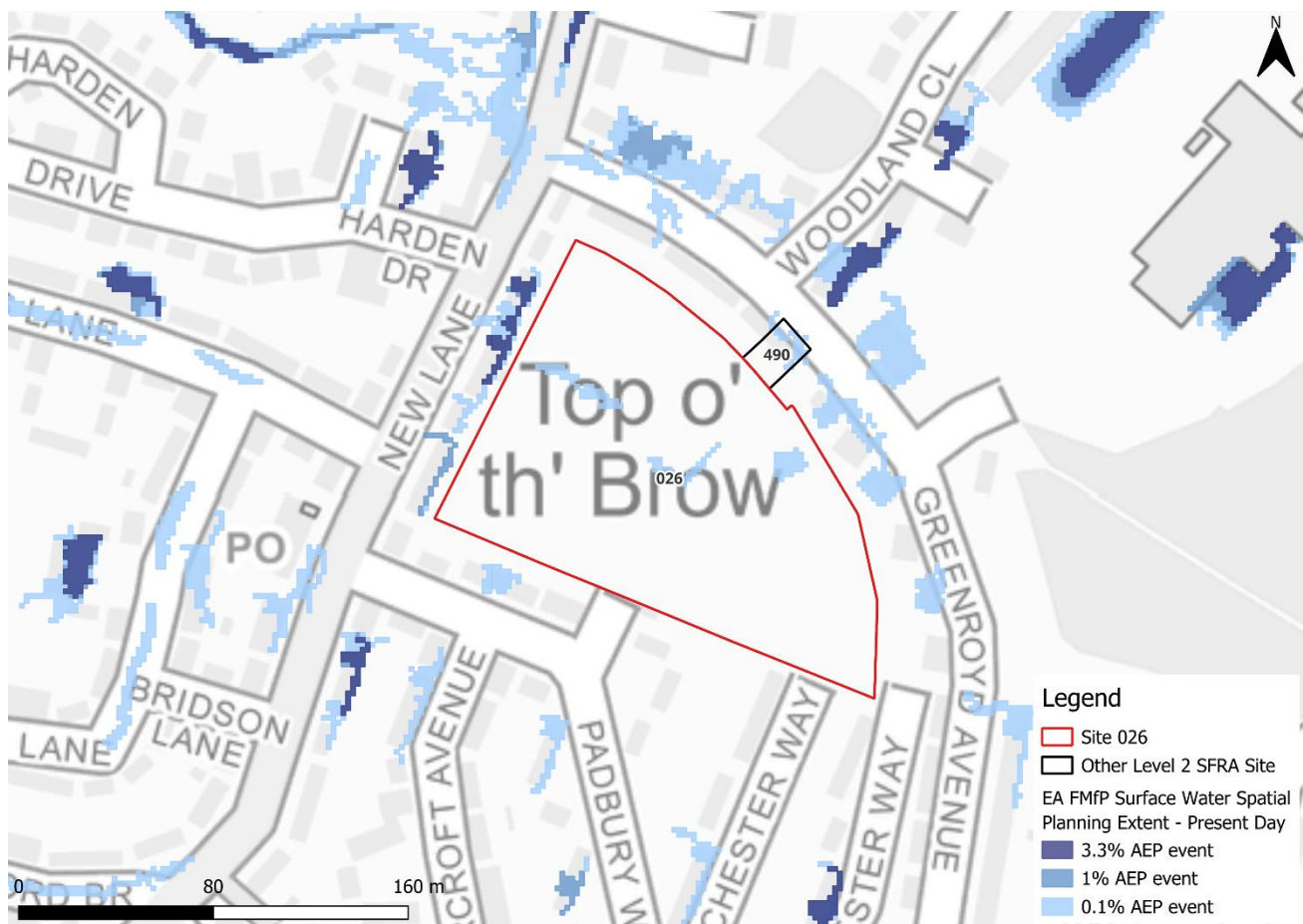


Figure 3-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

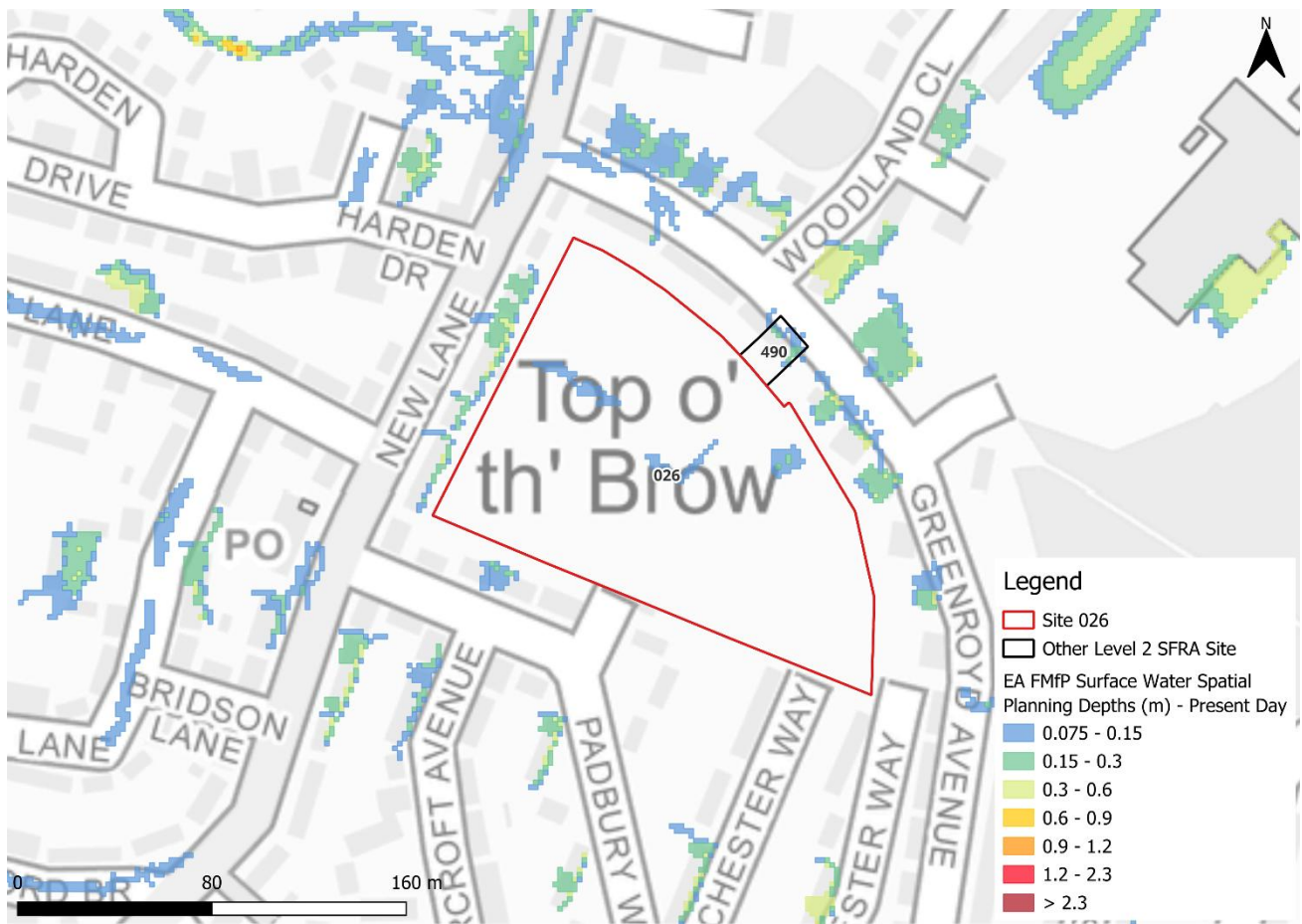


Figure 3-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event

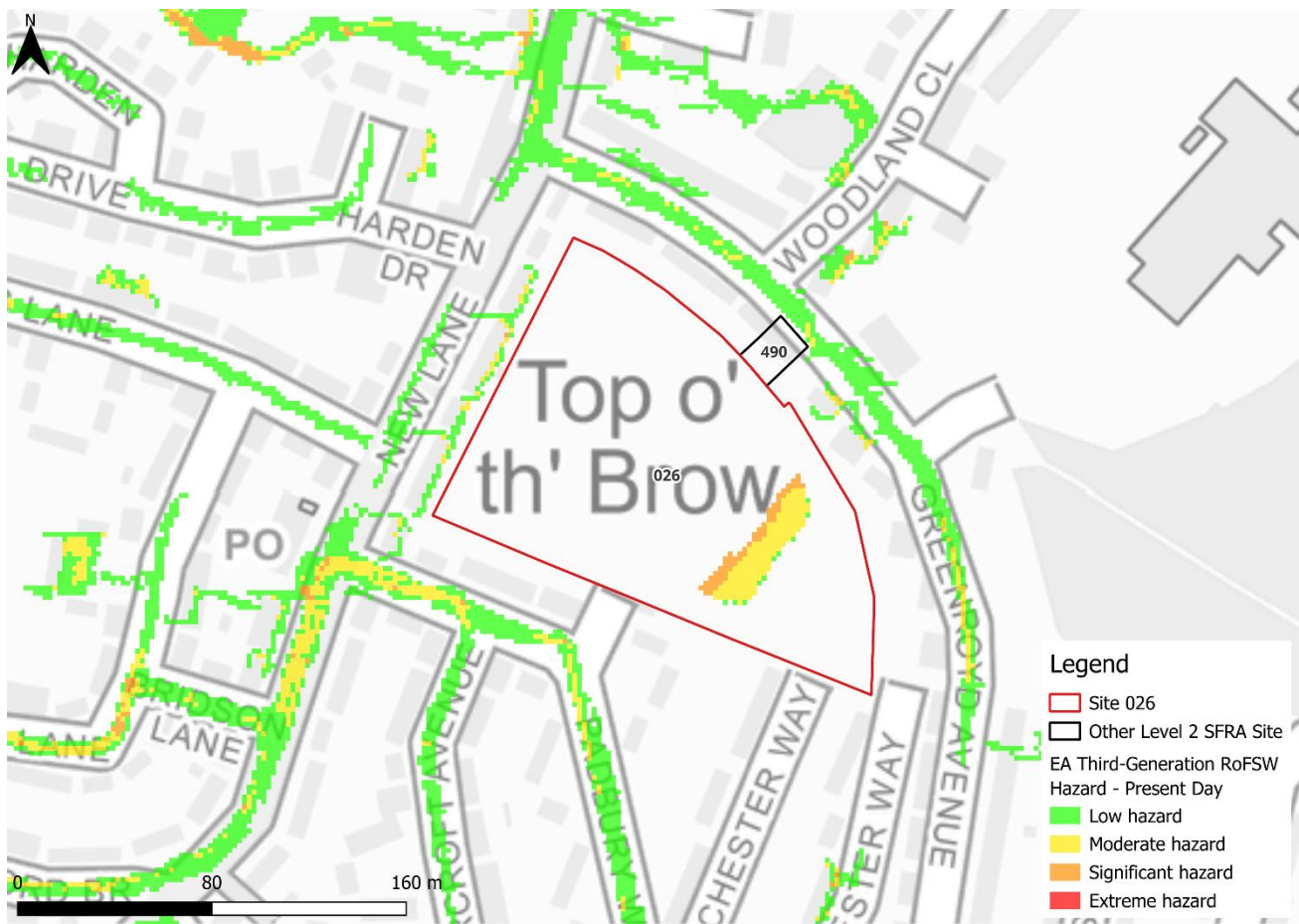


Figure 3-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water floodhazard<sup>1</sup>

### 3.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

## 3.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are 12 recorded sewer flooding incidents that have occurred within the Brightmet Ward within which the site is located.

## 3.3 Groundwater

Half of the site is within an area where there is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely. Within the remaining area of the site, there is no risk of groundwater emergence (Figure 3-5). Infiltration SuDS may therefore be suitable at this site.

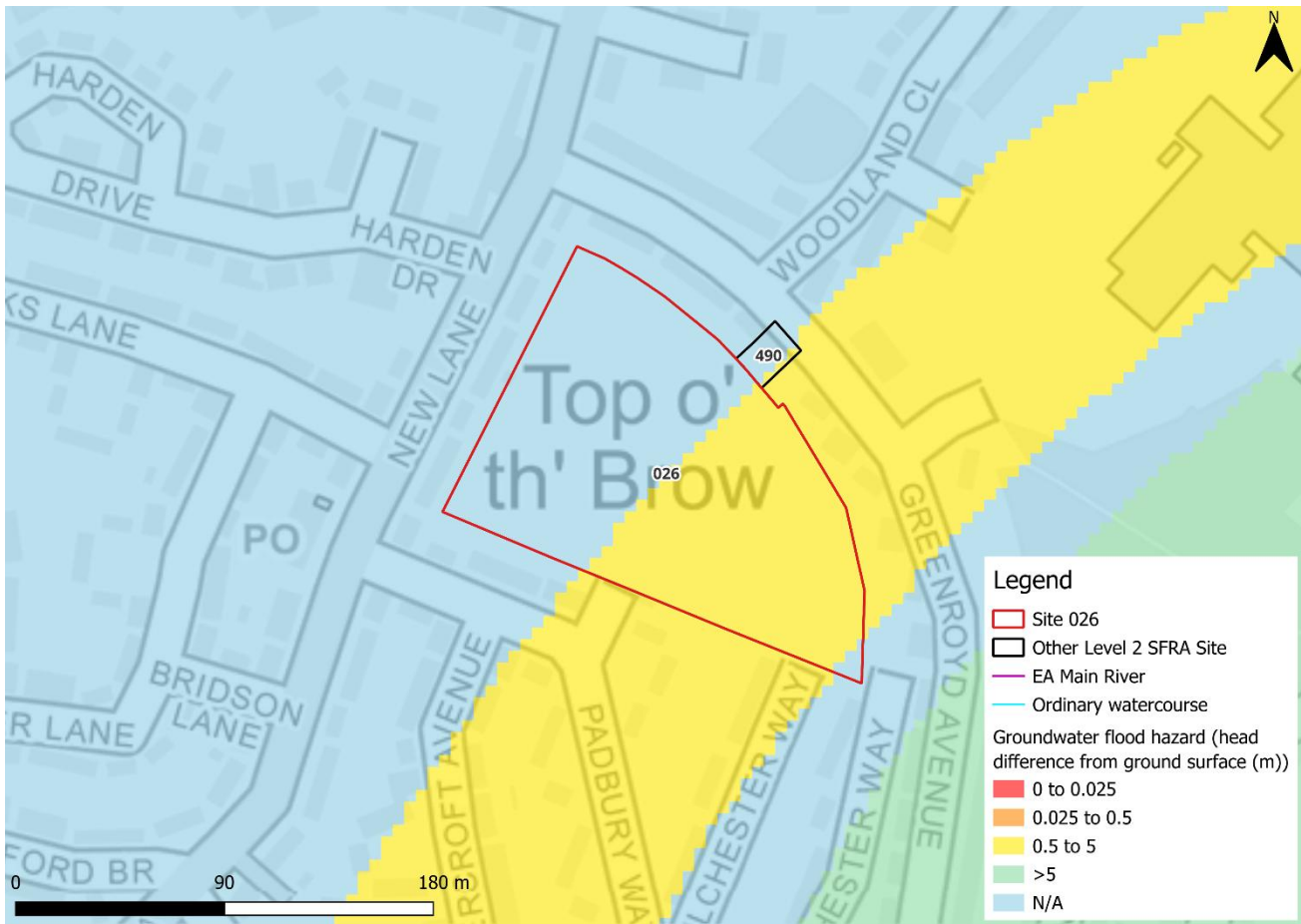


Figure 3-5: JBA 5m Groundwater Emergence Map

### 3.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to areas of shallow ponding across the site in the 0.1% AEP event. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.

## 4 Site 027

| Site summary                |                 |
|-----------------------------|-----------------|
| Location                    | Earls Farm      |
| Existing site use           | Agriculture     |
| Existing site vulnerability | Less vulnerable |
| Proposed site use           | Housing         |
| Proposed site vulnerability | More vulnerable |
| Site area                   | 2.81 hectares   |



Figure 4-1: Site 027 Existing site location boundary

### 4.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 4-1). Surface water risk is confined to a short flow path within the north of the site in the 0.1% AEP event (Figure 4-2), with flood depths rarely exceeding 0.15 m (Figure 4-3). Flood

hazard along the flow path is largely categorised as low, with some small areas of moderate and significant hazard (Figure 4-4).

Based on available information, safe access and escape routes should be available from Stitch-mi-Lane to the north of the site.

