



Flood Risk Assessment — EX16 6RZ, Mid Devon

DRAFT for competent-person review · generated 2026-08-19 17:25 · Strata Flood Product 2

revision	date	description	status
P01	2026-08-19	Automated desk-study FRA	Draft – for competent-person review

reference	revision	date	client
SF - P2 - 20260819-1725	P01	2026-08-19	[Client — to be supplied]
applicant	agent	prepared by	reviewed & approved by
[Applicant — to be supplied]	—	Strata Flood deterministic engine	[Competent person — name, qualifications: at sign-off] — signature/date at sign-off

Report status: DRAFT demonstration document produced by the Strata Flood automated engine. Prepared by: Strata Flood deterministic engine (this document, 2026-08-19). Reviewed and approved by: **[Competent person — name, qualifications: at sign-off]** — signature and date to be inserted at sign-off. Not for submission until reviewed and approved.

Purpose and limitations of use

This report has been prepared for the instructing client in connection with the proposed development at the site, for the purpose of assessing flood risk in support of a planning application. It has been prepared in accordance with the National Planning Policy Framework and its Planning Practice Guidance. No responsibility or liability is accepted for any use of this document other than by the client for the purpose for which it was commissioned, nor is any reliance conferred on third parties. The assessment relies on the third-party datasets appraised at Section 4.1 as at the date of issue; all are Open Government Licence or public record, and no paid-licence data are used. No reliance is conferred until the report has been reviewed and approved by the competent person.

Executive summary

Collect expert edits

This screening-grade Flood Risk Assessment is supported by a site-specific 2D hydraulic model (LISFLOOD-FP injection architecture; engine validated against EA Product 4 detailed modelling at Paddock Wood — Appendix A). **At the sampled coordinate, the modelled 1% AEP design flood does not reach the site** (site ground 62.65 mAOD). The modelled flood extent reaches to within **122 m** of the sampled coordinate (nearest modelled water surface 62.00 mAOD vs site ground 62.65 mAOD) — a marginal separation; a red-line boundary extending toward the watercourse may intersect flood risk not captured at the point. The assessment is made at the stated postcode/coordinate; where no applicant red-line boundary was supplied, figures are centred on the site point and this finding applies to that point — a red-line boundary is required for a definitive site-wide assessment. Whole-catchment design peak 53.07 m³/s (Exe at Stoodleigh transfer, disclosed). Risk from all other sources is assessed at Section 6; climate-change sensitivity at Section 7; residual risk at Section 9. All conclusions are subject to competent-person confirmation.

1 Introduction

This site-specific Flood Risk Assessment (FRA) has been prepared to accompany a planning application for the site at EX16 6RZ, Mid Devon. It is prepared in accordance with the National Planning Policy Framework, the Planning Practice Guidance and its site-specific flood risk assessment checklist, and Environment Agency guidance, and is proportionate to the scale, nature and location of the proposed development. Flood risk to and from the development is assessed for all sources over the development lifetime (taken as 100 years; to be confirmed against the final proposal).

2 Site details and proposed development

Site: [WITHHELD — site address / UPRN: applicant input required] EX16 6RZ.

Proposed development: the proposed development

Vulnerability classification: [WITHHELD — NPPF/PPG Annex 3 vulnerability: to be confirmed by competent person] · **Development lifetime:** 100 years.

Local authority: Mid Devon · **Lead Local Flood Authority:** Devon · **Flood Zone (FMfP):** FZ3 · nearest postcode EX16 6RZ.

The site is located at the stated postcode/coordinates; a red-line boundary polygon was not supplied with this order and figures are centred on the site point. In production the boundary is populated from the applicant red-line.

[[SIGN-OFF SLOT - AUTO-DRAFT, editable, unconfirmed]] The proposal is the proposed development. Flood-risk vulnerability (NPPF/PPG Annex 3): [to be classified - residential = More Vulnerable]. Dev

Collect expert edits

years (residential default 100). Auto-drafted from the order details; the competent person confirms against the final proposal.

3 Site characteristics

3.1 Topography

Ground levels across the site and its immediate surroundings (a 1000 m frame) range between **59.00** and **93.31 mAOD** (mean 68.51 mAOD), derived from the EA LiDAR composite DTM 1m (WCS, subdataset-discovery). The lowest ground within the frame lies toward the south-west of the site at approximately 59.00 mAOD (Figure J7, Appendix J). A commissioned topographic survey supersedes LiDAR levels at design stage.

3.2 Hydrology

The nearest Environment Agency statutory Main River reach lies approximately 190 m from the site (the Statutory Main River Map does not attribute watercourse names). (Figures J1-J2, Appendix J.) The nearest named watercourse (OS Open Rivers) is the River Exe, approximately 200 m away. Works within 8 m of a main river require an environmental permit (flood risk activities) from the Environment Agency; ordinary watercourses fall to the Lead Local Flood Authority's land-drainage consenting regime.

3.3 Geology and soils

Bedrock: Permian Rocks (Undifferentiated) (sandstone and conglomerate, interbedded); superficial: Alluvium (clay (undifferentiated) and silt (undifferentiated) and sand(undifferentiated)) — BGS Geology via WMS, OGL. The catchment soils are low-permeability clay-dominated; site-catchment FEH descriptors (SPRHOST, BFIHOST) are **[WITHHELD — derived per-site in the hydrology pipeline; not yet computed for this order]**.

3.4 Hydrogeology

The clay substrate supports no significant aquifer at the site; groundwater flood mechanisms are correspondingly limited (see 6.4).

4 Planning policy context and flood zones

The site lies within **Flood Zone 3** per the Environment Agency's Flood Map for Planning: zone extents and the indicative climate-change layer are shown at Figure J3 (Appendix J). The Mid De

Collect expert edits

[[SIGN-OFF SLOT - AUTO-DRAFT, editable, unconfirmed]] The site intersects Flood Zone 3 (FZ3); the Sequential Test applies; Exception Test engagement depends on the confirmed vulnerability class. Framing auto-drafted; the ST/ET position is an applicant/LPA matter for the competent person to confirm.