Table 4-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 99                           | 1                  | 0                | 0                  |

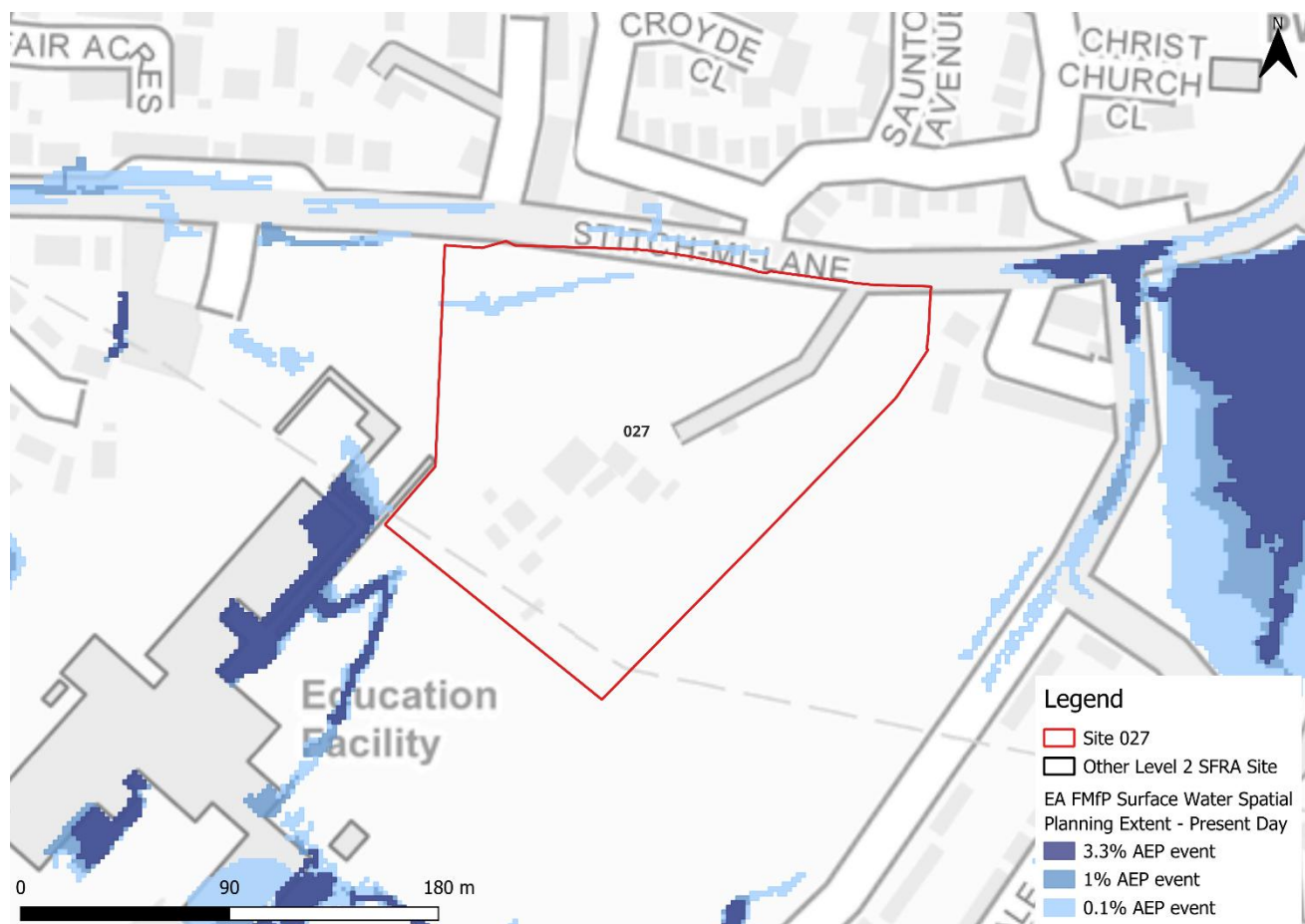


Figure 4-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

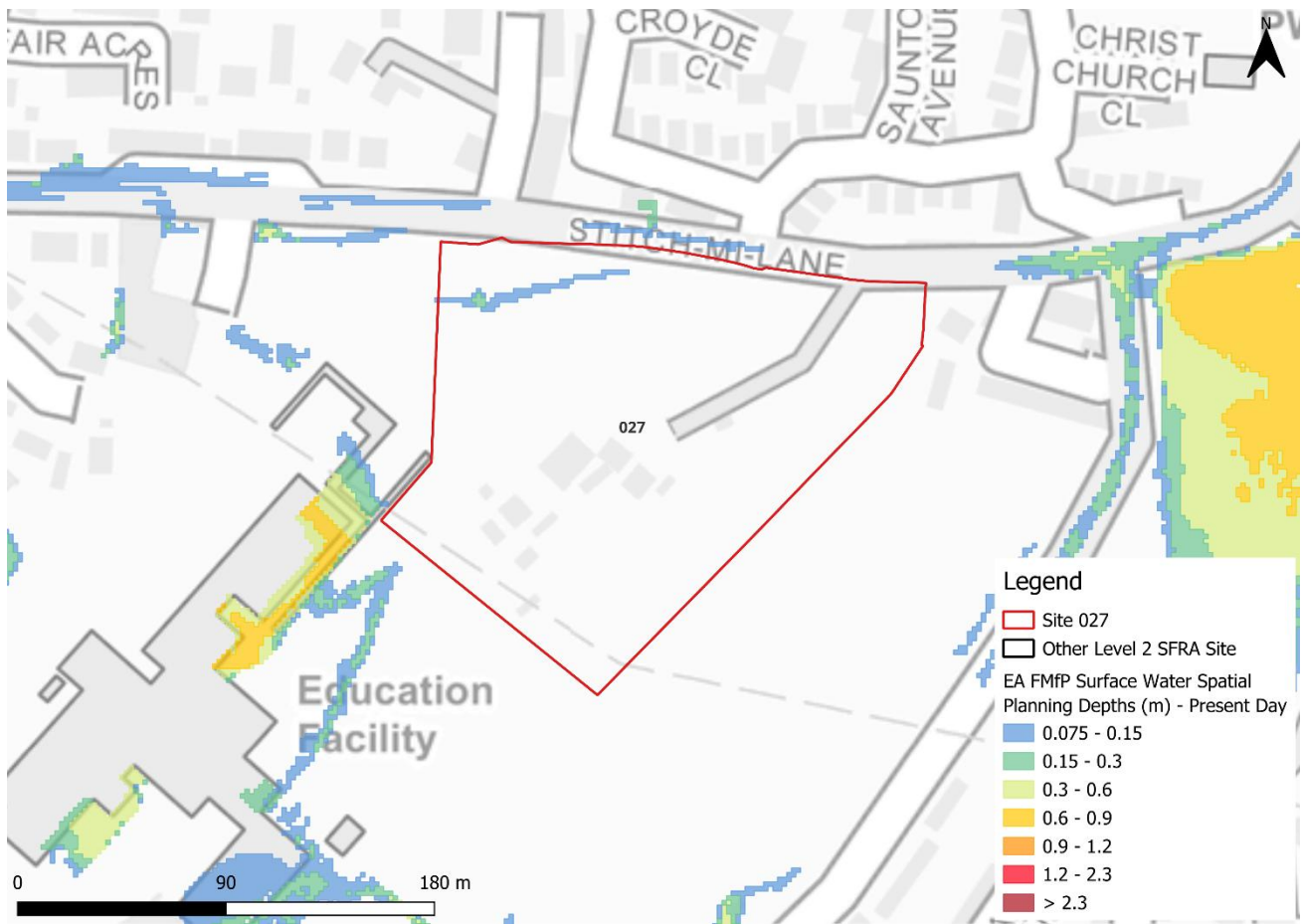


Figure 4-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event

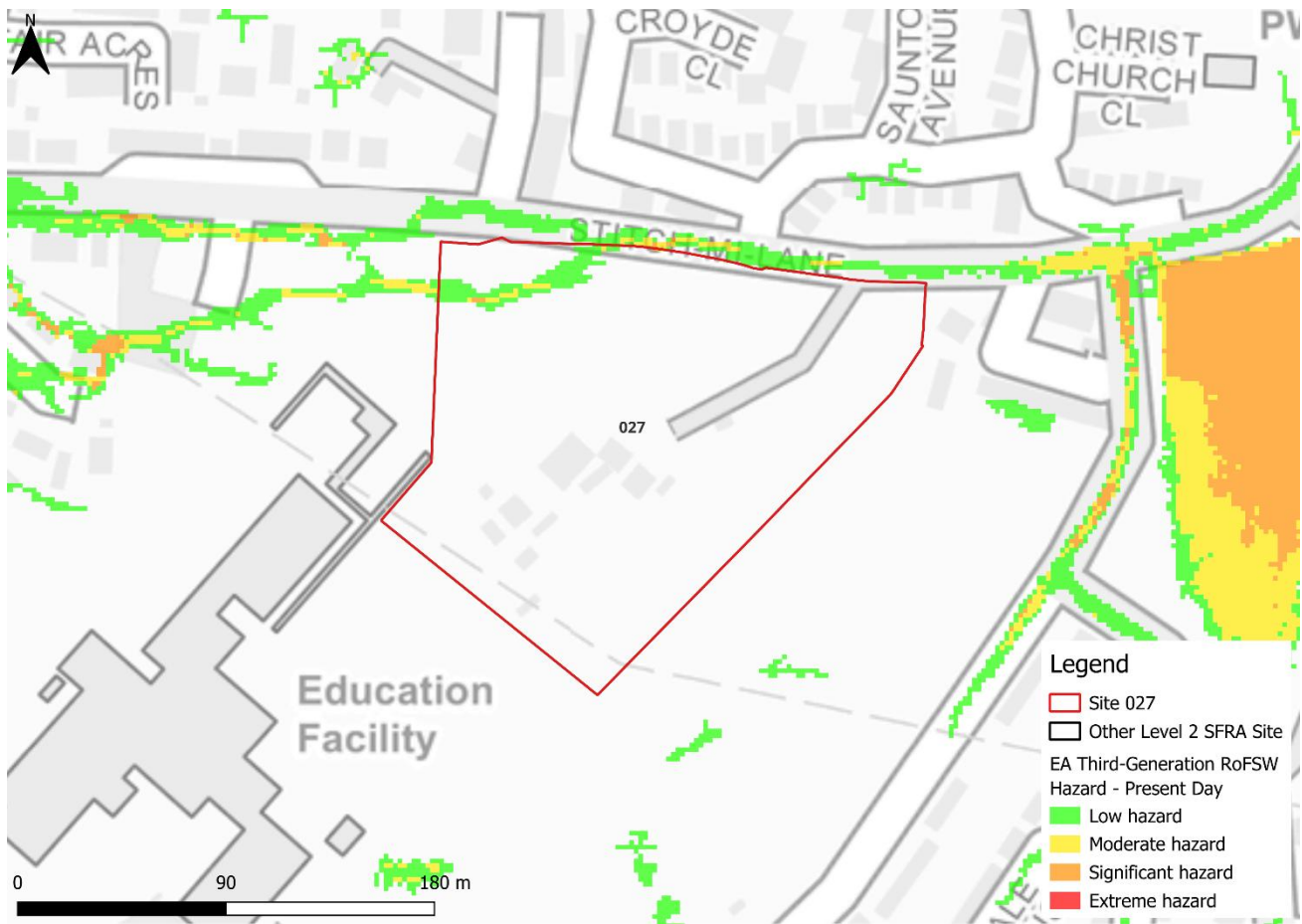


Figure 4-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water floodhazard<sup>1</sup>

#### 4.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

#### 4.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are 12 recorded sewer flooding incidents that have occurred within the Brightmet Ward within which the site is located.

#### 4.3 Groundwater

The majority of the site is within an area where there is no risk of groundwater emergence (Figure 4-5). Infiltration SuDS may therefore be suitable at this site.

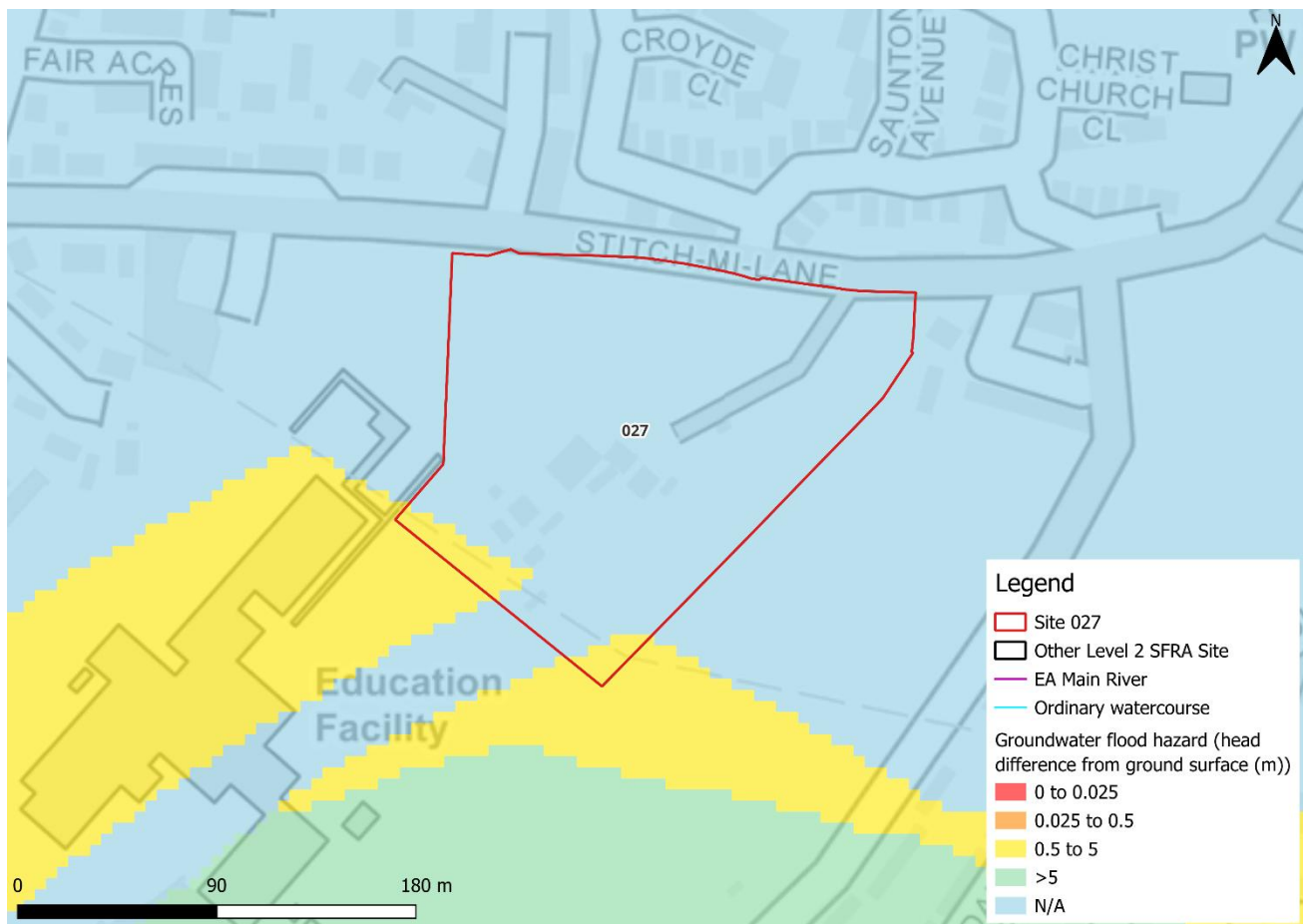


Figure 4-5: JBA 5m Groundwater Emergence Map

#### 4.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to a short flow path within the north of the site in the 0.1% AEP event. The flow path should be considered within site design. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.

## 5 Site 029

| Site summary                |                       |
|-----------------------------|-----------------------|
| Location                    | Radcliffe Road, North |
| Existing site use           | Open greenspace       |
| Existing site vulnerability | Water compatible      |
| Proposed site use           | Housing               |
| Proposed site vulnerability | More vulnerable       |
| Site area                   | 0.47 hectares         |



Figure 5-1: Site 029 Existing site location boundary

### 5.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 5-1). Surface water flood risk is largely confined to the access and escape routes to the site (Figure 5-2). In the 0.1% AEP event, flood depths along Radcliffe Road are shown to rarely

exceed 0.15 m, with flood depths up to 1.2 m along Sidford Close (Figure 5-3). Within the site, surface water flood hazard is shown to be low (Figure 5-4).

Based on available information, safe access and escape routes should be available from Radcliffe Road to the south of the site and Ramsden Street to the north.

Table 5-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 99                           | 0                  | 1                | 0                  |

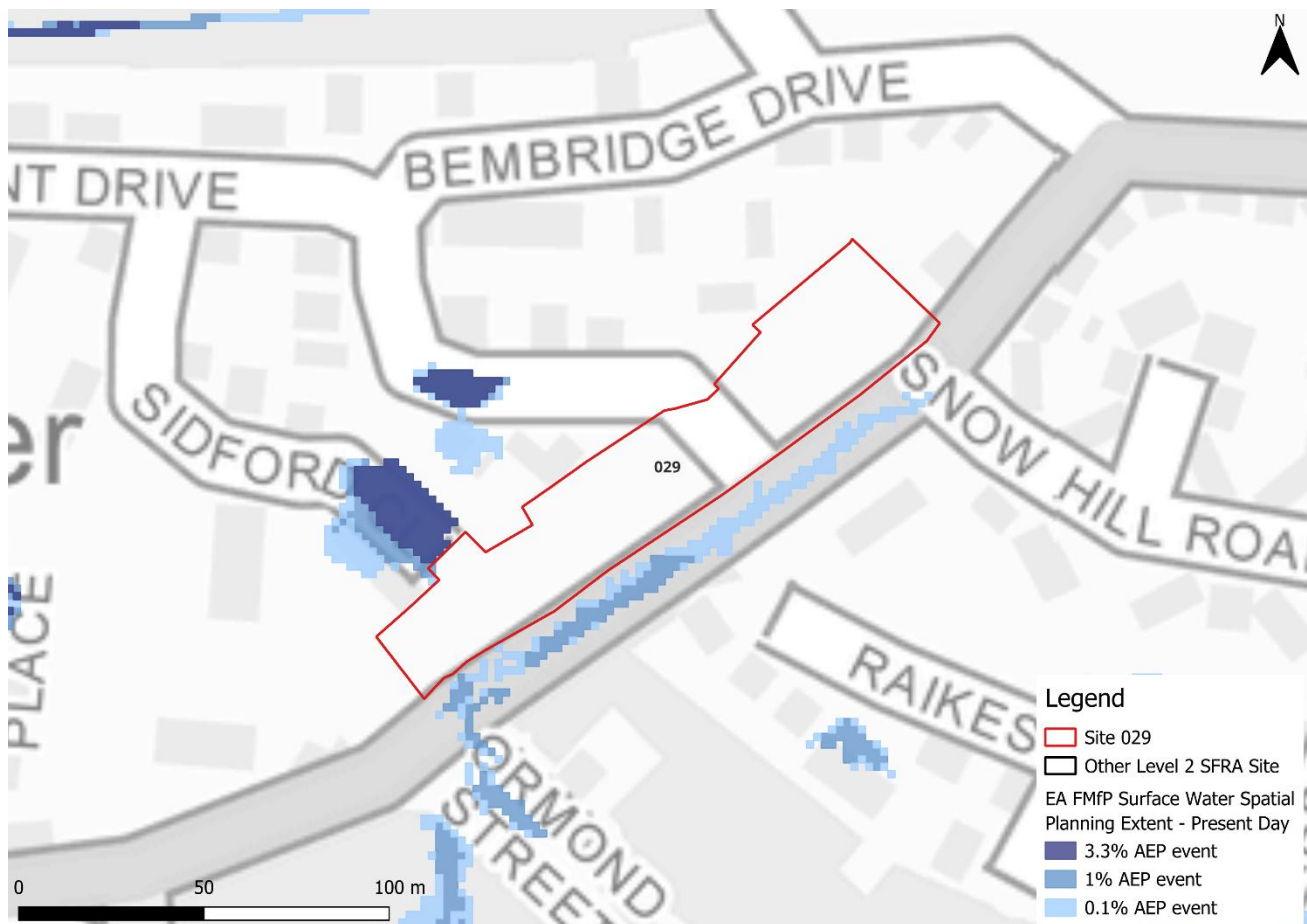


Figure 5-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day



Figure 5-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event



Figure 5-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water floodhazard<sup>1</sup>

#### 5.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

### 5.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are five recorded sewer flooding incidents that have occurred within the Little Lever & Darcy Lever Ward within which the site is located.