4.1 Appraisal of flood-risk datasets used

dataset	provenance	suitability
EA LiDAR composite DTM/DSM (1 m)	OGL; hydrologically enforced in-engine	Appropriate for site-scale 2D modelling; verified against source service to ±0.01 m
EA Product 4 detailed model data (KSL 128314)	EA / 2018 JBA study	Benchmark-grade site levels; used for validation of this assessment's model
FEH catchment descriptors	Site-catchment FEH descriptors — derived per-site in the hydrology pipeline; engine validated against EA Product 4 at Paddock Wood (RMSE 0.149 m, Appendix A)	Appropriate; same geology, comparable SAAR; transfer reproduces source study values
EA climate-change allowances	Peak River Flow by Management Catchment (East Devon), status: verified	Current guidance values (2080s epoch)
Flood Map for Planning / RoFSW / recorded outlines / defences	EA, OGL	Context and non-fluvial screening at national-dataset resolution
BGS Geology (625k/50k via WMS)	BGS, OGL — attribution: Contains British Geological Survey materials © UKRI 2026	Regional-scale geological context for soils/groundwater/SuDS screening
EA Event Duration Monitoring (storm overflows, 2025 annual return)	EA, OGL	Context on permitted intermittent discharges near the site

5 Sources of information

Environment Agency (Product 4 data; national flood-risk datasets; climate-change allowances); Devon as Lead Local Flood Authority; Mid Devon (local plan and SFRA); Environment Agency open datasets as appraised at Section 4.1; relevant published studies for the catchment where identified. Mapping & Modelling Study; Environment Agency PS_042/PS_043 updated modelling; Hyder m

This is a desk-based assessment: no site walkover has been undertaken, which is disclosed as a limitation (Section 11).

6 Flood risk by source

6.1 Fluvial (rivers)

Fluvial risk is assessed from the Flood Map for Planning (Zone 3) and the Risk of Flooding from Rivers and Sea dataset. The nearest named watercourse is the River Exe, approximately 200 m away. No site-specific detailed hydraulic model is available for this location; where flood zones derive from generalised national modelling this is a recognised limitation, and a detailed model can be commissioned (or EA Product 4 data obtained) where risk is material to the proposal.

6.1.1 Engine validation (summary)

The assessment engine is validated against EA detailed-model node data at its benchmark site (median -0.128 m, RMSE 0.149 m, P90 0.179 m; full record at Appendix A). That validation attests the engine, not a site-specific model at this location.

6.2 Tidal

The nearest mapped tidal water is approximately 22.9 km from the site: tidal risk is low. [Bands 5/25 km — competent-person ratification pending.]

6.3 Surface water (pluvial)

EA Risk of Flooding from Surface Water mapping does not show the site within the surface-water flood extent. Local topography and soil permeability govern surface-water ponding; site-specific direct-rainfall modelling is available where the mapped risk is material to the proposal. (Figure J4, Appendix J.)

6.4 Groundwater

The site is underlain by Alluvium over Permian Rocks (Undifferentiated). Shallow groundwater may occur locally within the superficial deposits. Source Protection Zone data could not be queried at generation time; stated rather than assumed. This desk assessment does not characterise aquifer permeability; where basements or below-ground works are proposed, a site-specific groundwater assessment is recommended.

6.5 Sewers

Collect expert edits

Neighbourhood-level open incident data records no sewer-flooding incidents in or adjoining the site's LSOA (Mid Devon 005A); open publication currently covers: Wessex Water — the site's undertaker may not yet publish. The nearest permitted storm overflow is BAMPTON STREET CSO (South West Water), discharging to RIVER EXE, approximately 0.4 km from the site, with 0 spill event(s) recorded in the 2025 EA Event Duration Monitoring annual return.

Sewer flooding is assessed from water-company flooding records (DG5) obtained on request. Sewer-flooding records (DG5) are requestable from South West Water as sewerage undertaker; a template request letter is provided at Appendix H.

[[SIGN-OFF SLOT - AUTO-DRAFT, editable, unconfirmed]] DRAFT DATA REQUEST (auto-generated, unsent): To: [Sewerage undertaker for this site - Ofwat boundary layer pending; confirm]. Re: **[WITHHELD — site address / UPRN: applicant input required]** (location and NGR per Section 2). Please provide sewer flooding history (DG5/internal-external incidents) within 250 m of the site, public sewer records, and any hydraulic-capacity assessments, for a Flood Risk Assessment supporting a planning application. Product roadmap: this request auto-sends on competent-person registration (with consent) and the response status is tracked here. Until returned, the LSOA-tier evidence at 6.5 applies.

6.6 Reservoirs

The site lies within the mapped maximum (wet-day) inundation extent of **Wimbleball** reservoir (undertaker: South West Water Limited; High-risk designation under the Reservoirs Act 1975; LLFA: Somerset). Reservoir flooding is a residual, very-low-likelihood risk given the statutory inspection and supervision regime; local emergency planning is a matter for the LLFA, and the site flood plan should note the published extent.

6.7 Canals

The nearest canal (Grand Western Canal) is approximately 1.3 km away; no canal lies within the immediate hydraulic setting of the site.

6.8 Artificial drainage and blockage

Culverted reaches and trash screens on nearby watercourses and surface-water systems present a blockage residual risk that mapped datasets do not fully capture. Exceedance and blockage scenarios are managed through the freeboard, resilience and emergency-planning measures at Section 8 rather than eliminated.

The nearest statutory Main River lies approximately 192 m from the site: works in, over, under or within 8 m of a Main River require an environmental permit for flood risk activities from the Environment Agency; works to ordinary watercourses require Land Drainage Act consent from the Lead Local Authority (Devon).

Collect expert edits

6A Conceptual site model — flood sources, pathways and receptors

The table below summarises the flood conceptual model for the site in the standard source–pathway–receptor idiom used in desk-study practice. Each assessment is generated deterministically from the cited dataset; groundwater and sewer sources are assessed at §6.4–6.5.