### 5.3 Groundwater

The entire site is within an area where there is no risk of groundwater emergence (Figure 5-5). Infiltration SuDS may therefore be suitable at this site.

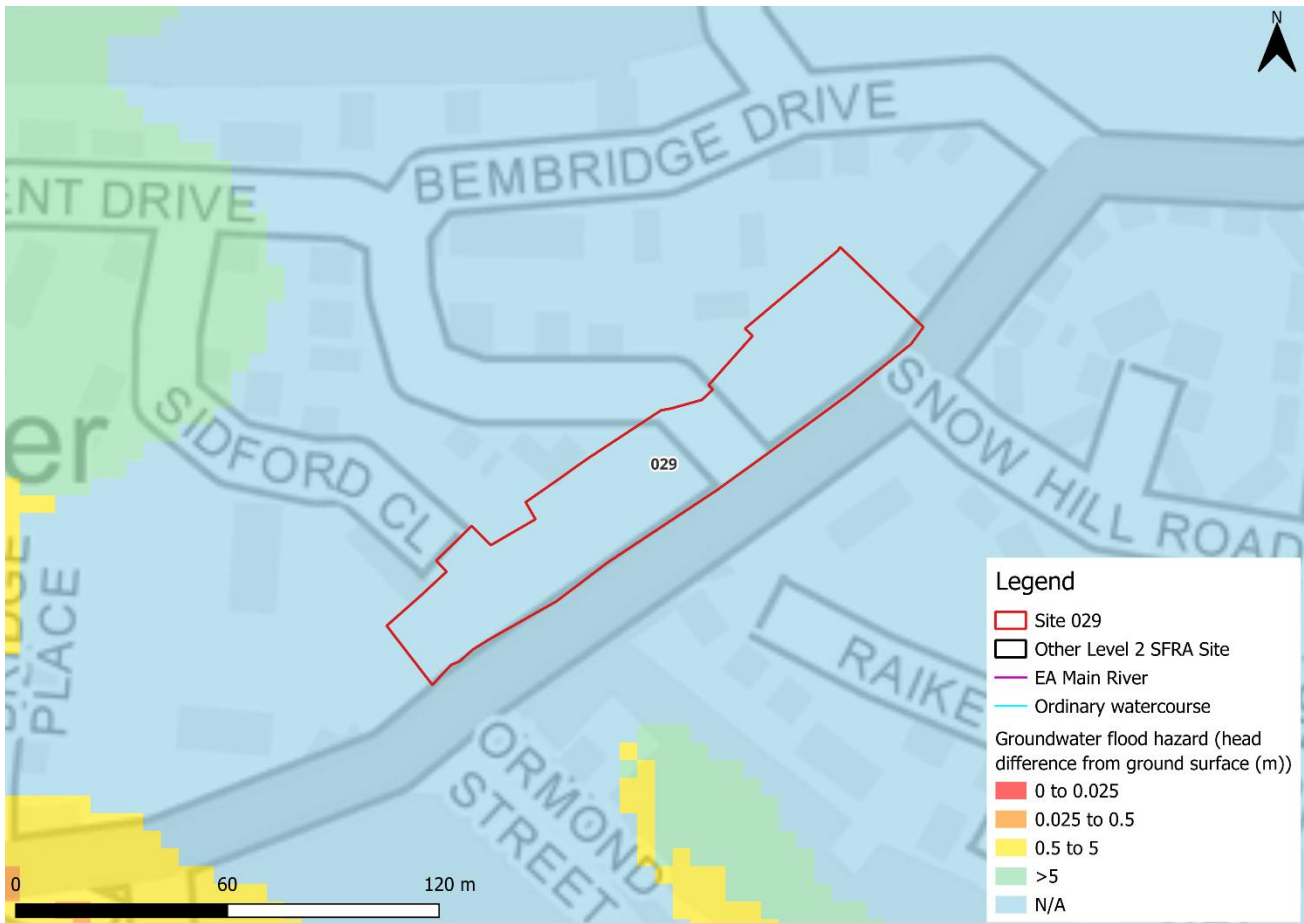


Figure 5-5: JBA 5m Groundwater Emergence Map

#### 5.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to the access and escape routes to the site in the 0.1% AEP event. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Access and escape routes via Sidford Close should be avoided, due to the modelled surface water flood depths along this route.
- Onsite surface water flood risk is not likely to increase significantly in the future.

## 6 Site 107

| Site summary                |                  |
|-----------------------------|------------------|
| Location                    | Telford Street   |
| Existing site use           | Open greenspace  |
| Existing site vulnerability | Water compatible |
| Proposed site use           | Housing          |
| Proposed site vulnerability | More vulnerable  |
| Site area                   | 0.38 hectares    |

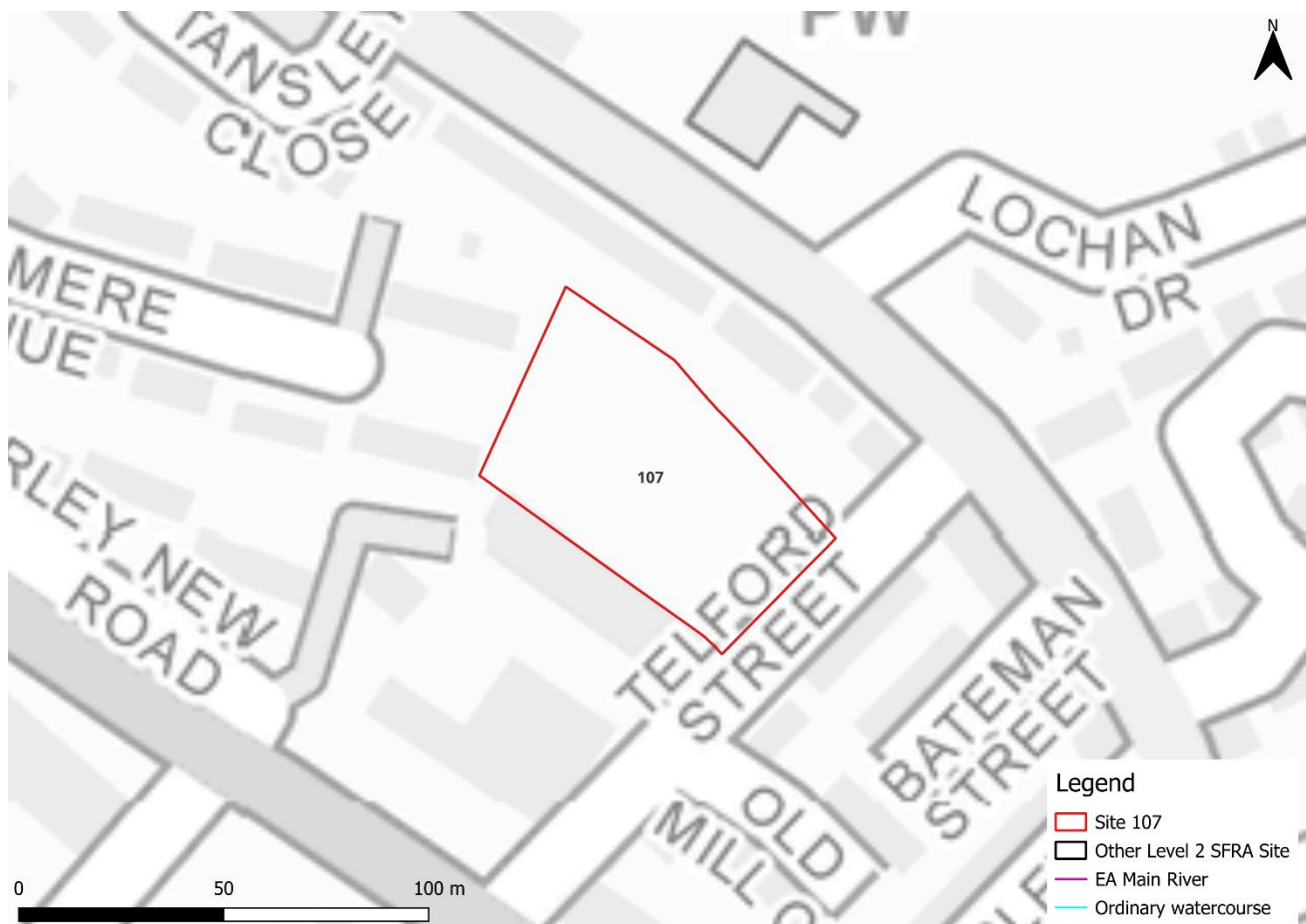


Figure 6-1: Site 107 Existing site location boundary

### 6.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 6-1). Surface water flood risk is confined to a small area of ponding impacting the western corner of the site (Figure 6-2), with shallow depths (Figure 6-3) and low hazard (Figure 6-4).

Based on available information, safe access and escape routes should be available from Telford Street to the east of the site.

Table 6-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 99                           | 1                  | 0                | 0                  |

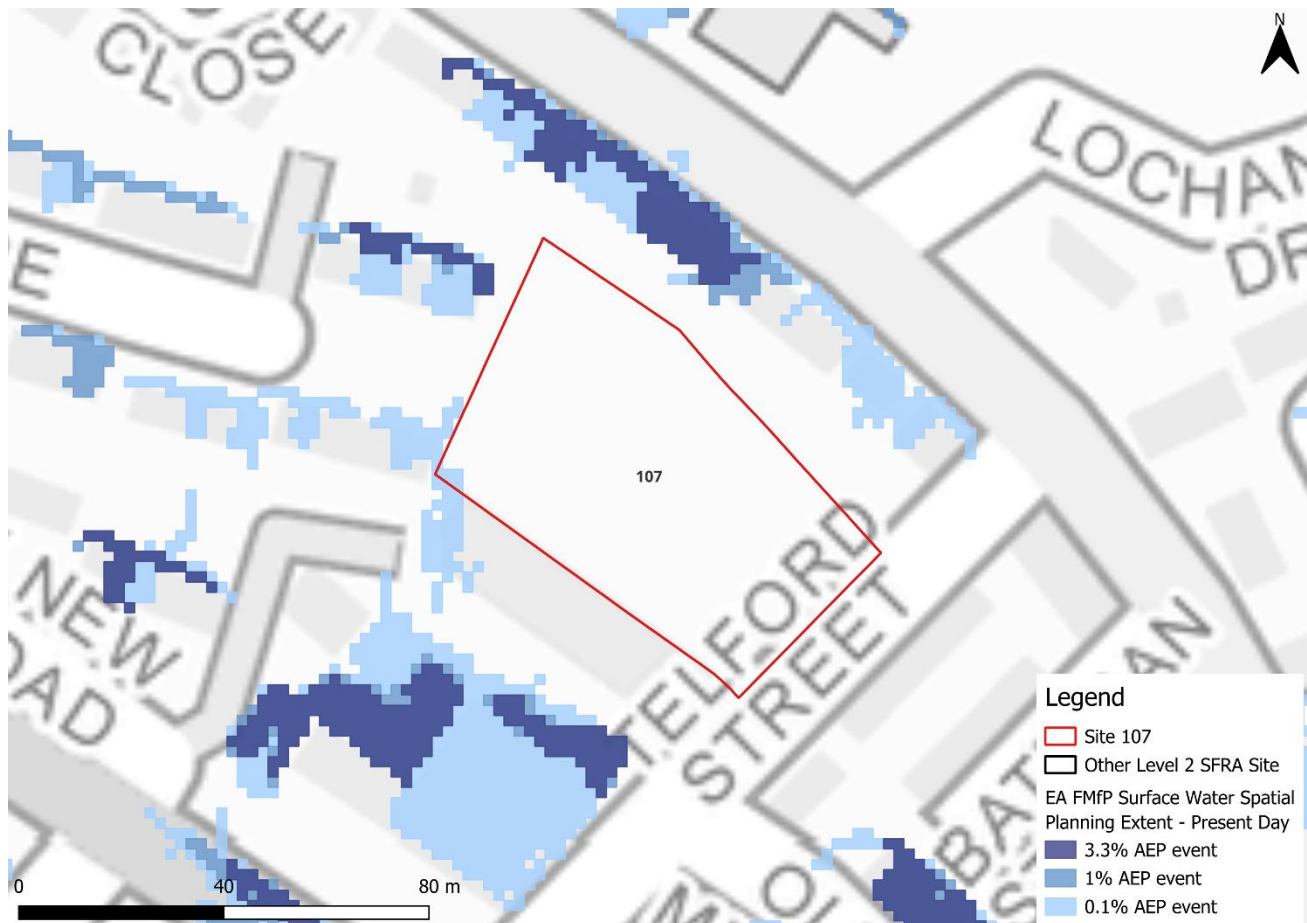


Figure 6-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

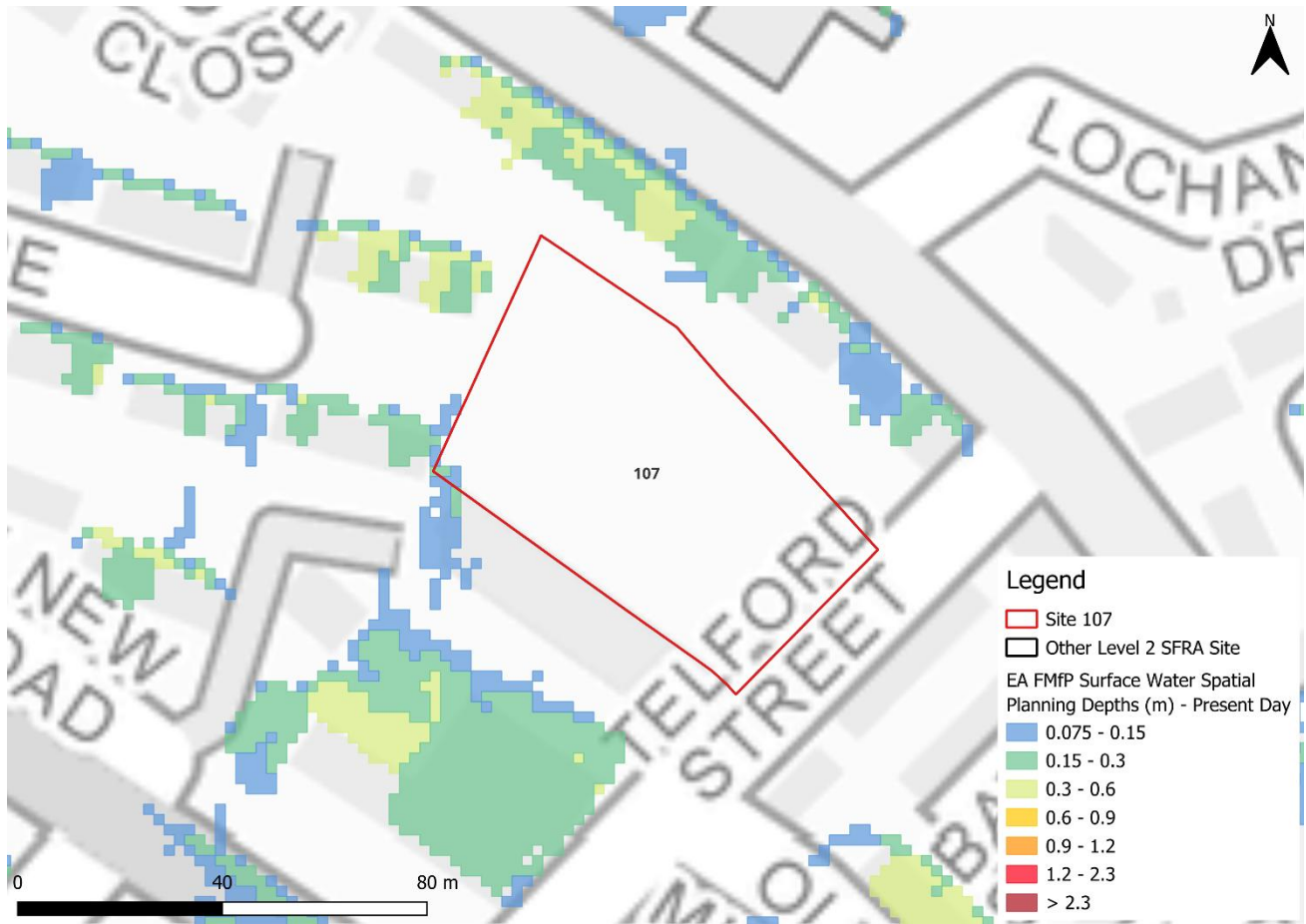


Figure 6-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event

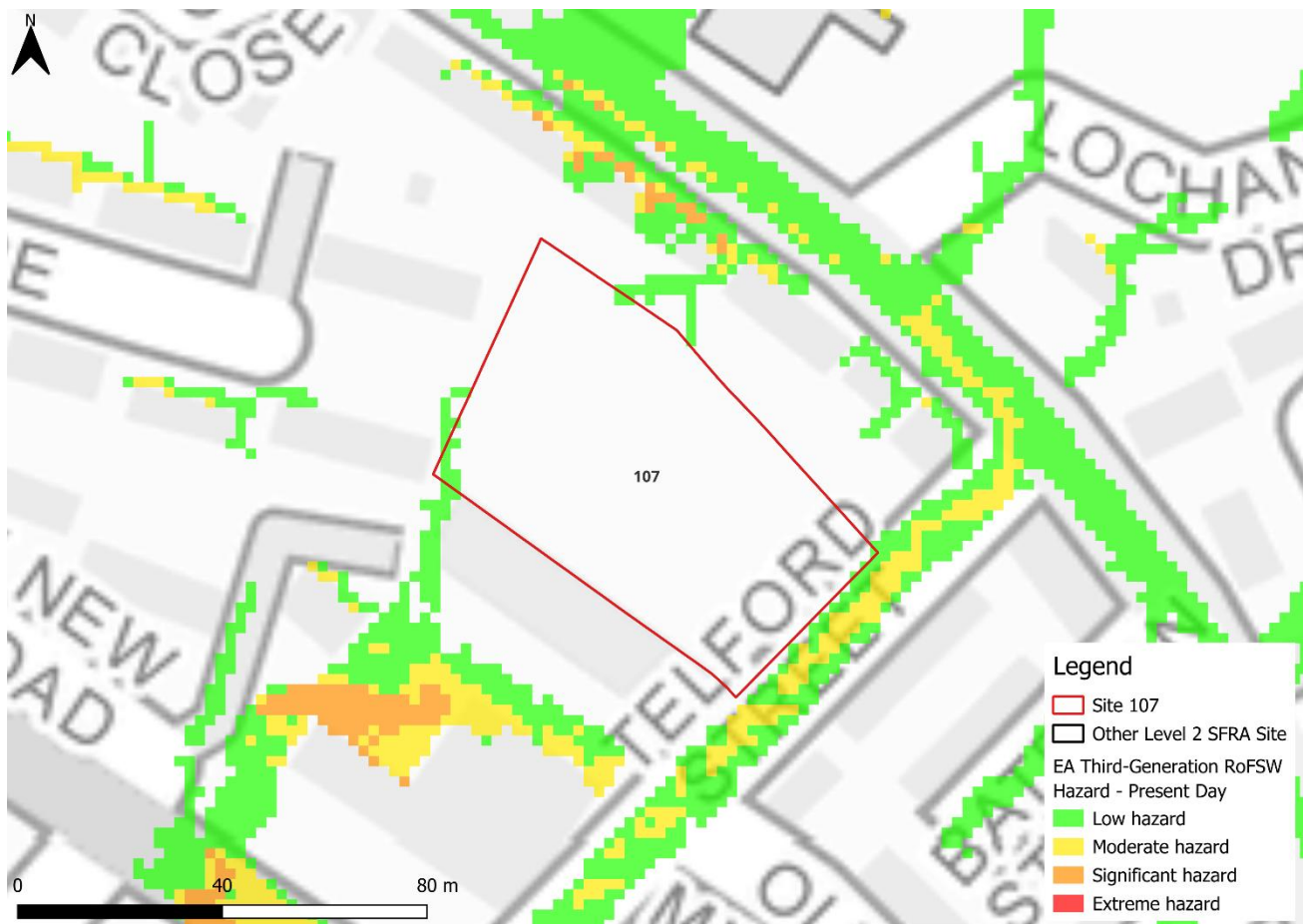


Figure 6-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water floodhazard<sup>1</sup>

#### 6.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

### 6.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are 16 recorded sewer flooding incidents that have occurred within the Horwich North Ward within which the site is located.