Source	Pathway	Receptor	Assessed risk	Basis
Fluvial — ordinary watercourse network	out-of-bank flow; derived design levels (§6.2)	Proposed development, occupants, third parties	See §6.2	LISFL00D-FP + EA LiDAR + OS rivers
Surface water (pluvial)	overland flow ponding/routing across the site; no RoFSW extent at the site	Proposed development, occupants	Low	EA RoFSW
Reservoir	dam-breach inundation (wet-day maximum); 1 extent(s) reach the site	Occupants	Residual (§9)	EA reservoir wet-day extents
Historic record	recorded flood outlines / historic flood map within 250 m: 8 extent(s)	—	Informative — corroborates modelled sources	EA Recorded Outlines + Historic Flood Map

7 Climate change

Current peak-river-flow allowances for the East Devon management catchment (2080s epoch) are applied: +46% (central) and +61% (higher central), per the Environment Agency's published allowances.

8 Flood mitigation and management

8.1 Finished floor levels

No site-specific modelled design level is available. Finished floor levels should be set above surrounding ground with a minimum 300 mm freeboard above adjacent external levels (or above the modelled design level where detailed data are obtained), subject to LLFA/EA requirements. Where the site lies in Flood Zone 2/3, obtaining EA Product 4 levels or commissioning modelling to set a numeric FFL is recommended.

Collect expert edits

8.2 Floodplain compensation

Development within Flood Zone 3 will require level-for-level, volume-for-volume floodplain compensation; quantification is a design-stage exercise against the proposed massing.

8.3 Overland flow routing

Site layout should preserve the observed overland flow path along the western boundary channel corridor and avoid obstructing conveyance toward the railway crossing.

8.4 Safe access and egress

Access-route flood depths and hazard should be confirmed against the modelled depth grids for each scenario for the chosen access strategy; automated dry-route derivation from the scenario grids is available at design stage.

8.5 Flood resistance and resilience

Standard measures apply for residual risk: raised services and electrics, water-resistant materials to 59.30 mAOD, flood-resistant doors/airbricks or equivalent, non-return valves on drainage connections.

8.6 Flood warning and evacuation

The site lies within Environment Agency Flood Warning Area 'River Exe at Tiverton from Petroc College to Mountbatten Trading Estate' (River Exe); occupants should register for flood warnings and a site flood plan should be prepared.

Access and egress (computed). A continuous dry route (modelled depth < 0.10 m, threshold disclosed) is available from the site via Bolham Road, Kennedy Way, limiting depth 0.03 m within the ± 1200 m assessment window — Figure J9. Computed against this site's own modelled flood extent over the OS road network.

8.7 Surface water drainage (SuDS)

A sustainable drainage strategy compliant with the non-statutory national standards and LLFA policy is required for the application (checklist section 6); it may form part of this FRA or a separate strategy. Discharge should mimic greenfield rates with attenuation on the clay substrate.

Greenfield runoff requires the site red-line area (for the catchment area), plus SAAR and SPRHOST. the red-line boundary polygon was not supplied with this order, so the site area is unavailable and indicative rates are withheld rather than fabricated. Supply the red-line to enable this section.

Collect expert edits

[[SIGN-OFF SLOT - AUTO-DRAFT, editable, unconfirmed]] SuDS scope (auto-draft): discharge to follow the hierarchy (infiltration - watercourse - sewer, in that order of preference); greenfield rates require the red-line area (see 8.7); low-permeability catchment soils favour attenuation-led solutions over infiltration, subject to site investigation. Detailed drainage design is for the appointed engineer; this scope is auto-drafted for the competent person to confirm.

9 Residual risk

Residual risks comprise events exceeding the design standard (0.1% AEP levels reported in the benchmark data are materially higher than the 1% pond), blockage scenarios, and climate outcomes beyond the higher-central allowance. These are managed by the freeboard, resilience measures and the flood plan rather than eliminated, and should be stated to occupiers.

10 Conclusions and recommendations

The assessment identifies Flood Zone 3 at the site with the sources assessed at Section 6 as the leading consideration. Subject to the mitigation, drainage and consenting measures above and to competent-person review, development of the stated vulnerability can be progressed in accordance with national policy; where residual uncertainty is material, the escalation routes at Appendix H (Product 4 data, detailed modelling, DG5 records) are recommended before determination.

11 Limitations and service constraints

This assessment is desk-based; no site walkover, topographic survey or intrusive investigation has been undertaken. It relies on the datasets appraised at Section 4.1 as at the date of issue. It is a desk-based assessment produced by the Strata Flood deterministic engine, pending competent-person review. No reliance is conferred until reviewed and approved by the competent person. Third-party data remain subject to their licences (all OGL or public record; no paid-licence data are used).

Appendix A — Model validation

A screening-grade 2D hydraulic model has been run for this site using the generalised Strata Flood engine (LISFLOOD-FP), which is validated at Paddock Wood against EA Product 4 (ref KSL 128314). Design inflows are OGL-derived: sub-catchment ReFH design hydrographs with descriptors (DPLBAR, DPSBAR, Tp) from the 2 m LiDAR DTM and PROPWET donor-transferred from Exe at Stoodleigh (4.7 km). The whole-basin design peak reproduces the donor ReFH 1% AEP benchmark to within + inputs are screening-grade, subject to competent-person FEH Web Service confirmation. No site specific data

Collect expert edits

Product 4 benchmark exists for this site, so per-site residual validation is not possible; the engine's accuracy is evidenced by its Paddock Wood validation. Design levels stated here are screening-grade and to be confirmed by the competent person.

Appendix B — Audit trail

This desk-study assessment is built from the OGL datasets appraised at Section 4.1 as at the date of issue; provenance for each is recorded inline. No site-specific hydraulic-model audit trail applies (no model commissioned – see Appendix A).

Appendix C — Service constraints and data currency

Desk-based assessment; no walkover, topographic survey or intrusive investigation. Datasets as appraised at Section 4.1, current at the date of issue; third-party data remain subject to their licences (all OGL or public record).

Appendix D — Site and proposal plans

Site location and red-line boundary are shown at Figures J1-J2 (Appendix J). Proposal drawings are the applicant's and are referenced, not reproduced.

Appendix E — Terrain

Ground levels derive from the Environment Agency LiDAR composite DTM (1 m, OGL; Figure J7, Appendix J); capture-year and tile provenance are recorded in the audit trail (Appendix B). A commissioned topographic survey supersedes LiDAR at design stage.

Appendix F — Flood map extracts

Flood Zones (with indicative climate-change layer), Risk of Flooding from Rivers and Sea, surface-water extents, historic outlines, defences and flood warning/alert areas as shown at Figures J3-J6 and J8 (Appendix J), each carrying source attribution.

Appendix G — Drainage calculations

Collect expert edits

Greenfield runoff method and arithmetic as stated at Section 8.7 (IH124 family; inputs and intermediate values recorded in the audit trail).

Appendix H — Correspondence and escalation routes

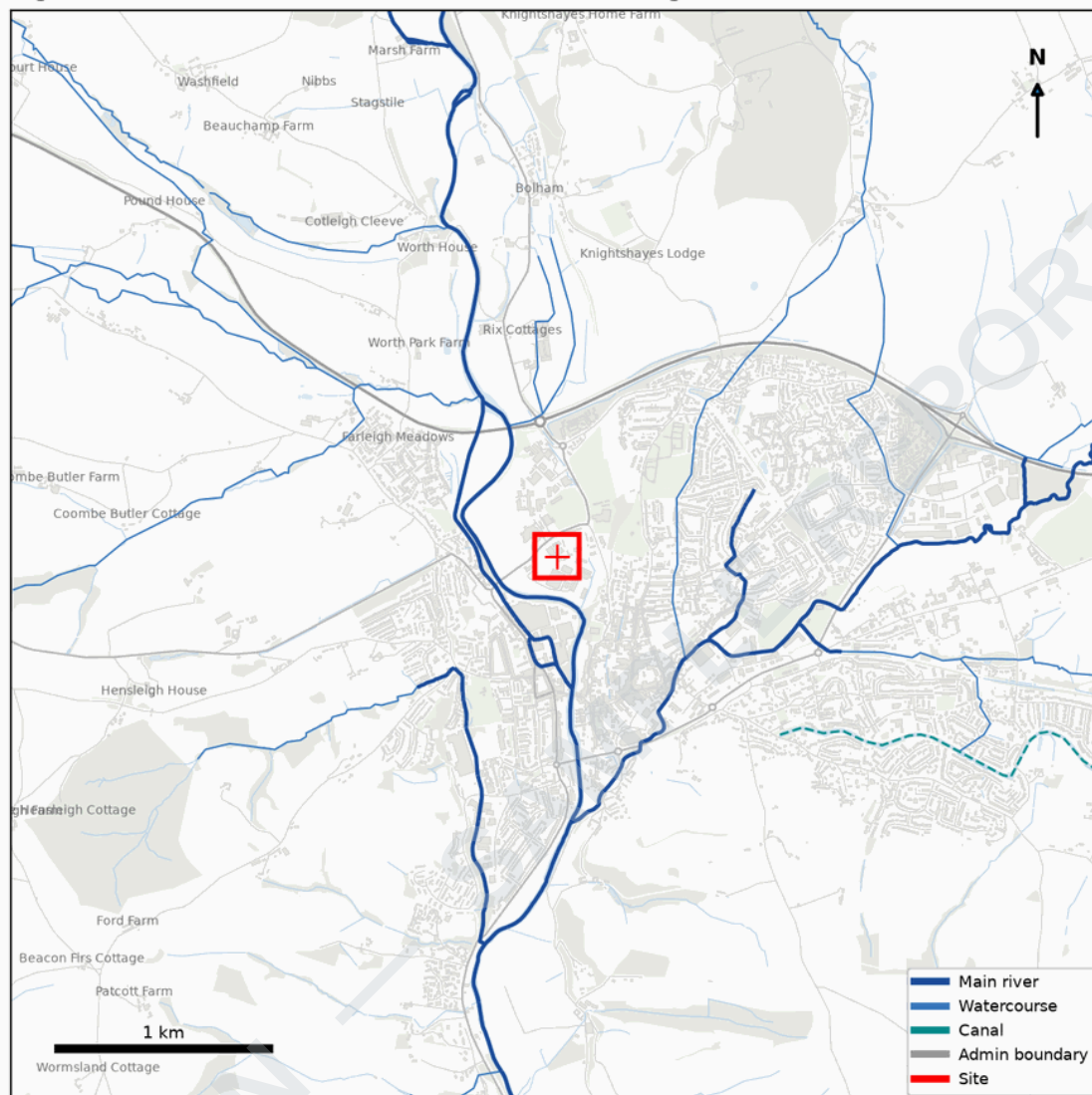
Template DG5 sewer-records request (addressed to South West Water); EA Product 4 data request route (detailed model levels, typically returned within 20 working days and cached for reuse); LLFA pre-application advice route. These are the desk-study analogues of commissioned correspondence appendices in consultant FRAs.

Appendix I — Local benchmark citations

Local strategic documents cited in this report are listed at Section 4 and Section 5.