### 6.3 Groundwater

The entire site is in an area where there is a risk of groundwater flooding to both surface and subsurface assets (Figure 6-5). Groundwater conditions are likely therefore unsuited to infiltration SuDS.

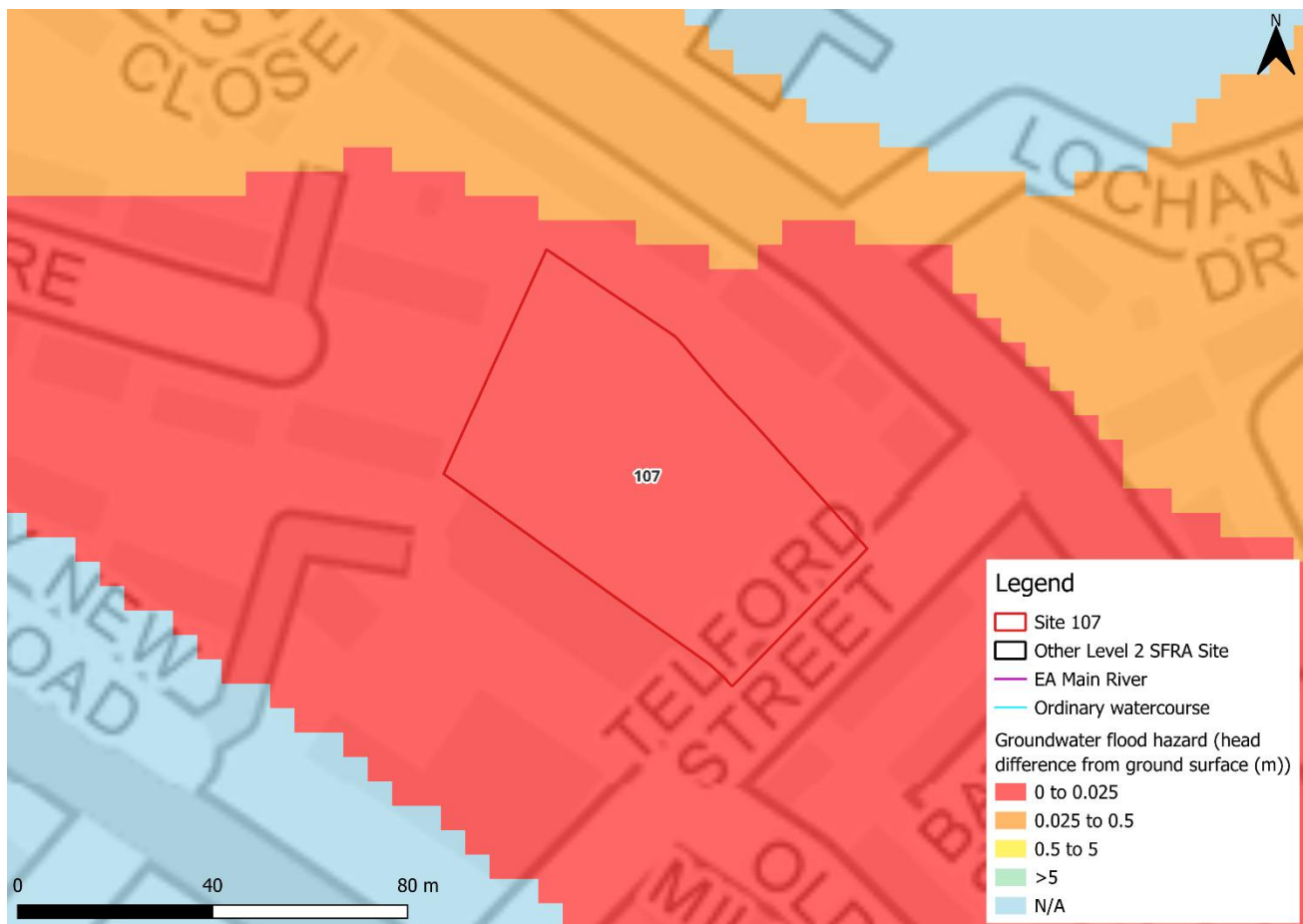


Figure 6-5: JBA 5m Groundwater Emergence Map

#### 6.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to an area of shallow ponding within the western corner of the site in the 0.1% AEP event. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.
- Groundwater levels should be further investigated at the site-specific FRA stage through percolation testing in both wet and dry conditions.

## 7 Site 431

| Site summary                |                       |
|-----------------------------|-----------------------|
| Location                    | West of Vicarage Road |
| Existing site use           | Agriculture           |
| Existing site vulnerability | Less vulnerable       |
| Proposed site use           | Housing               |
| Proposed site vulnerability | More vulnerable       |
| Site area                   | 0.69 hectares         |



Figure 7-1: Site 431 Existing site location boundary

### 7.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 7-1). Surface water risk is confined to a flow path along the southern boundary of the site in the 0.1% AEP event (Figure 7-2), with shallow flood depths (Figure 7-3) and low hazard (Figure 7-4).

Based on available information, safe access and escape routes should be available from the existing access road to Vicarage Road West north of the site.

Table 7-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 97                           | 3                  | 0                | 0                  |

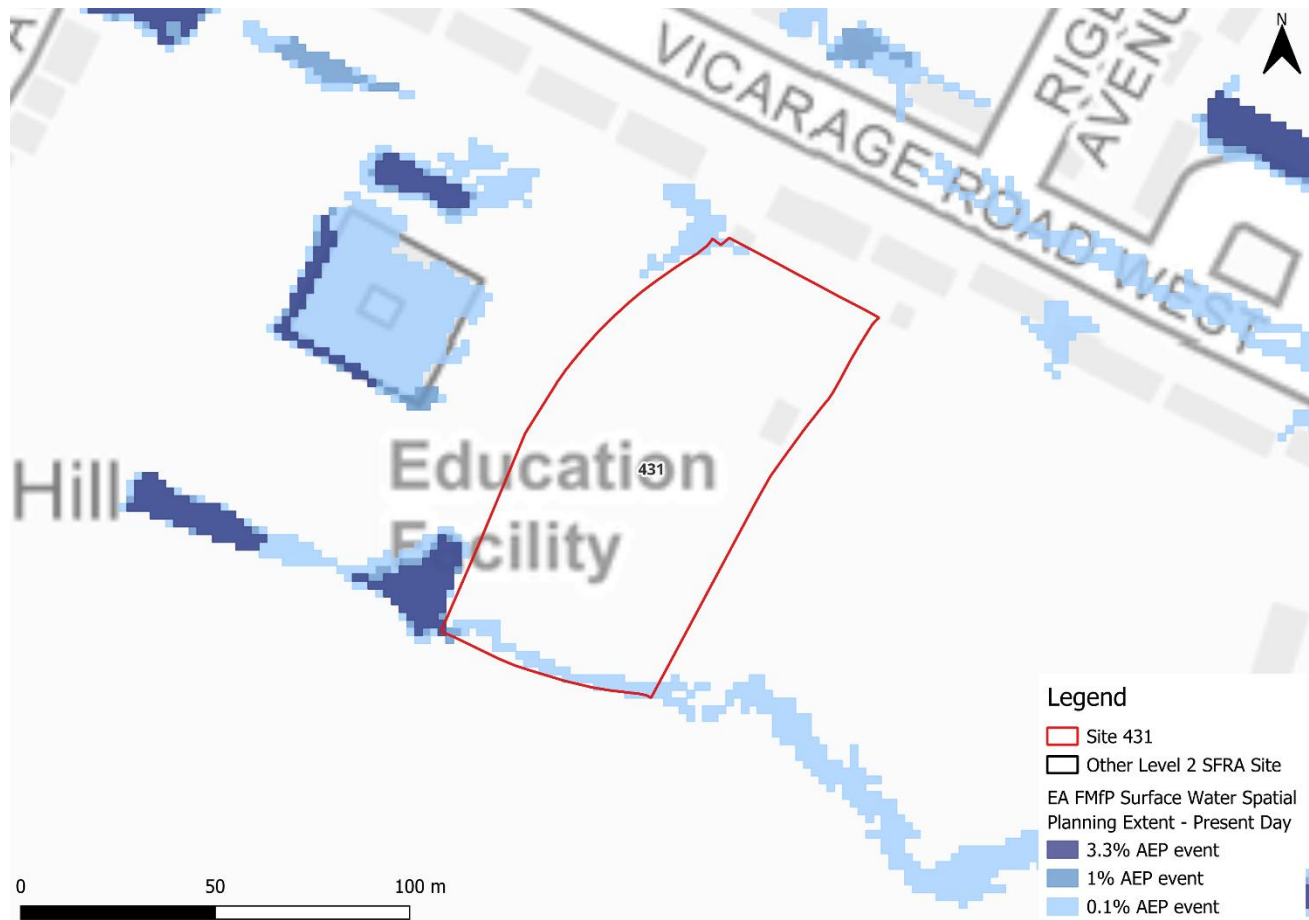


Figure 7-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

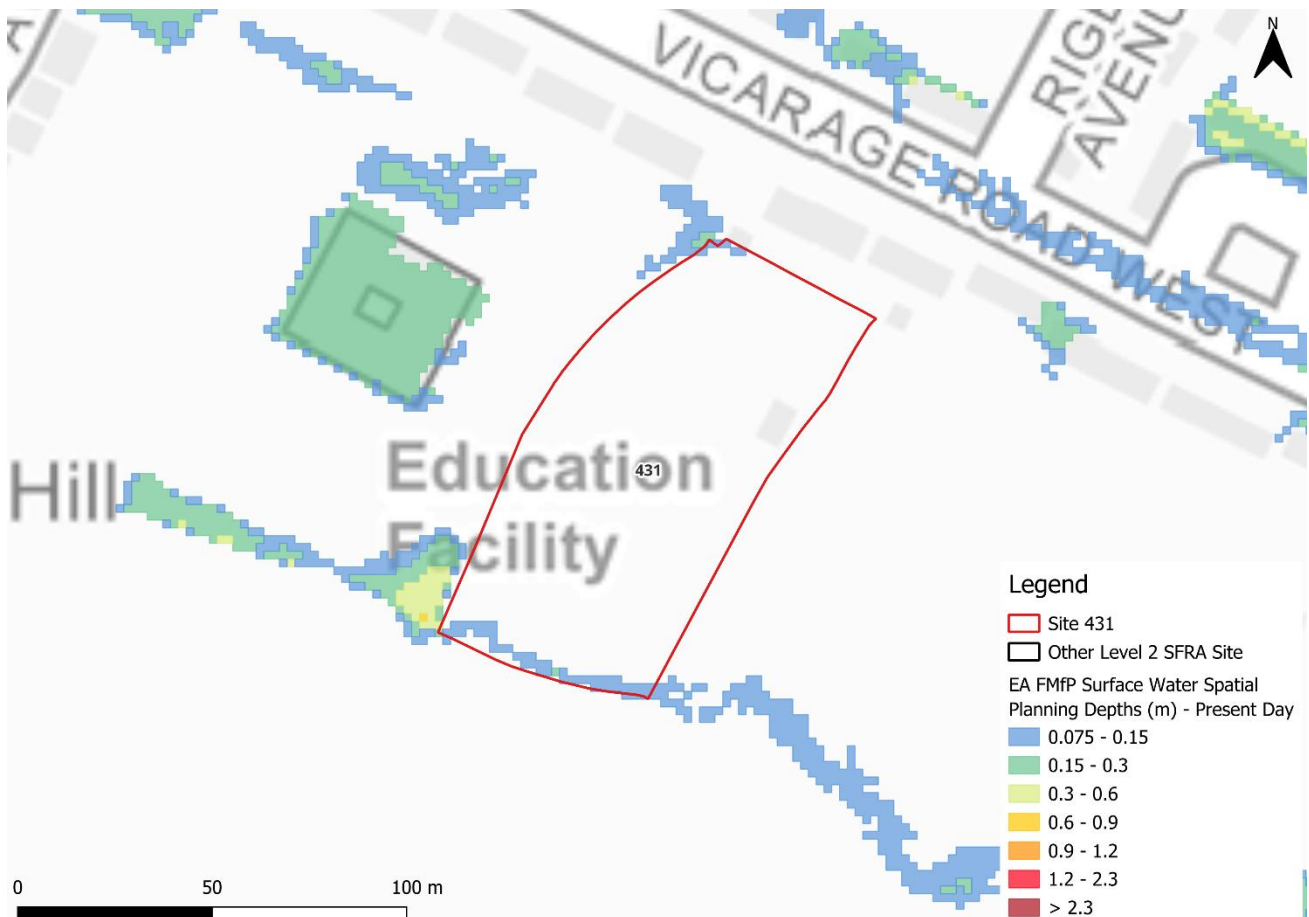


Figure 7-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event

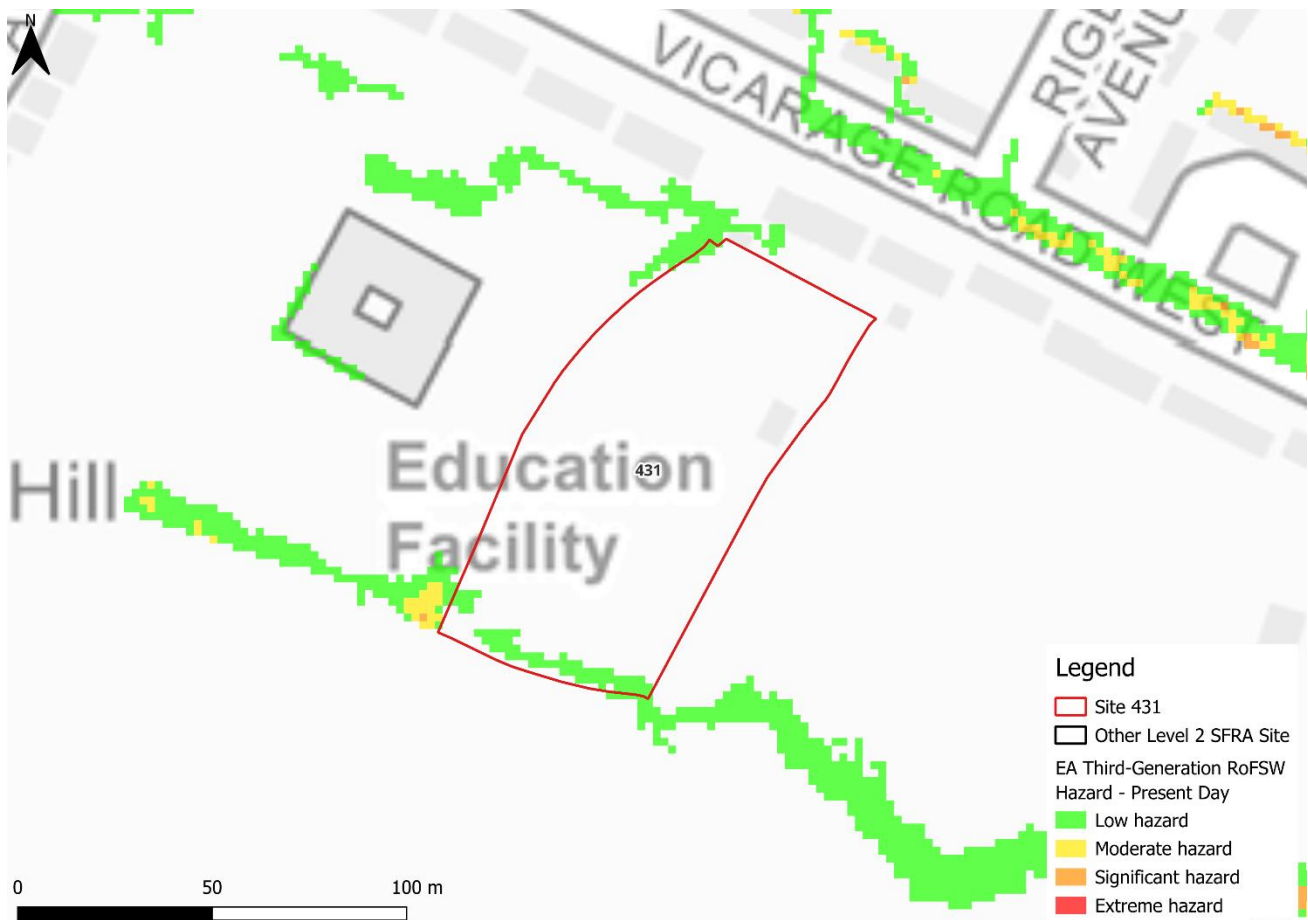


Figure 7-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water floodhazard<sup>1</sup>

#### 7.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

### 7.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are 18 recorded sewer flooding incidents that have occurred within the Horwich South & Blackrod Ward within which the site is located.