Appendix J — Site figures

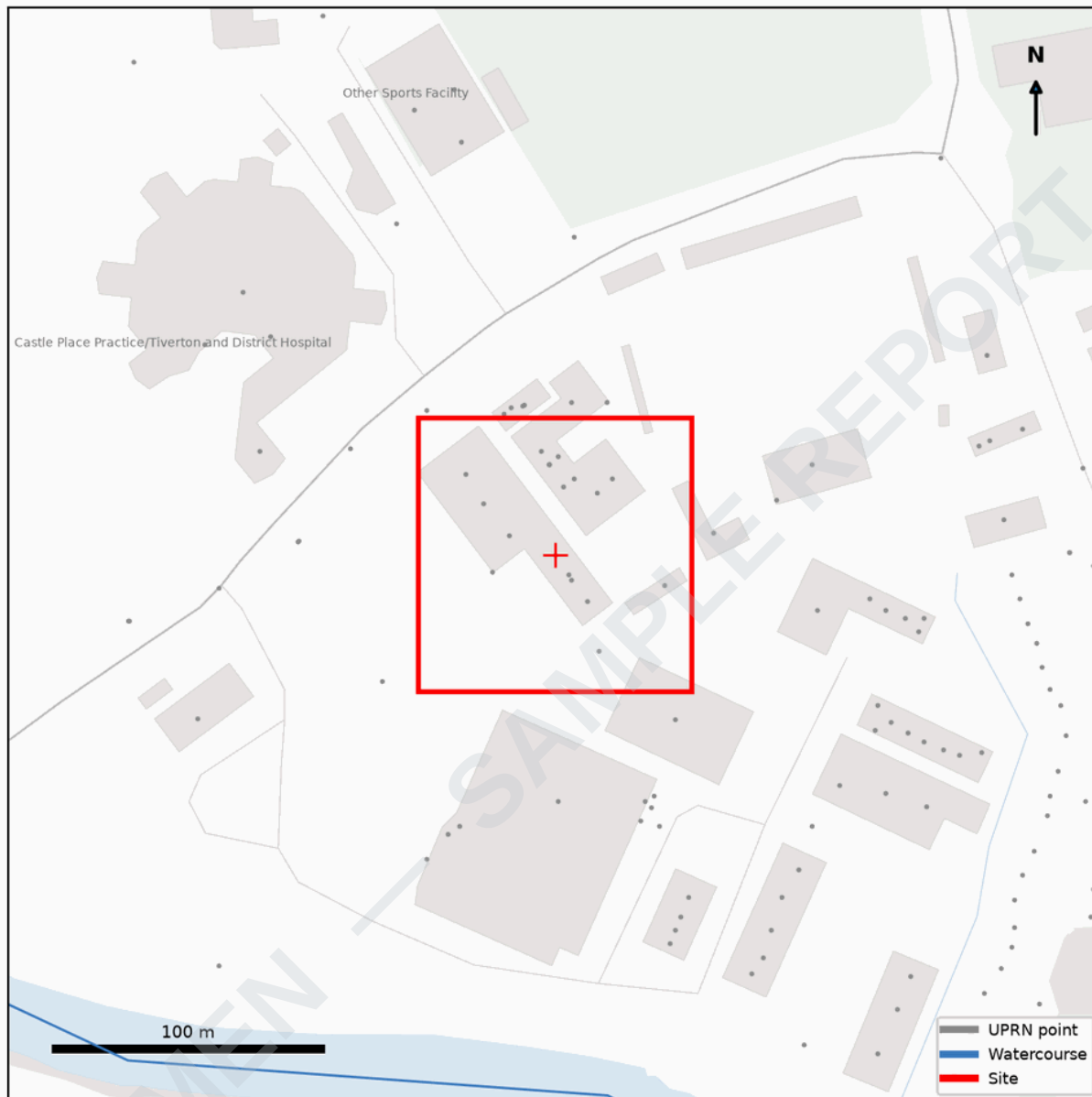
Figure 1 — Site location and watercourse setting



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layers: EA Statutory Main River Map; OS Open Rivers; OS Boundary-Line.

Figure J1 — Site location and watercourse setting.

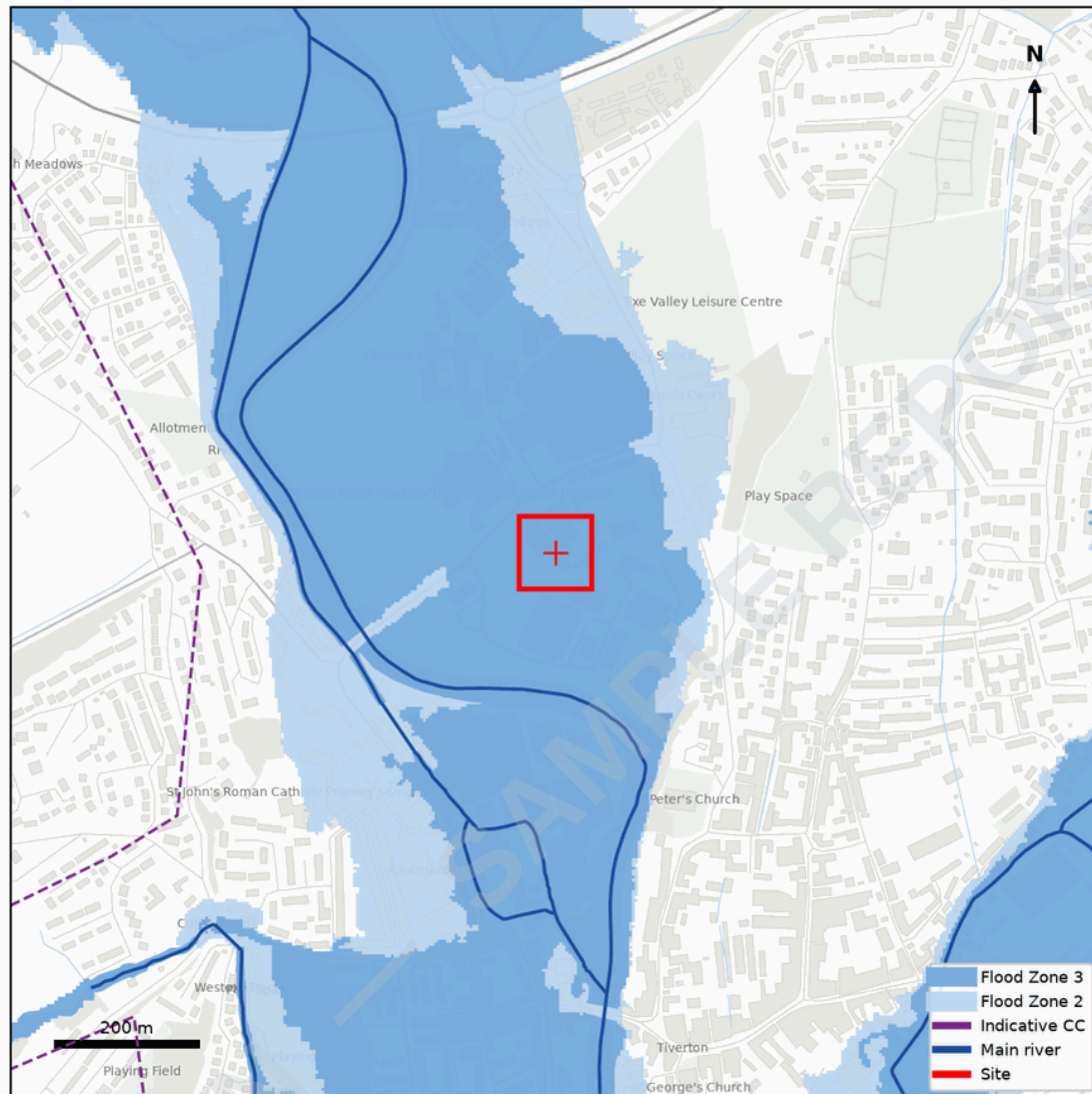
Figure 2 — Site detail (addressable properties, watercourses)