### 7.3 Groundwater

The entire site is in an area where groundwater emergence is unlikely (Figure 7-5). Infiltration SuDS may therefore be suitable at this site.

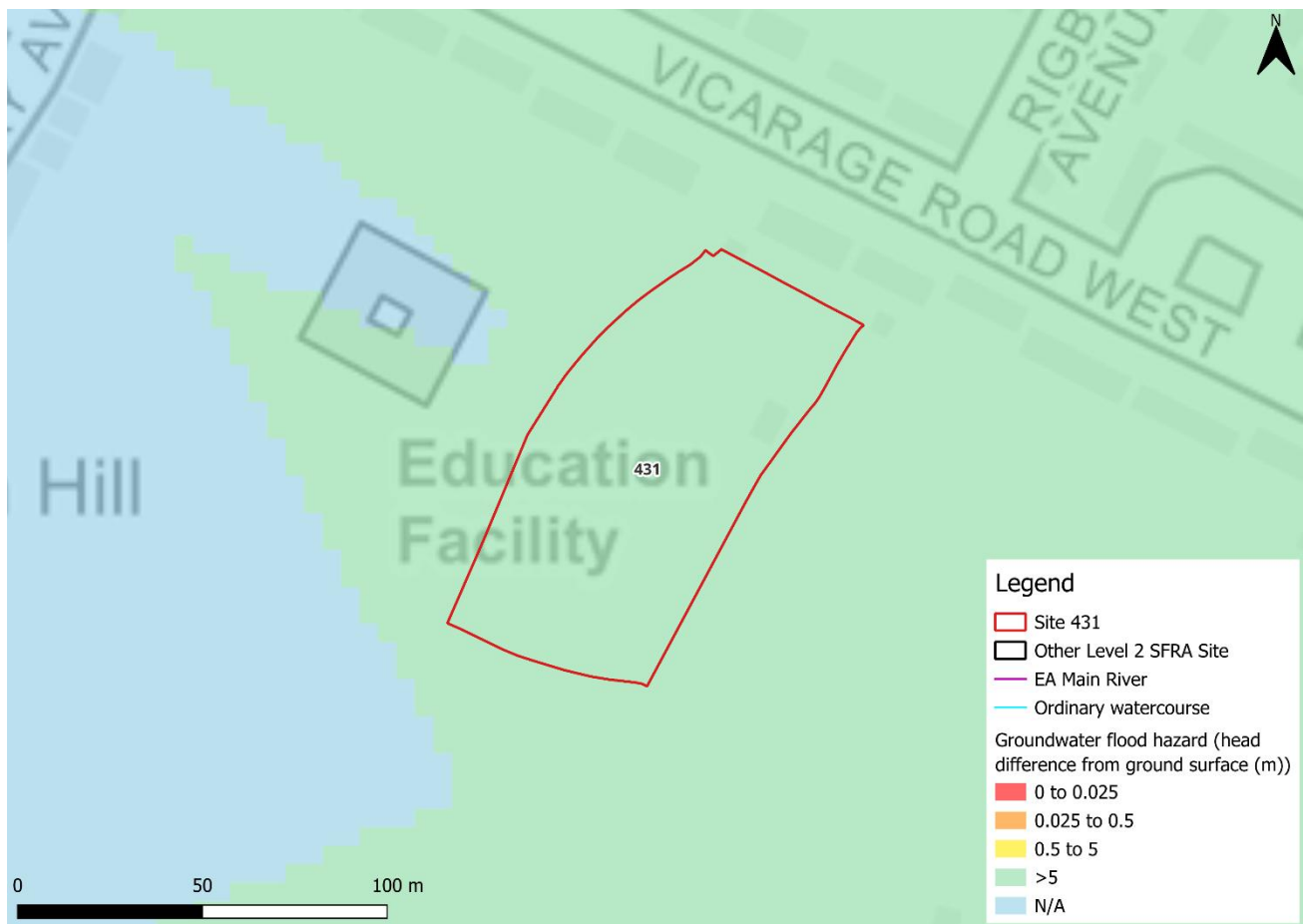


Figure 7-5: JBA 5m Groundwater Emergence Map

## 7.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to a short flow path within the south of the site in the 0.1% AEP event. The flow path should be considered within site design. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.

## 8 Site 450

| Site summary                |                                                    |
|-----------------------------|----------------------------------------------------|
| Location                    | Land southeast of Junction 4 of the M61, Farnworth |
| Existing site use           | Agriculture                                        |
| Existing site vulnerability | Less vulnerable                                    |
| Proposed site use           | Employment                                         |
| Proposed site vulnerability | Less vulnerable                                    |
| Site area                   | 9.08 hectares                                      |

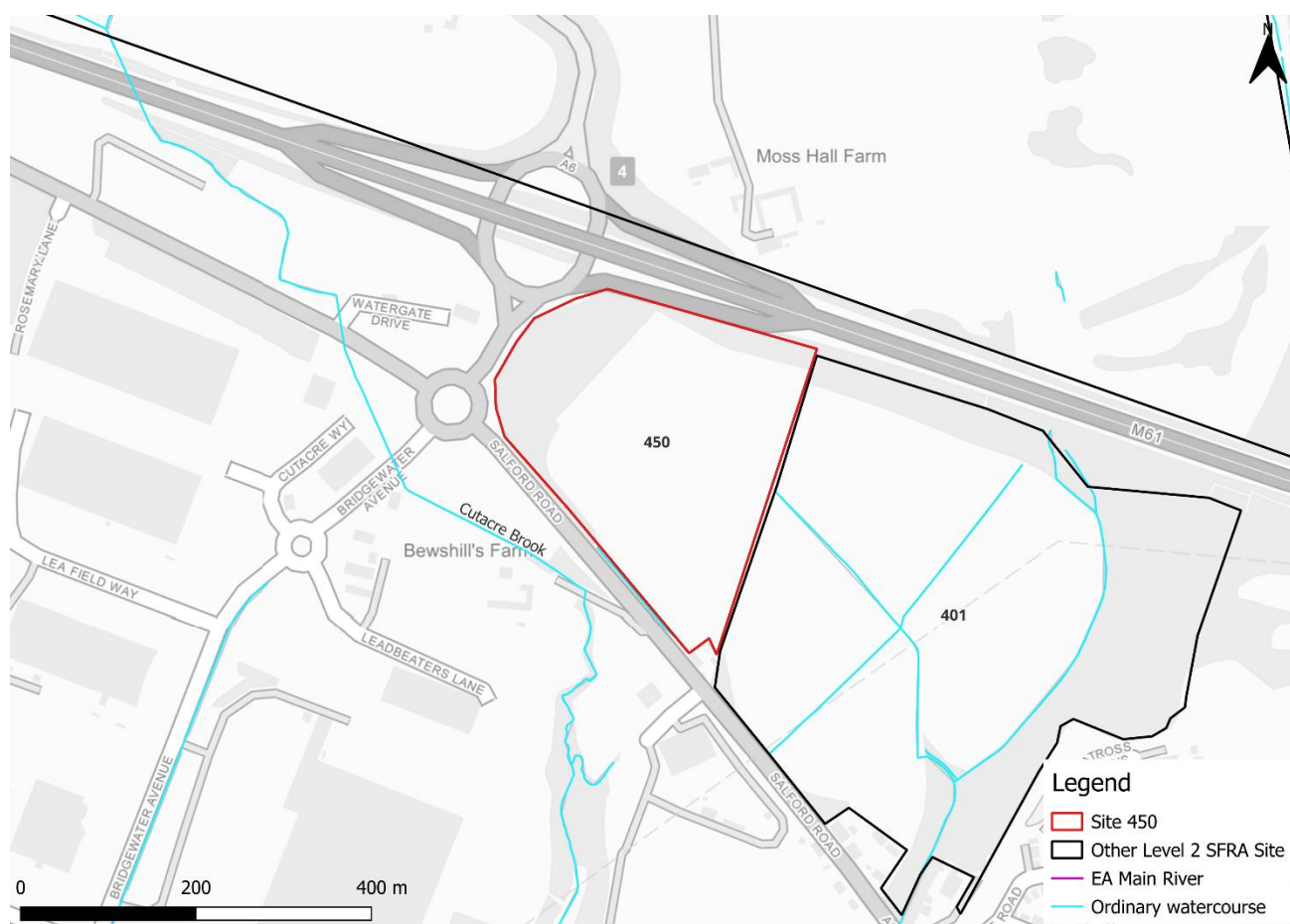


Figure 8-1: Site 450 Existing site location boundary

### 8.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 8-1). Surface water risk is confined to two flow paths, within the north and south of the site (Figure 8-2). The surface water flow path in the south is located along a drainage ditch.

Greatest surface water flood depths in the 0.1% AEP event are between 0.3 and 0.6 m (Figure 8-3) and a small area of hazard categorised as significant (Figure 8-4).

Based on available information, safe access and escape routes should be available from Salford Road to the south of the site.

Table 8-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 97                           | 1                  | 1                | 1                  |

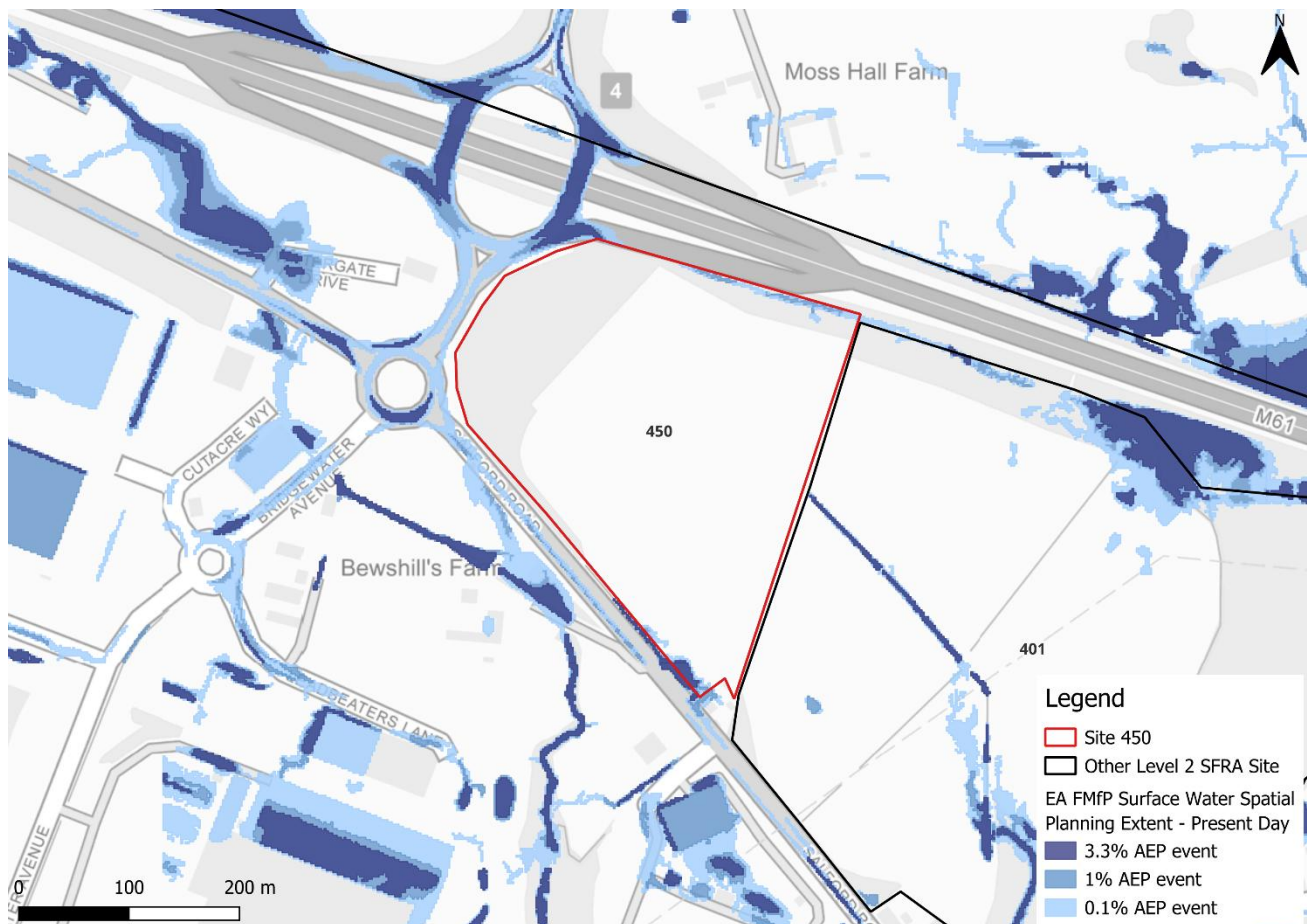


Figure 8-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

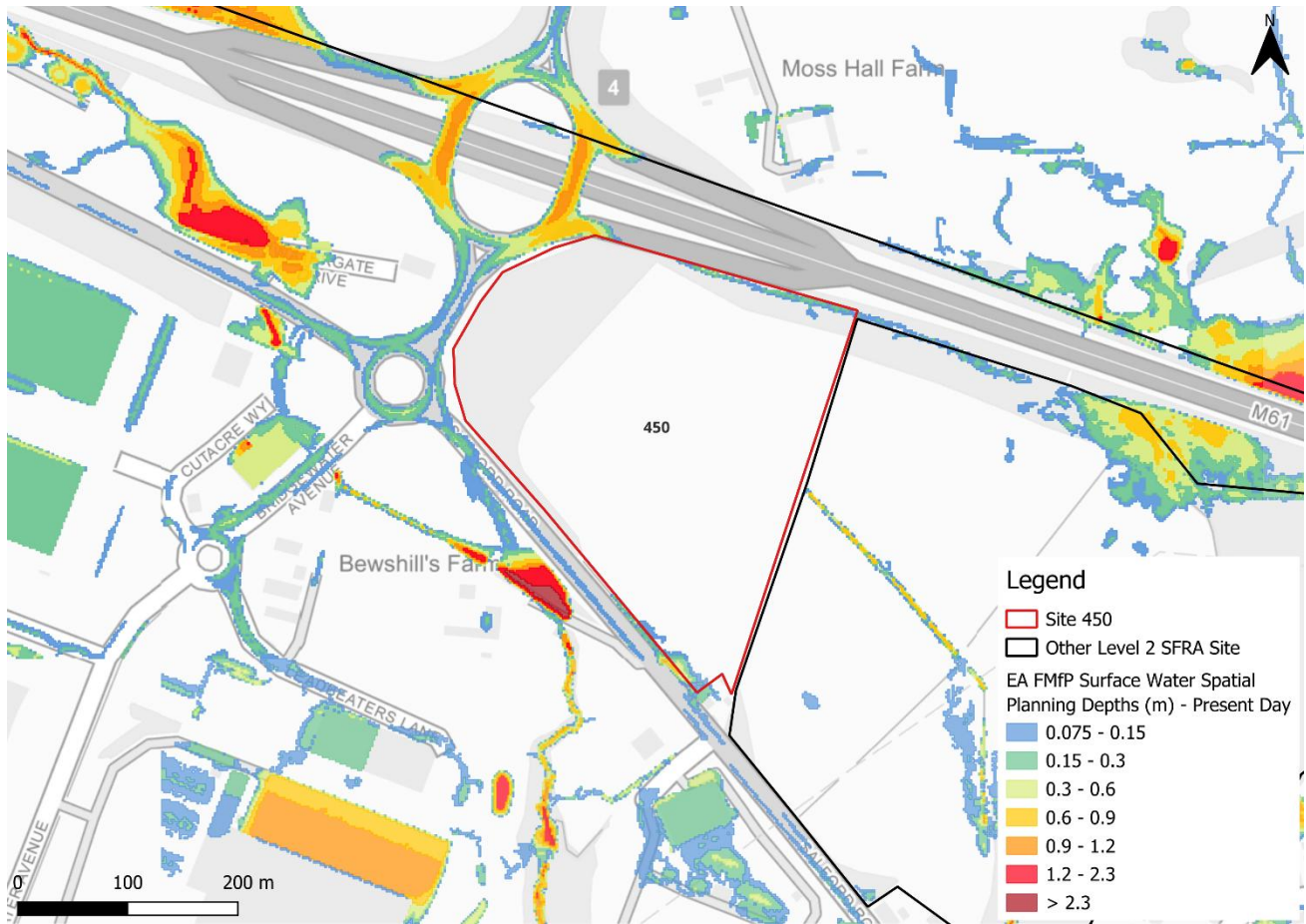


Figure 8-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event

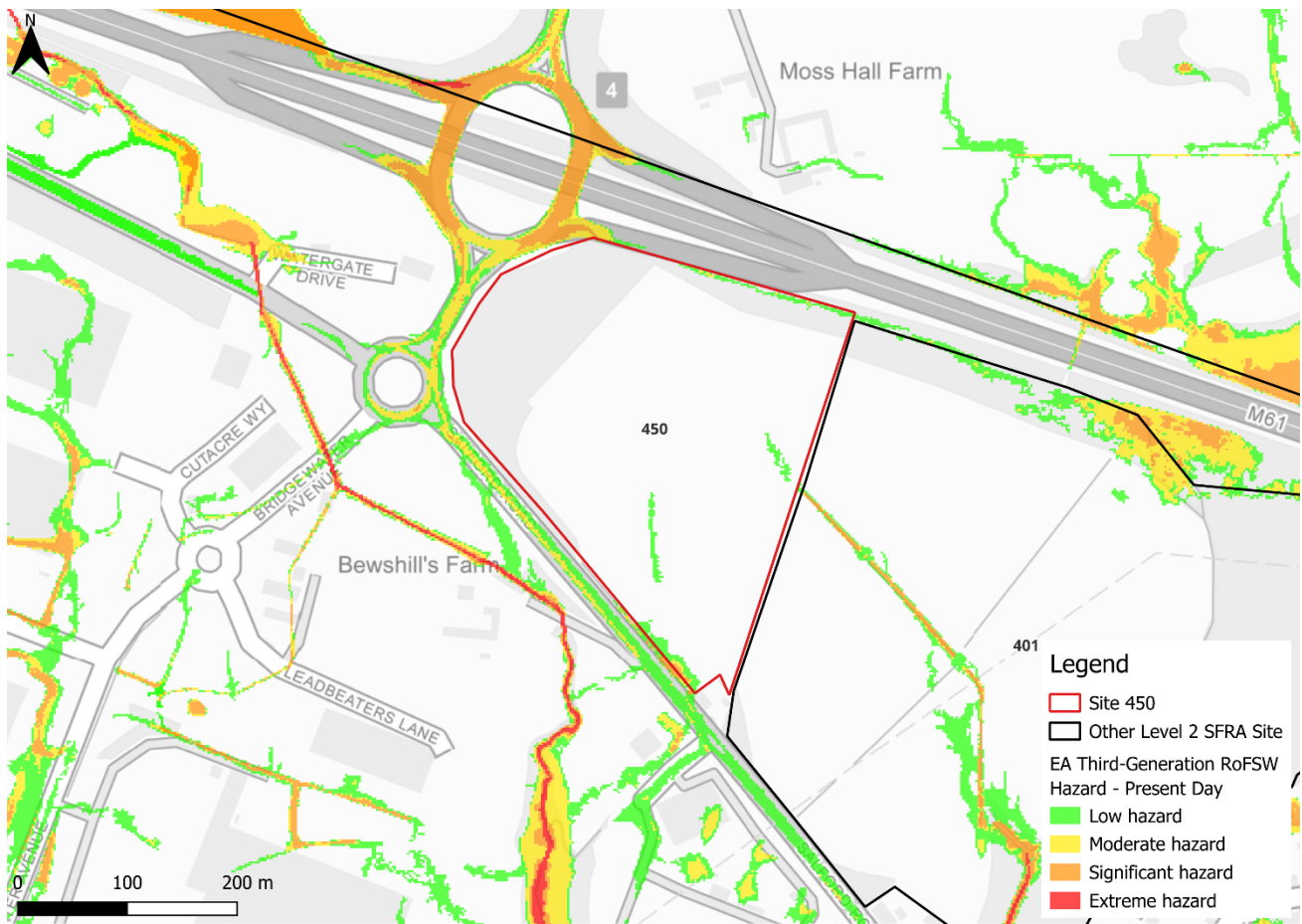


Figure 8-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water floodhazard<sup>1</sup>

### 8.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

## 8.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are three recorded sewer flooding incidents that have occurred within the Hulton Ward within which the site is located.

## 8.3 Groundwater

The entire site is within an area where there is no risk of groundwater emergence (Figure 8-5). Infiltration SuDS may therefore be suitable at this site.

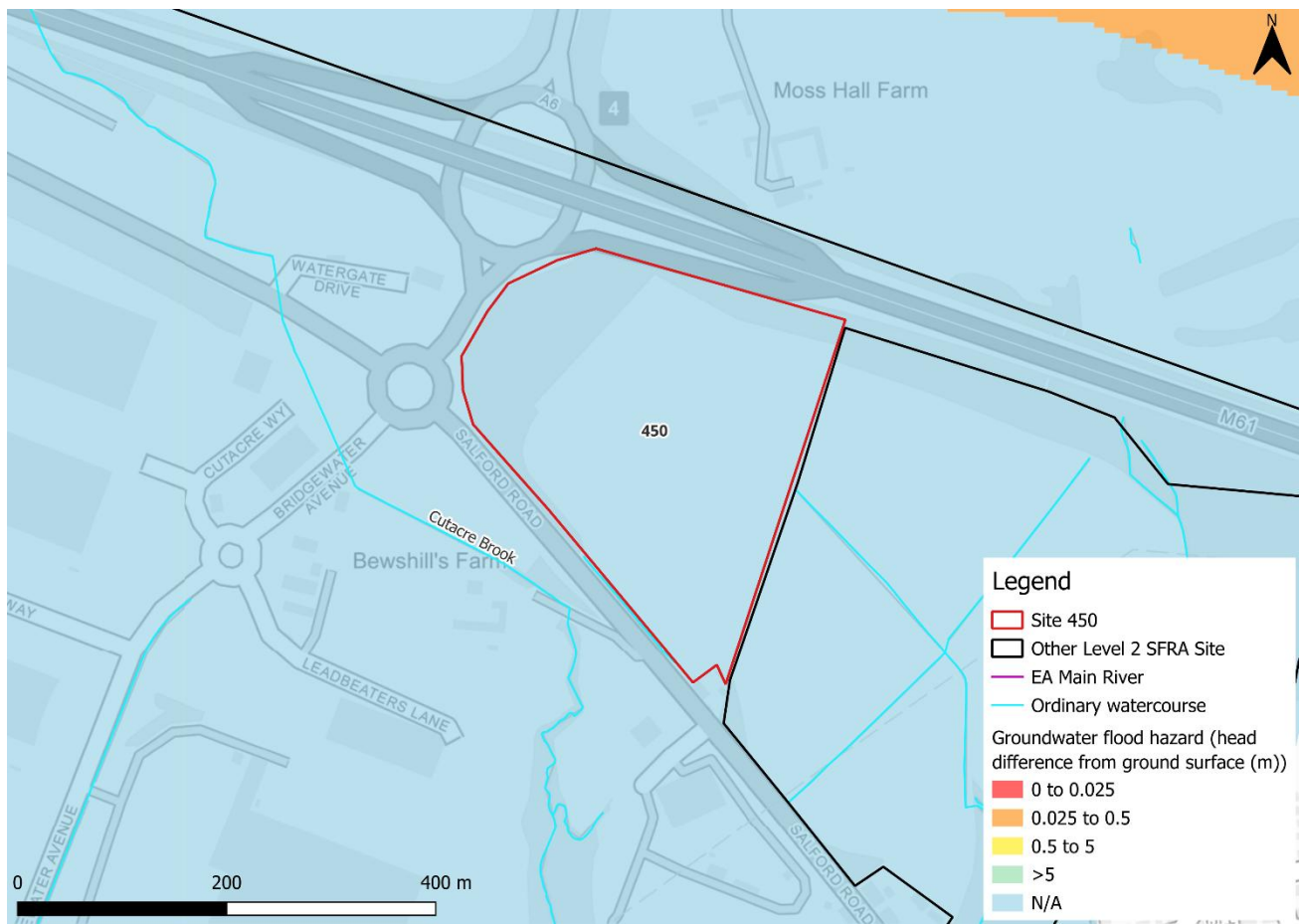


Figure 8-5: JBA 5m Groundwater Emergence Map

## 8.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to two flow paths within the north and south of the site in the 0.1% AEP event. The flow paths should be considered within site design. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.

## 9 Site 494

| Site summary                |                    |
|-----------------------------|--------------------|
| Location                    | Darley Court EPH   |
| Existing site use           | Disused brownfield |
| Existing site vulnerability | Less vulnerable    |
| Proposed site use           | Housing            |
| Proposed site vulnerability | More vulnerable    |
| Site area                   | 0.52 hectares      |

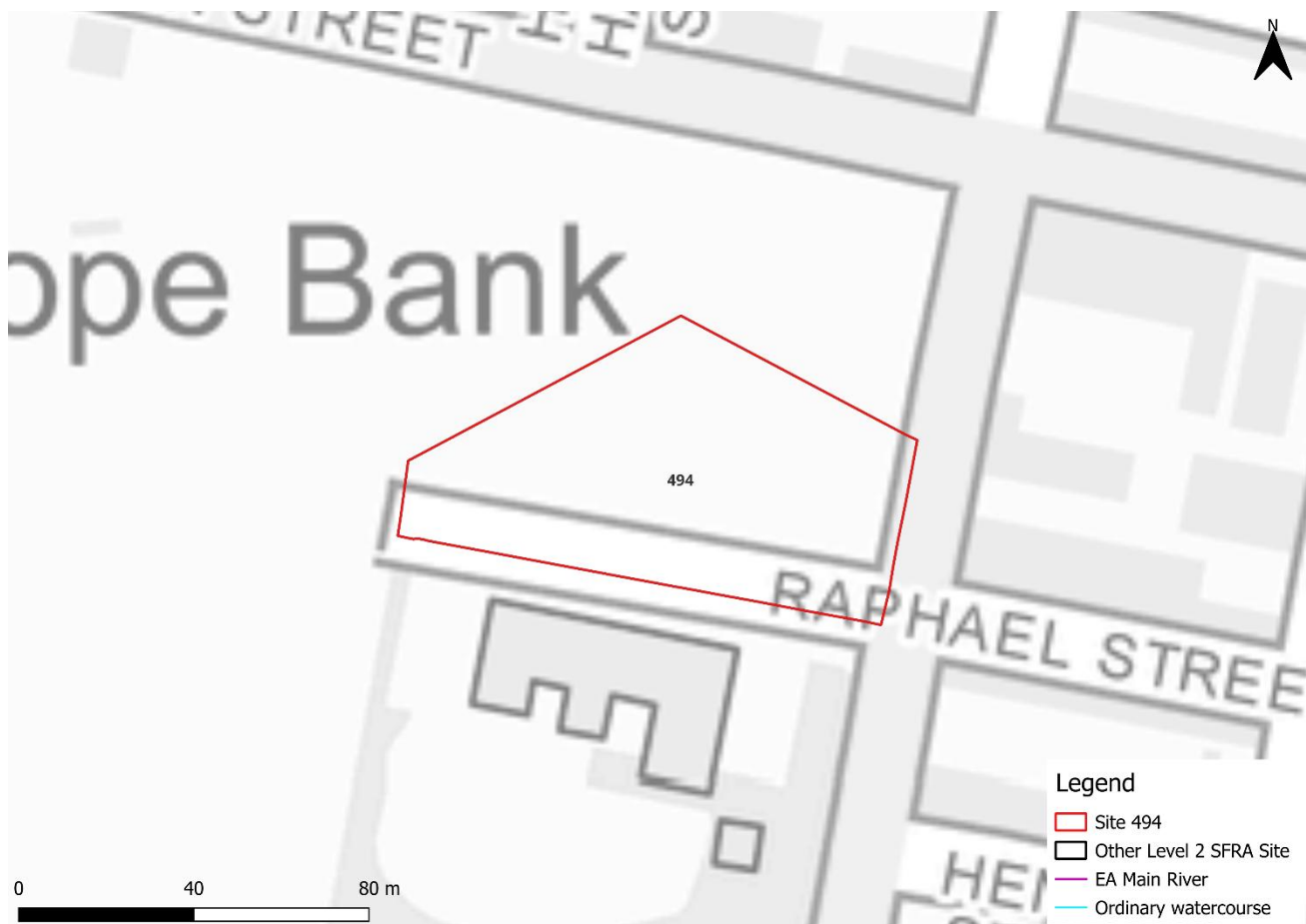


Figure 9-1: Site 494 Existing site location boundary

### 9.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 9-1). There is an area of ponding within the north of the site present in the 3.3% AEP, 1% AEP and 0.1% AEP events (Figure 9-2). Flood depths in the 1% AEP event are shallow (Figure 9-3), with low hazard (Figure 9-4).

Based on available information, safe access and escape routes should be available from Raphael Street to the south of the site or Shepherd Cross Street to the east.

Table 9-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 95                           | 2                  | 1                | 2                  |