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layers: OS Open UPRN; OS Open Rivers.

Figure J2 — Site detail (addressable properties, watercourses).

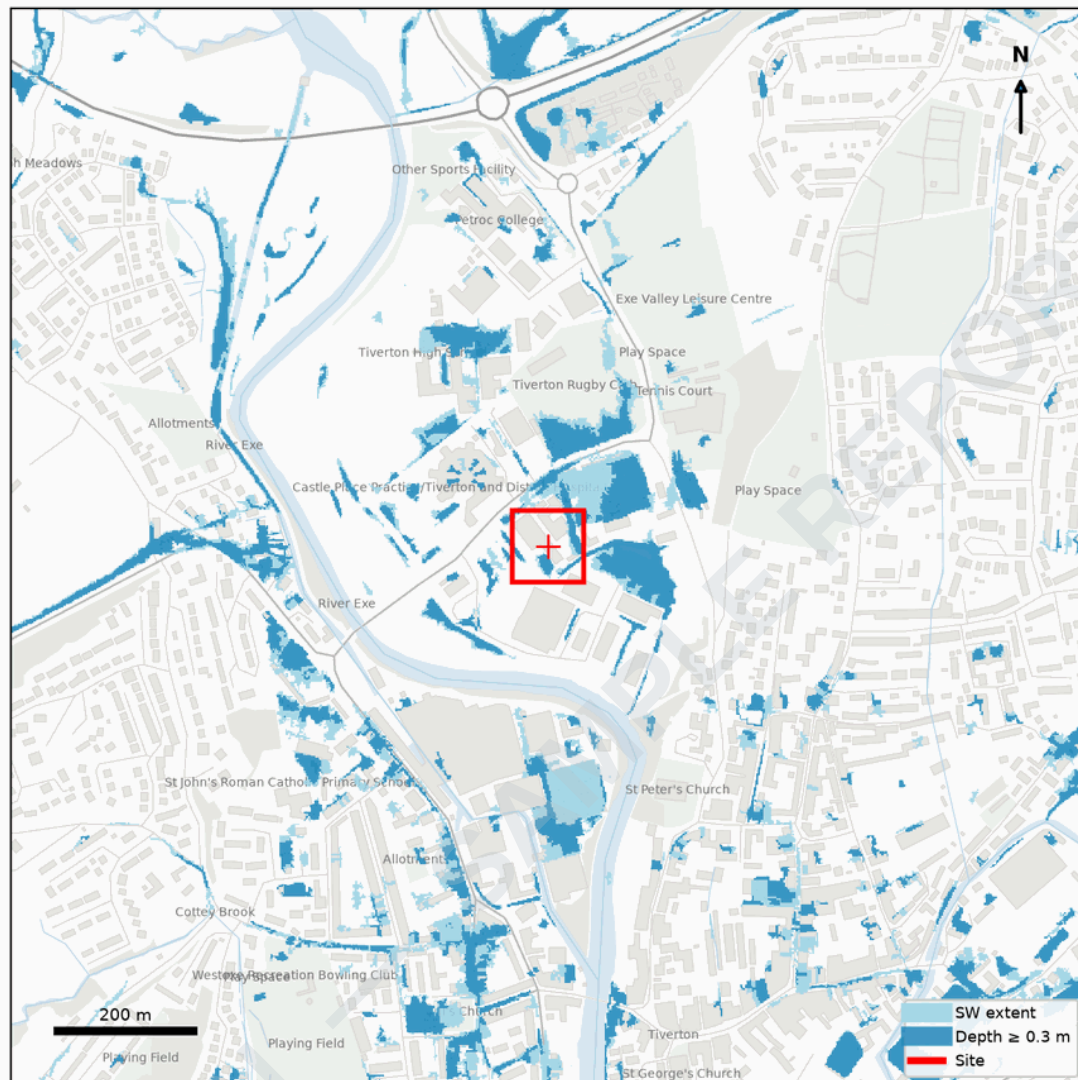
Figure 3 — Flood Zones with indicative climate-change extent



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layers: EA Flood Map for Planning (FZ2/FZ3); EA indicative climate-change layer.

Figure J3 — Flood Zones with indicative climate-change extent.