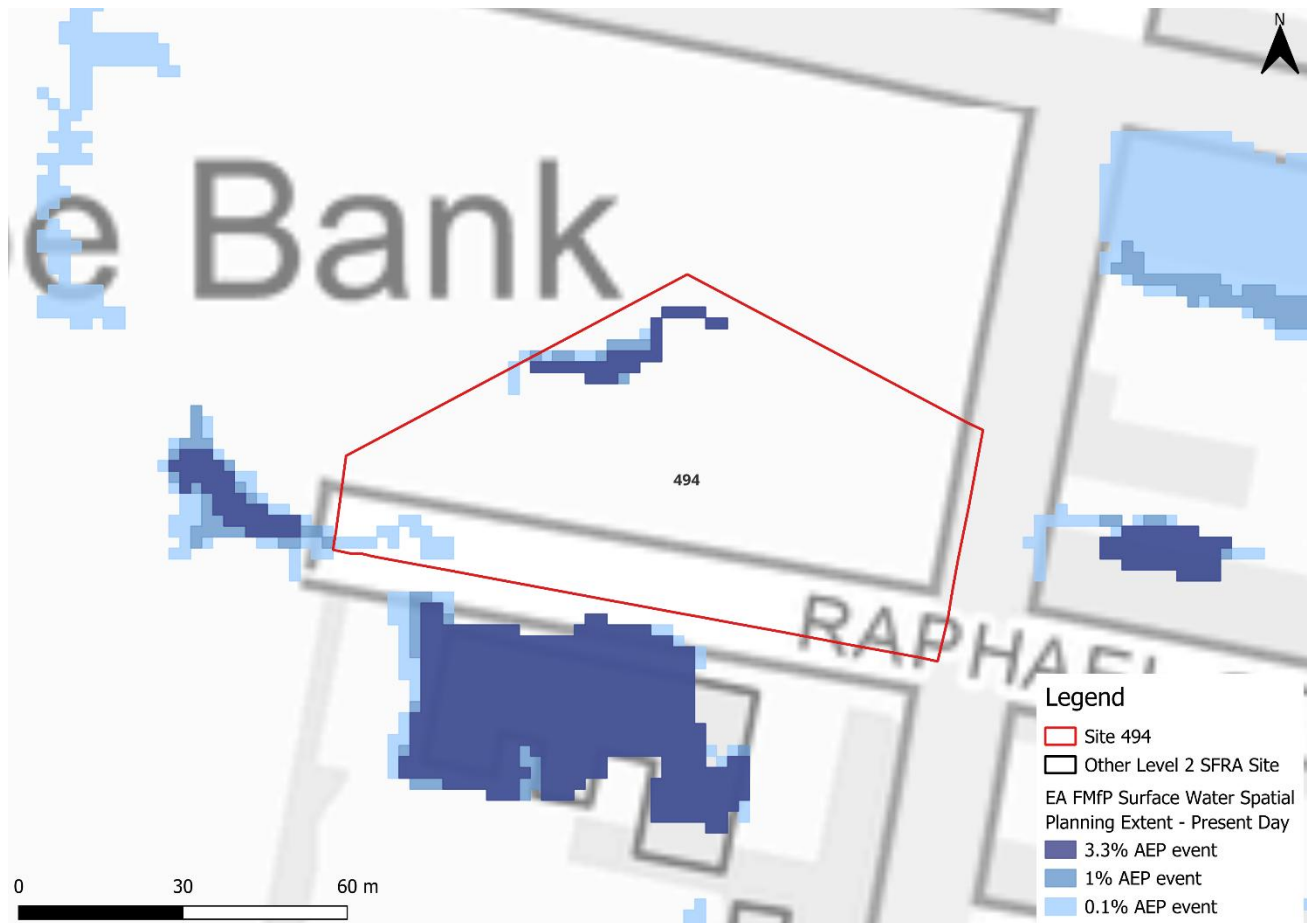


Figure 9-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

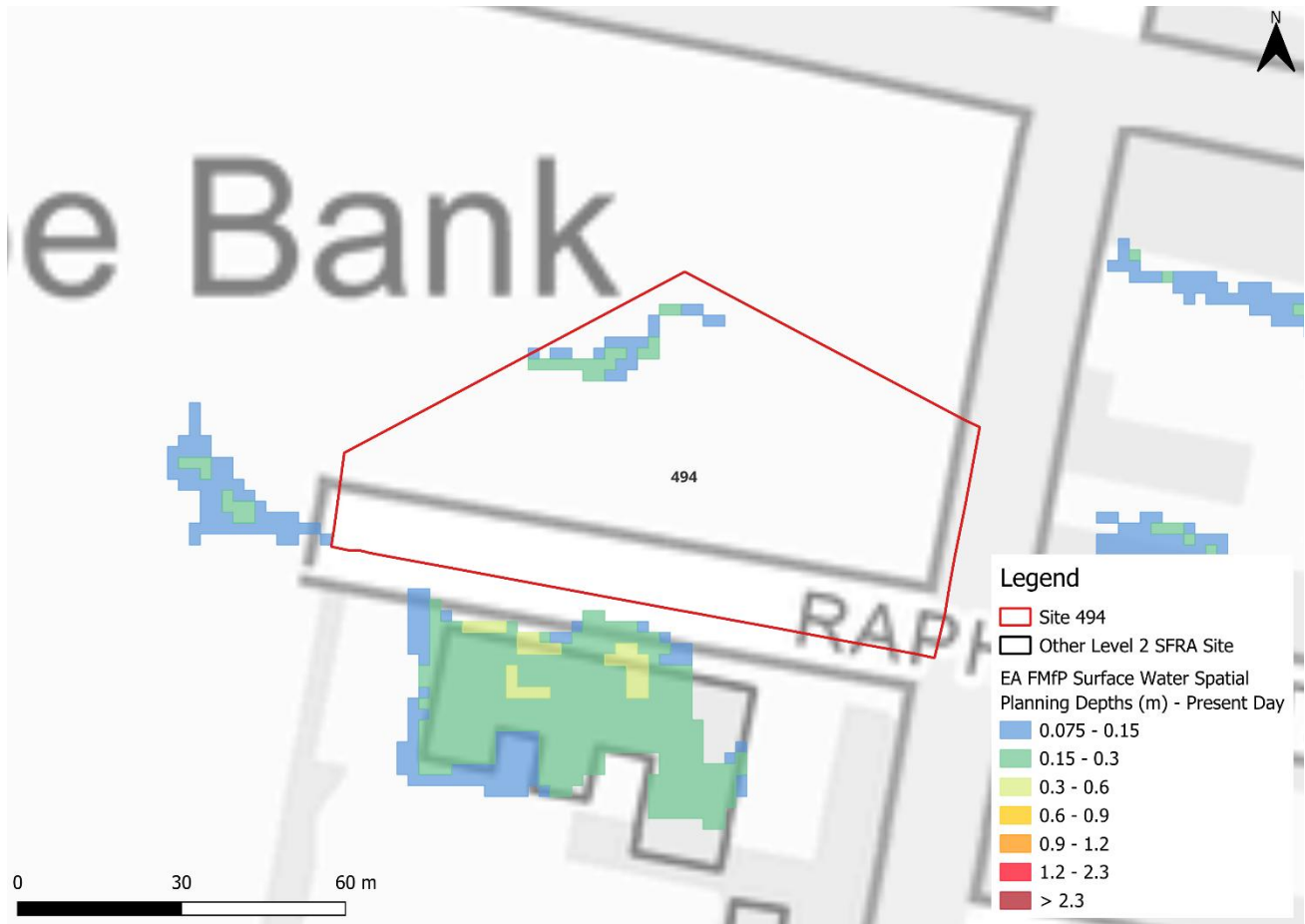


Figure 9-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 1% AEP event

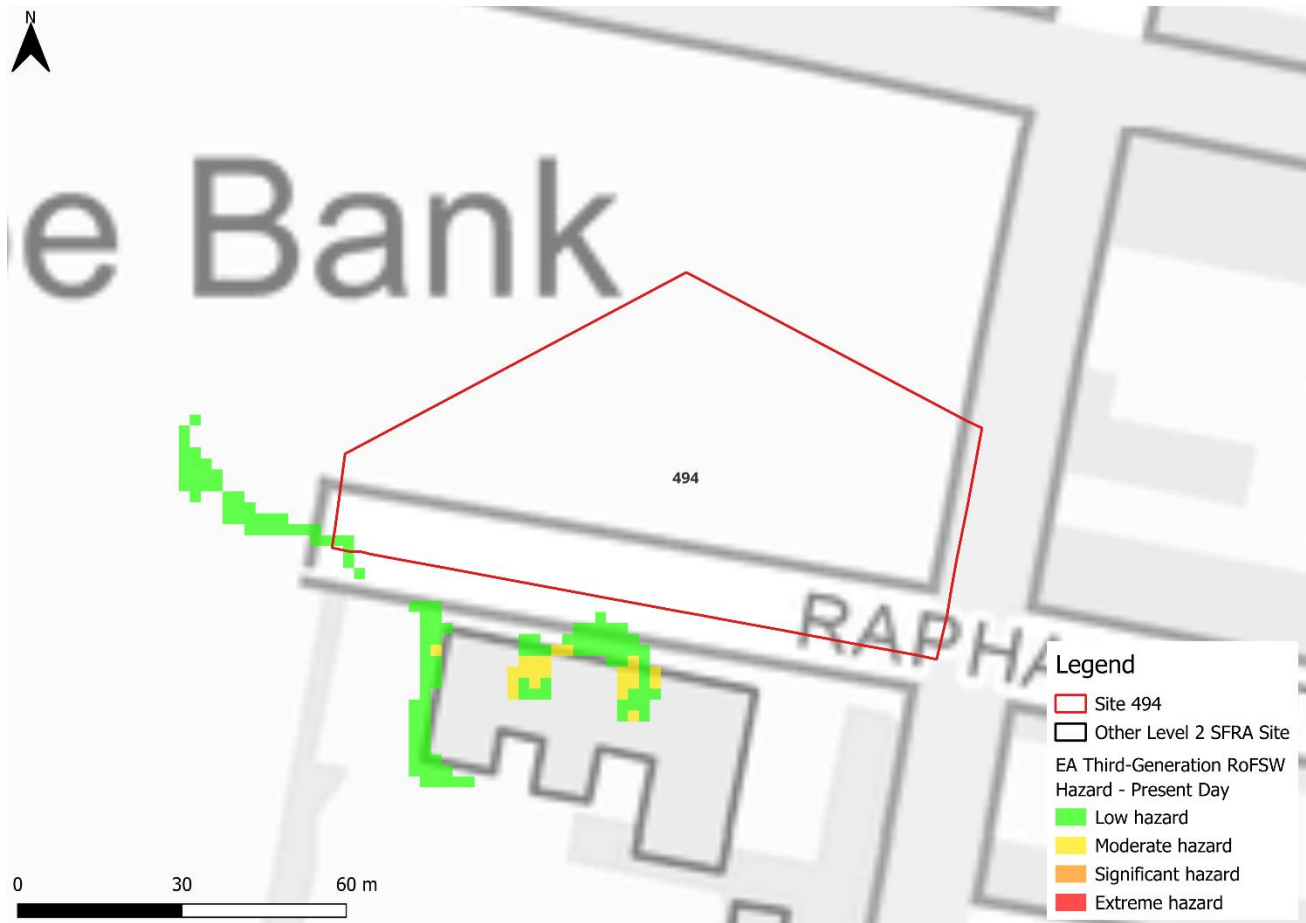


Figure 9-4: Third generation - Risk of Flooding from Surface Water map present day medium risk event surface water flood hazard<sup>1</sup>

### 9.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

## 9.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There is one recorded sewer flooding incidents that have occurred within the Halliwell Ward within which the site is located.

## 9.3 Groundwater

The entire site is within an area where there is no risk of groundwater emergence (Figure 9-5). Infiltration SuDS may therefore be suitable at this site.

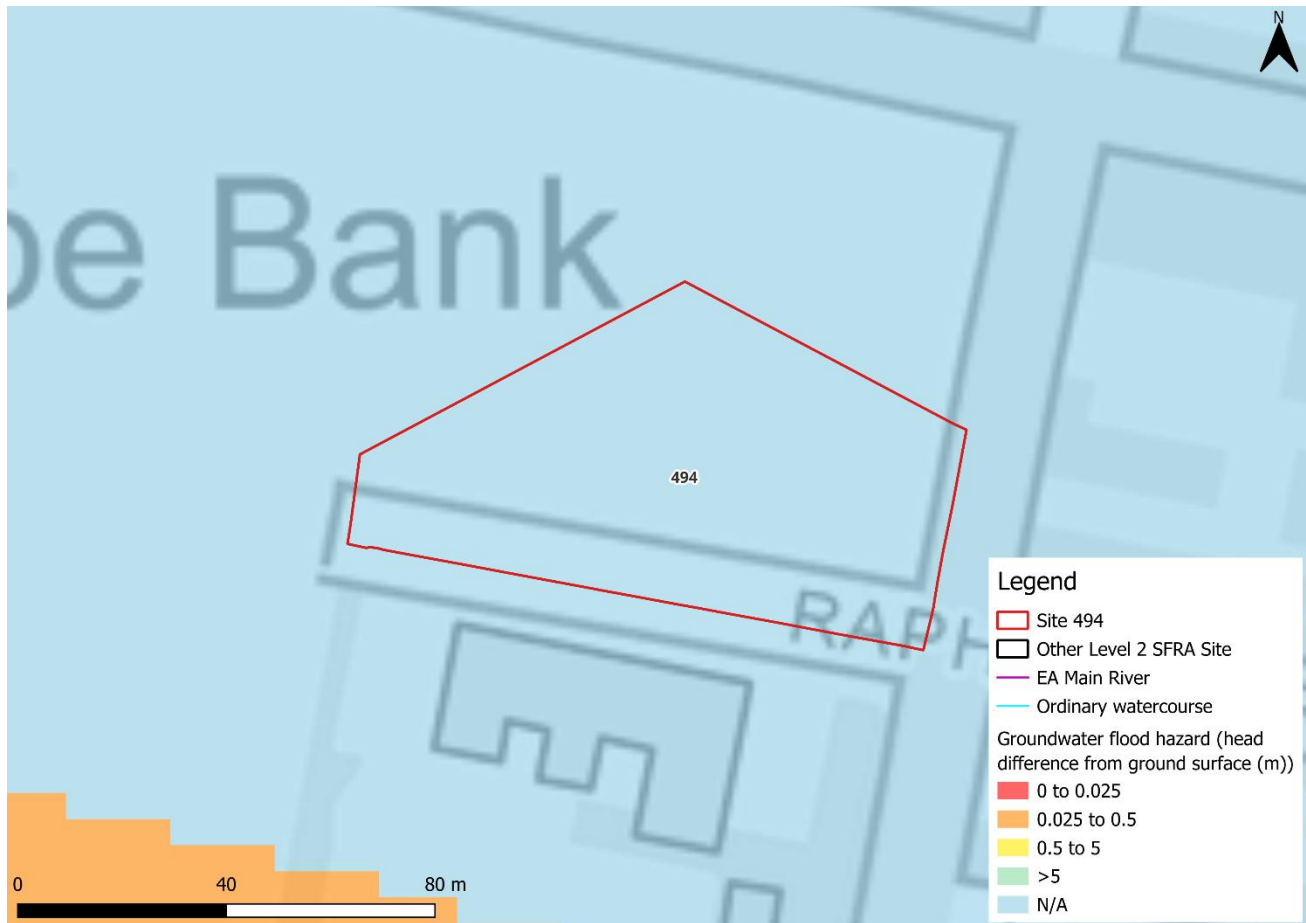


Figure 9-5: JBA 5m Groundwater Emergence Map

#### 9.4 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- There is no risk to the site from reservoir flooding.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to an area of ponding in the north of the site in all events. The area of ponding should be considered within site design. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.

## 10 Site 505

| Site summary                |                          |
|-----------------------------|--------------------------|
| Location                    | Cotton Tree Public House |
| Existing site use           | Education / child care   |
| Existing site vulnerability | More vulnerable          |
| Proposed site use           | Housing                  |
| Proposed site vulnerability | More vulnerable          |
| Site area                   | 0.10 hectares            |

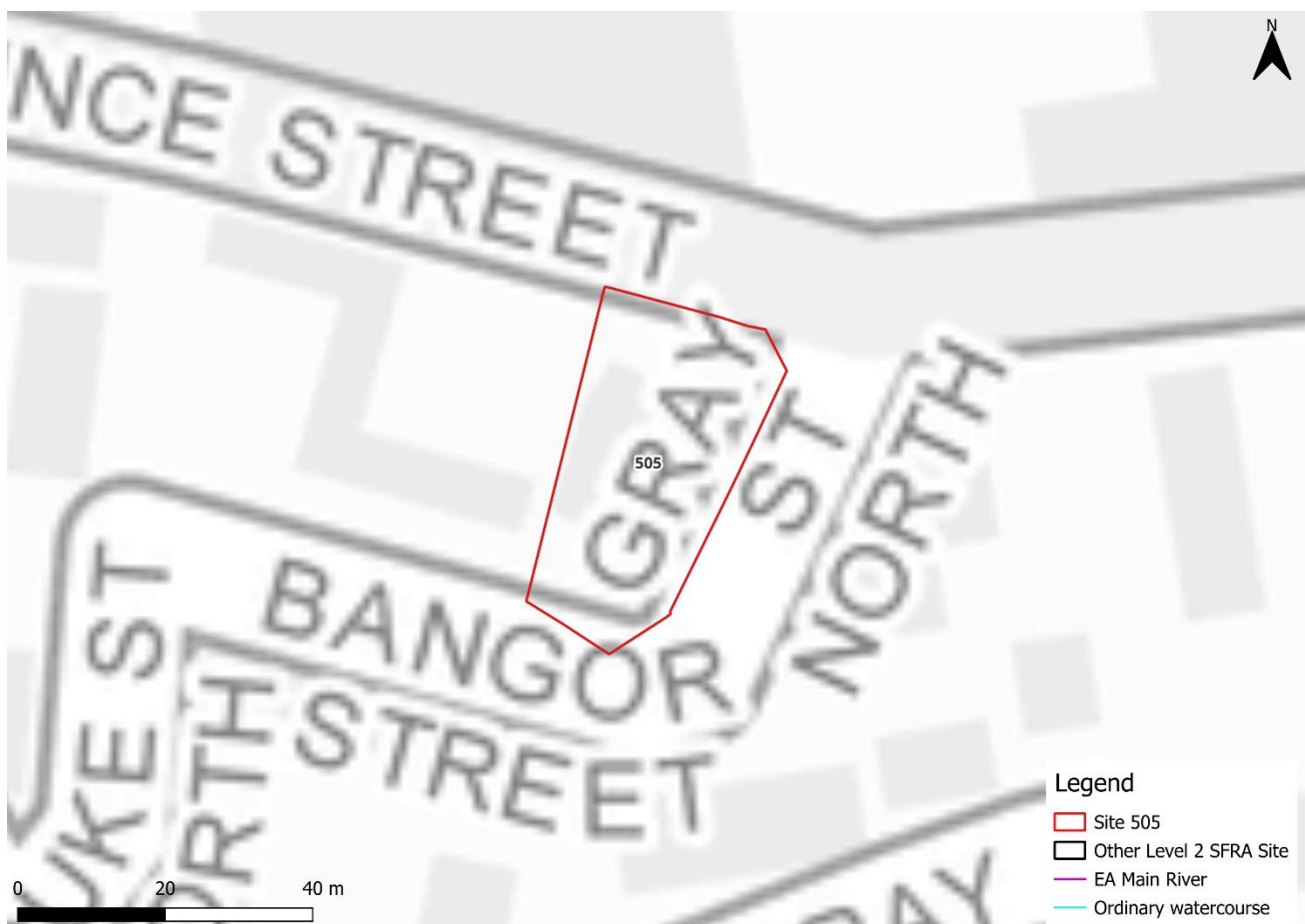


Figure 10-1: Site 505 Existing site location boundary

### 10.1 Surface water

The site is predominantly outside of the 0.1% AEP surface water event, based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Extent map (Table 10-1). Surface water risk is confined to a very small area along the southern boundary of the site in the 0.1% AEP event (Figure 10-2), with shallow flood depths (Figure 10-3) and low hazard (Figure 10-4).

Based on available information, safe access and escape routes should be available from Gray Street north to the east of the site.

Table 10-1: Existing surface water flood risk based on percentage area at risk using the Flood Map for Planning - Surface Water Spatial Planning Extent Present Day map

| Less than 0.1% AEP event (%) | 0.1% AEP event (%) | 1% AEP event (%) | 3.3% AEP event (%) |
|------------------------------|--------------------|------------------|--------------------|
| 99                           | 1                  | 0                | 0                  |

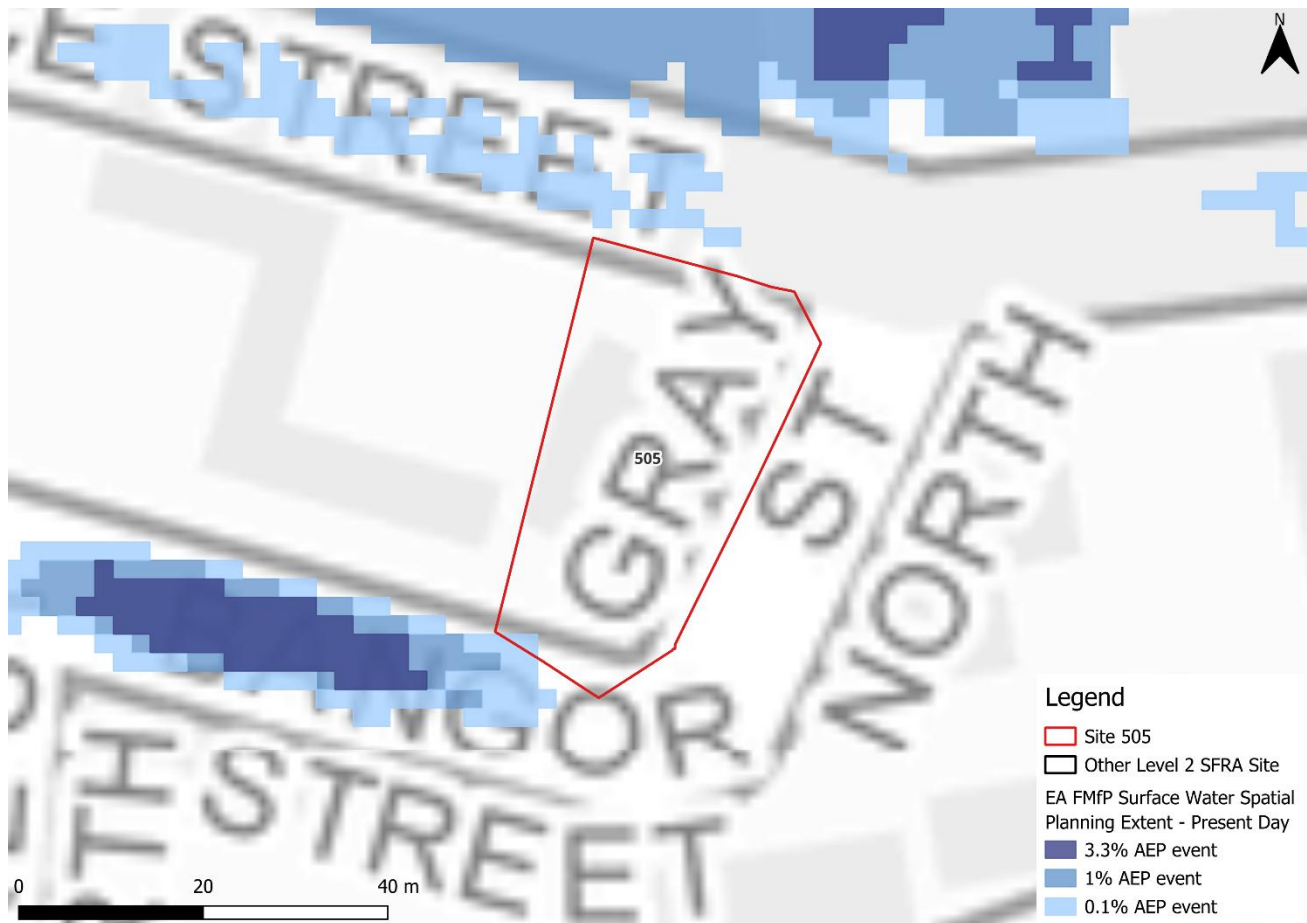


Figure 10-2: Flood Map for Planning - Surface Water Spatial Planning Extents Present Day

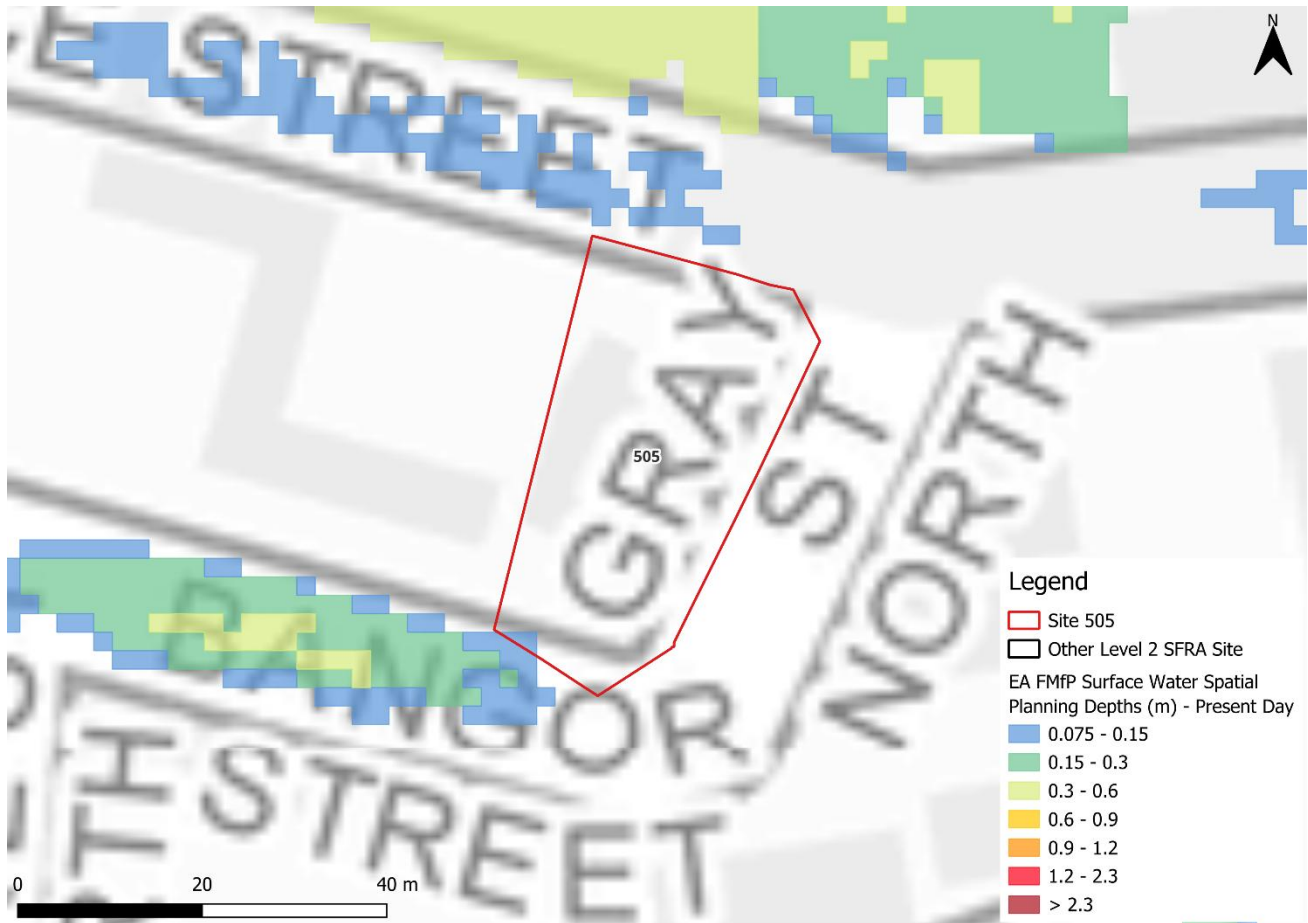


Figure 10-3: Flood Map for Planning - Surface Water Spatial Planning Depths (m) Present Day for the 0.1% AEP event

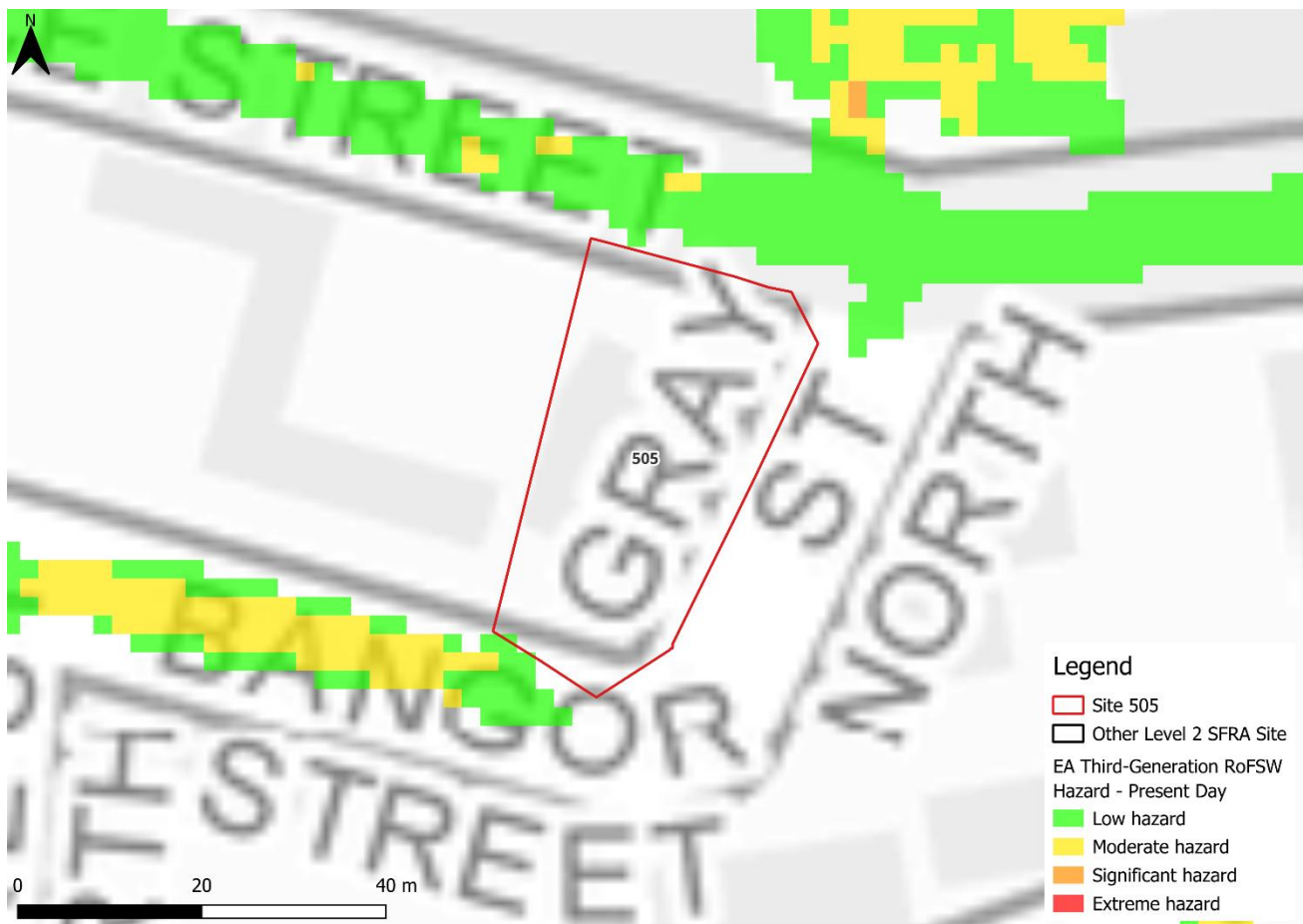


Figure 10-4: Third generation - Risk of Flooding from Surface Water map present day 0.1% AEP event surface water floodhazard<sup>1</sup>

#### 10.1.1 Climate change

Based on the EA's national scale Flood Map for Planning - Surface Water Spatial Planning Climate Change Extent map, onsite flood risk is not likely to increase significantly in the future.

### 10.2 Sewer flood risk

United Utilities provided their historic risk registers which were aggregated by ward. There are three recorded sewer flooding incidents that have occurred within the Queens Park & Central Ward within which the site is located.

### 10.3 Groundwater

The entire site is within an area where there is no risk of groundwater emergence (Figure 10-5). Infiltration SuDS may therefore be suitable at this site.



Figure 10-5: JBA 5m Groundwater Emergence Map

#### 10.4 Reservoir

The EA's Reservoir Flood Maps (RFM) (2021) show where water may go in the unlikely event of a reservoir or dam failure. Figure 10-6 shows the RFM in a 'dry day' and 'wet day' scenario. A 'dry day' scenario assumes that the water level in the reservoir is the same as the spillway level or the underside of the roof for a service reservoir and the watercourses upstream and downstream of the reservoir are at a normal level. A 'wet day' scenario assumes a worst-case scenario where a reservoir releases water held on a 'wet day' when local rivers have already overflowed their banks.

The site is potentially at risk from two reservoirs, namely Mortfield Lodge and Doffcocker Lodge, both located within Bolton. These are operated by Bolton Council.

The EA's SFRA guidance states that where a proposed development site is at flood risk from a reservoir, then an assessment into whether the reservoir design or maintenance schedule needs improving should be carried out. Expert advice may be required from an all-reservoirs panel engineer. The Council should consult the relevant reservoir undertaker to ascertain whether the proposed development could affect the reservoir's risk designation, its design category or how it is operated. The Council, as category 1 responders, can access more detailed information about reservoir risk and reservoir owners using the [Resilience Direct](#) system.

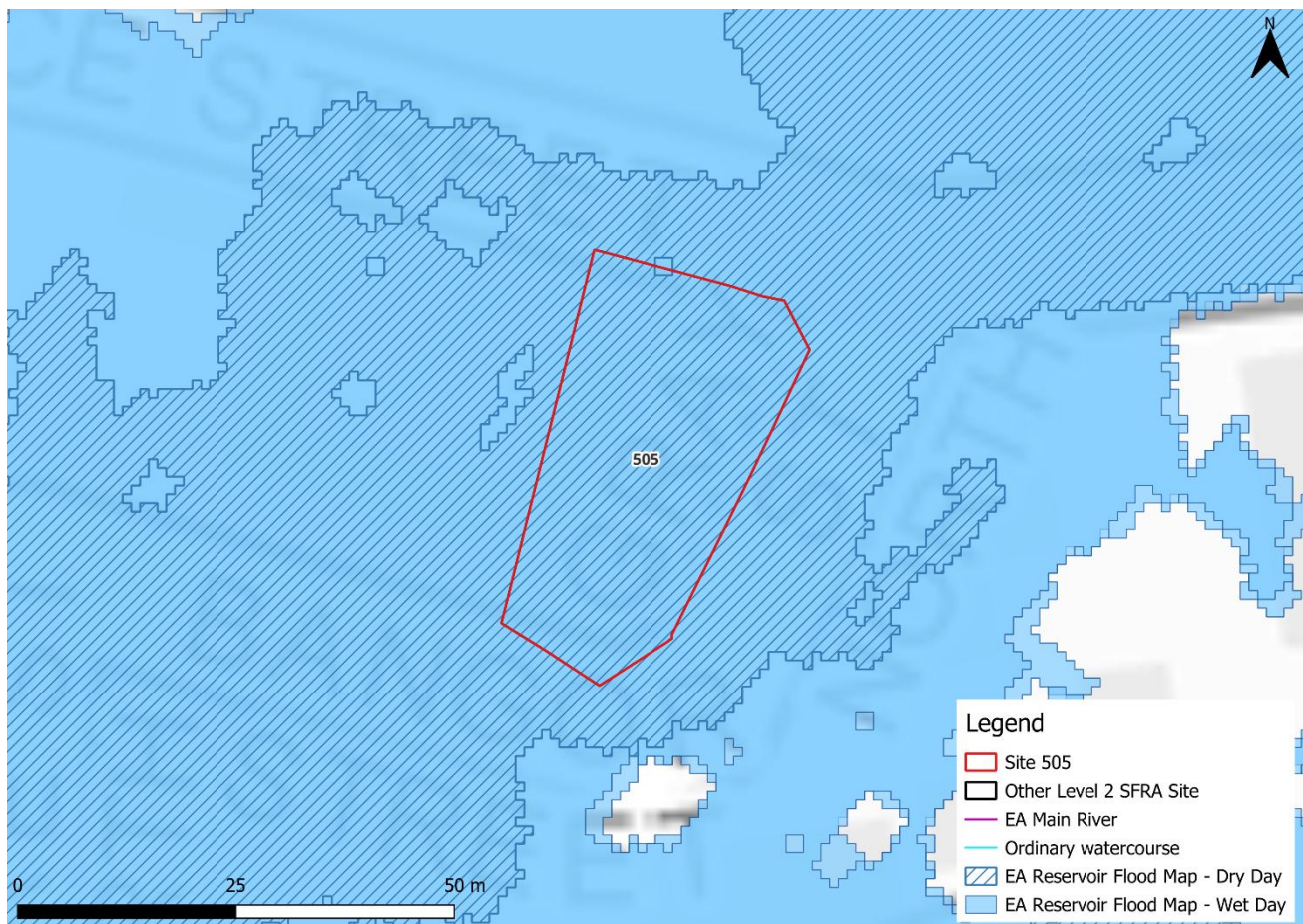


Figure 10-6: EA Reservoir Flood Map

## 10.5 Summary and recommendations

Based on the evidence presented in the Level 1 SFRA (2026) and this Level 2 SFRA:

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The site is wholly within Flood Zone 1 and at no additional risk from climate change.
- Development should be possible at this site given the low fluvial and nominal surface water flood risk to the site.
- Surface water risk is confined to a very small area of shallow ponding in the south of the site in the 0.1% AEP event. Surface water flood hazard must be confirmed at the site-specific FRA stage.
- Onsite surface water flood risk is not likely to increase significantly in the future.
- The site is potentially at residual risk from a breach of two reservoirs. However, only one reservoir impacts the site in the 'dry day' flood extent. This indicates that one reservoir, namely Doffcocker Lodge, is modelled to impact the site based on the 'wet day' flood extent, which represents a prediction of the credible worst case scenario, therefore the likelihood that such an extreme flood event would occur is remote.

- Given the potential reservoir risk to the site, developers should consider<sup>2</sup>:
  - Consulting with the local resilience forum for advice on emergency planning,
  - Consulting with relevant reservoir owners to understand the impact development may have on their reservoirs, and
  - Using this Level 2 SFRA to understand whether any proposed development will be safe throughout its lifetime.

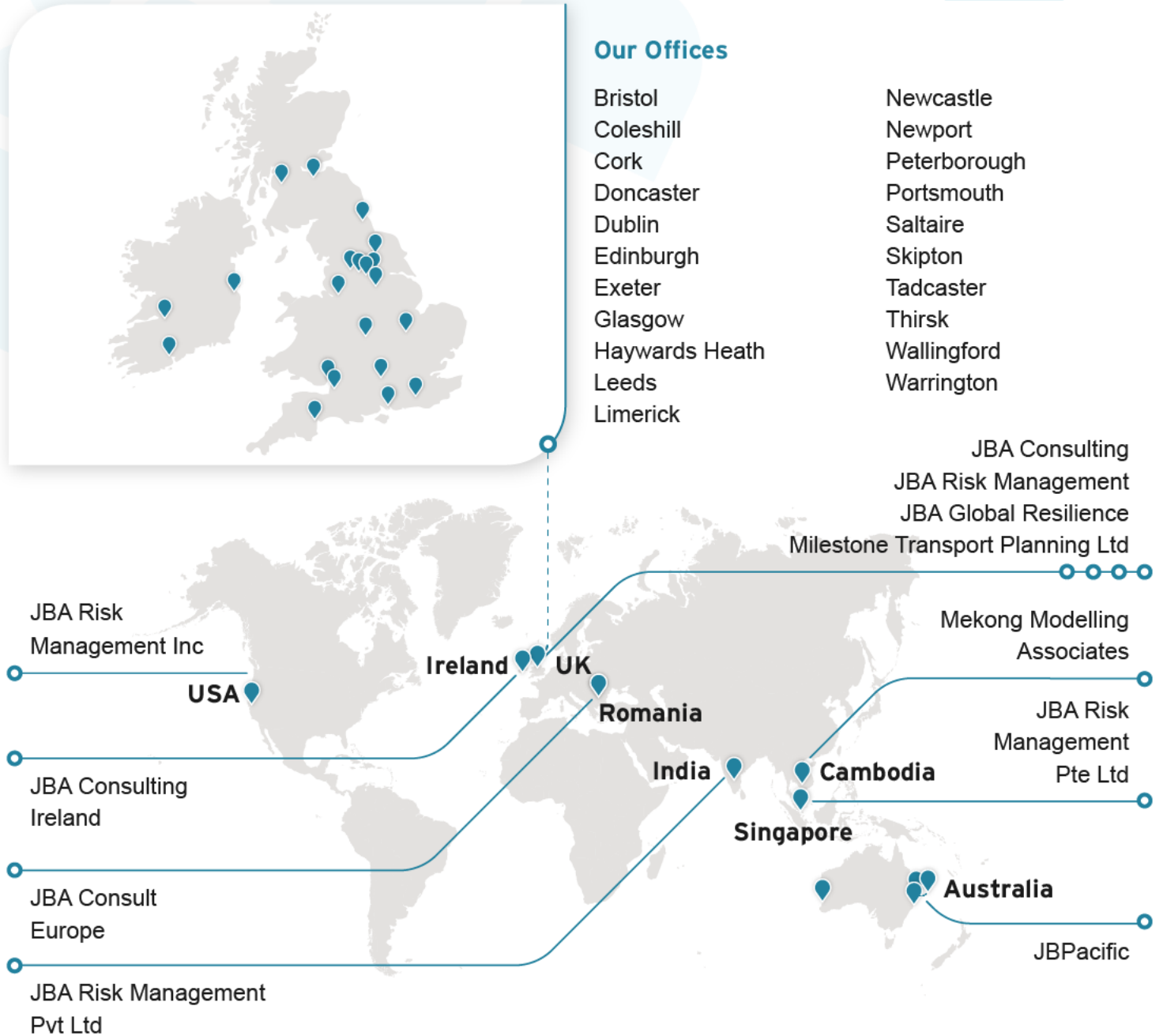
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<sup>2</sup> [Reservoir flood maps: when and how to use them | Environment Agency | 2021](#)

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