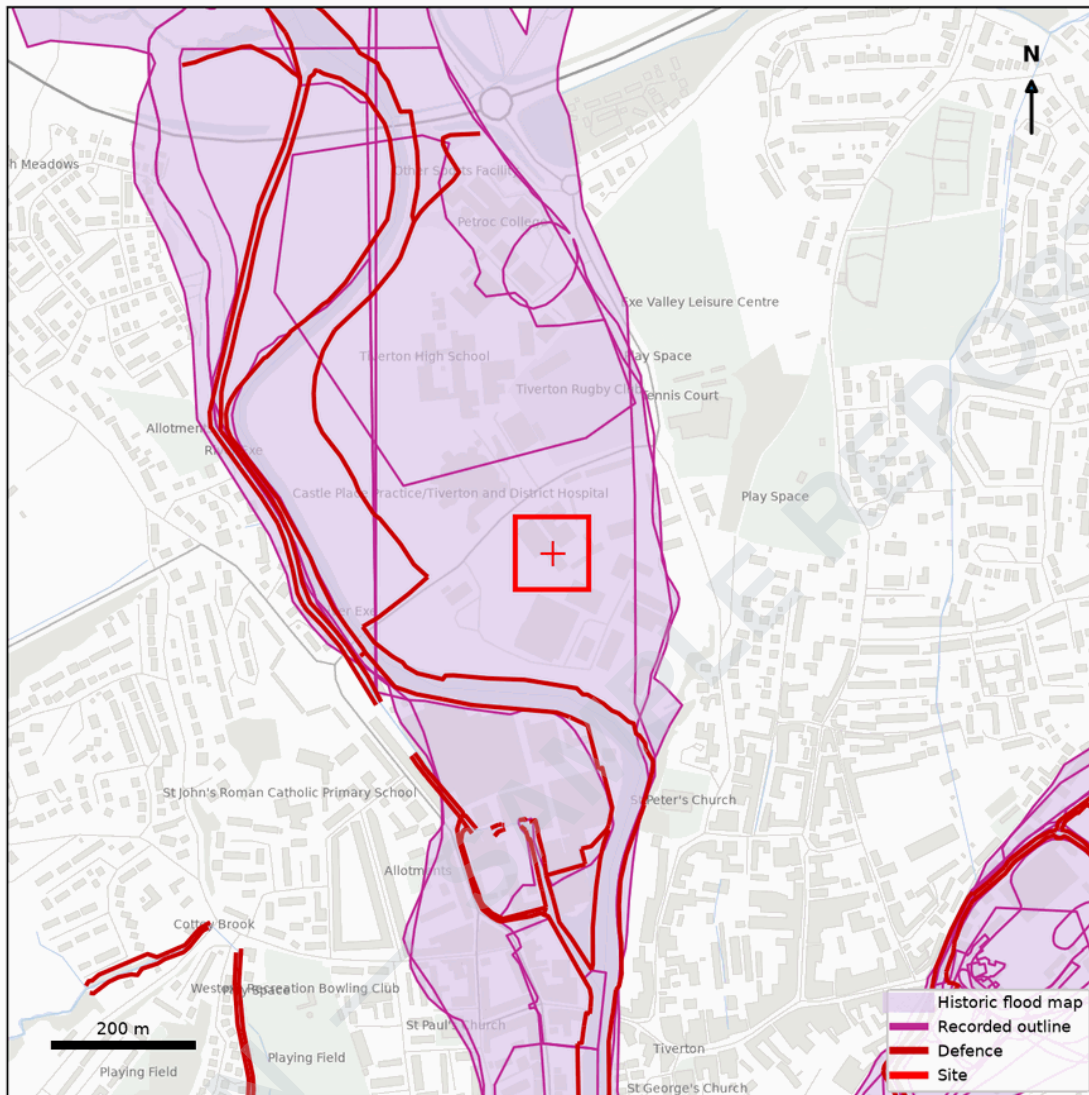
Figure 4 — Risk of Flooding from Surface Water



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layers: EA Risk of Flooding from Surface Water (extent; depth ≥ 0.3 m).

Figure J4 — Risk of Flooding from Surface Water.

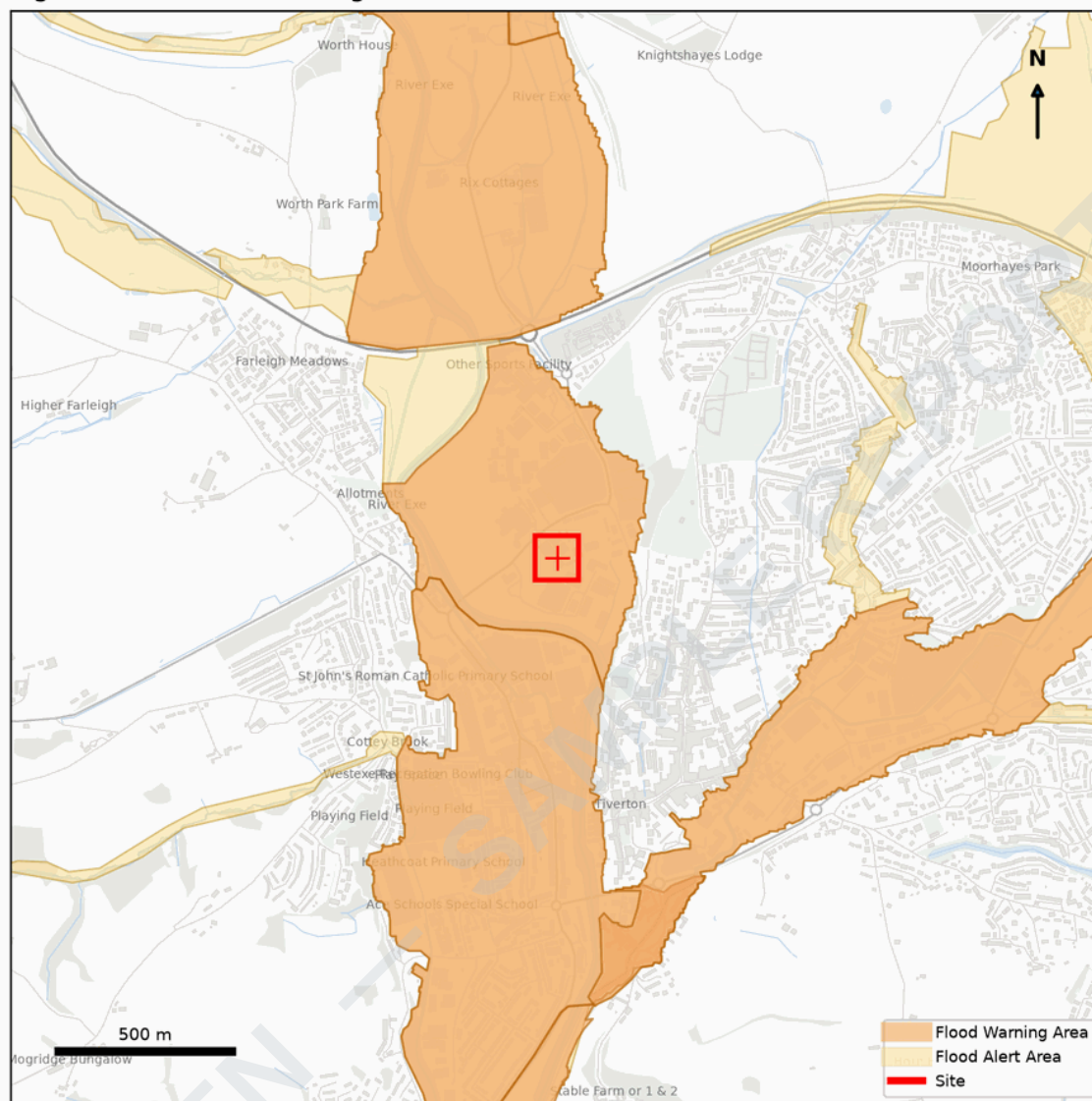
Figure 5 — Historic flooding and flood defences



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layers: EA Historic Flood Map; Recorded Flood Outlines; EA flood defences.

Figure J5 — Historic flooding and flood defences.

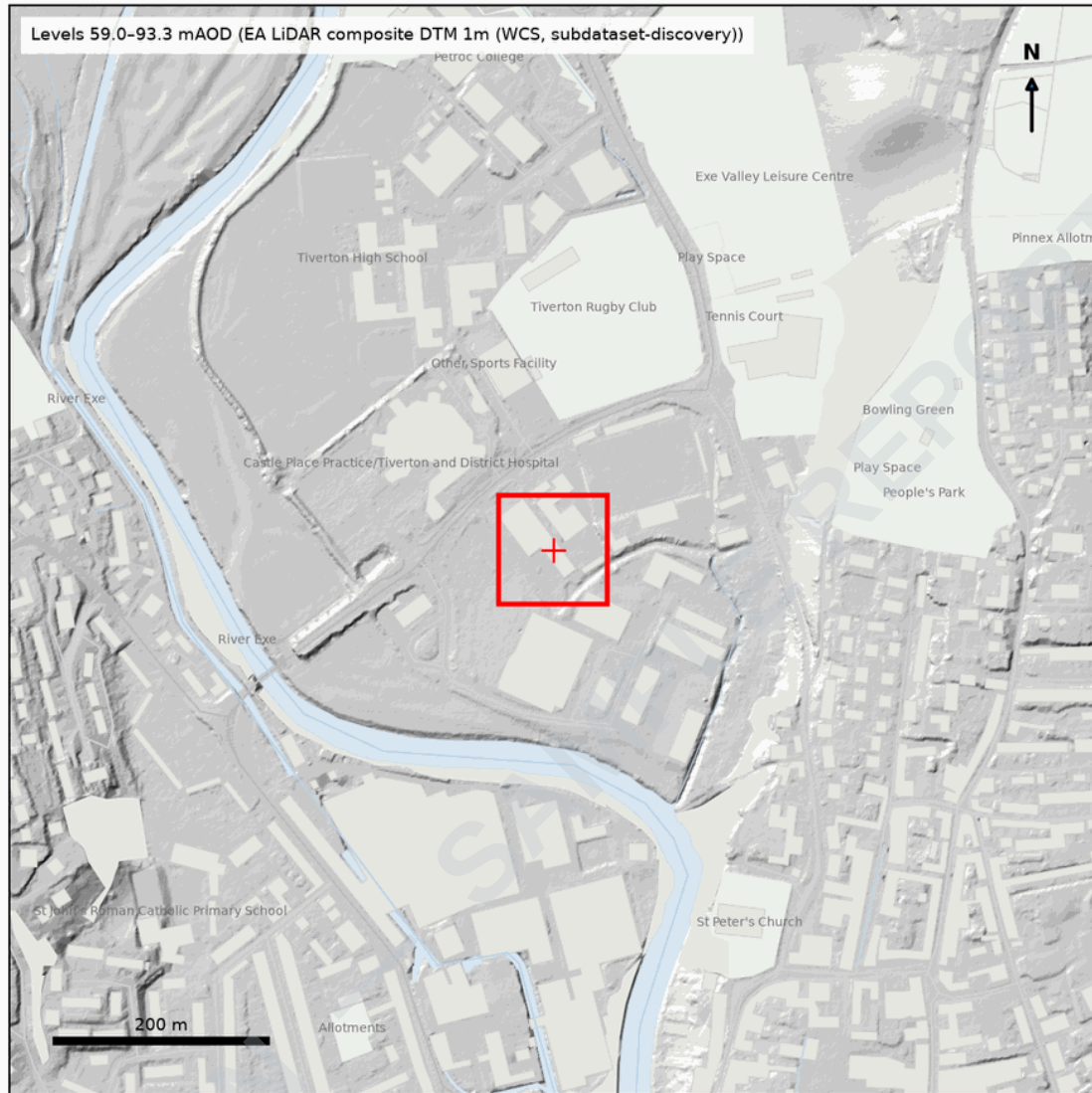
Figure 6 — Flood Warning and Flood Alert areas



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layers: EA Flood Warning and Flood Alert target areas.

Figure J6 — Flood Warning and Flood Alert areas.

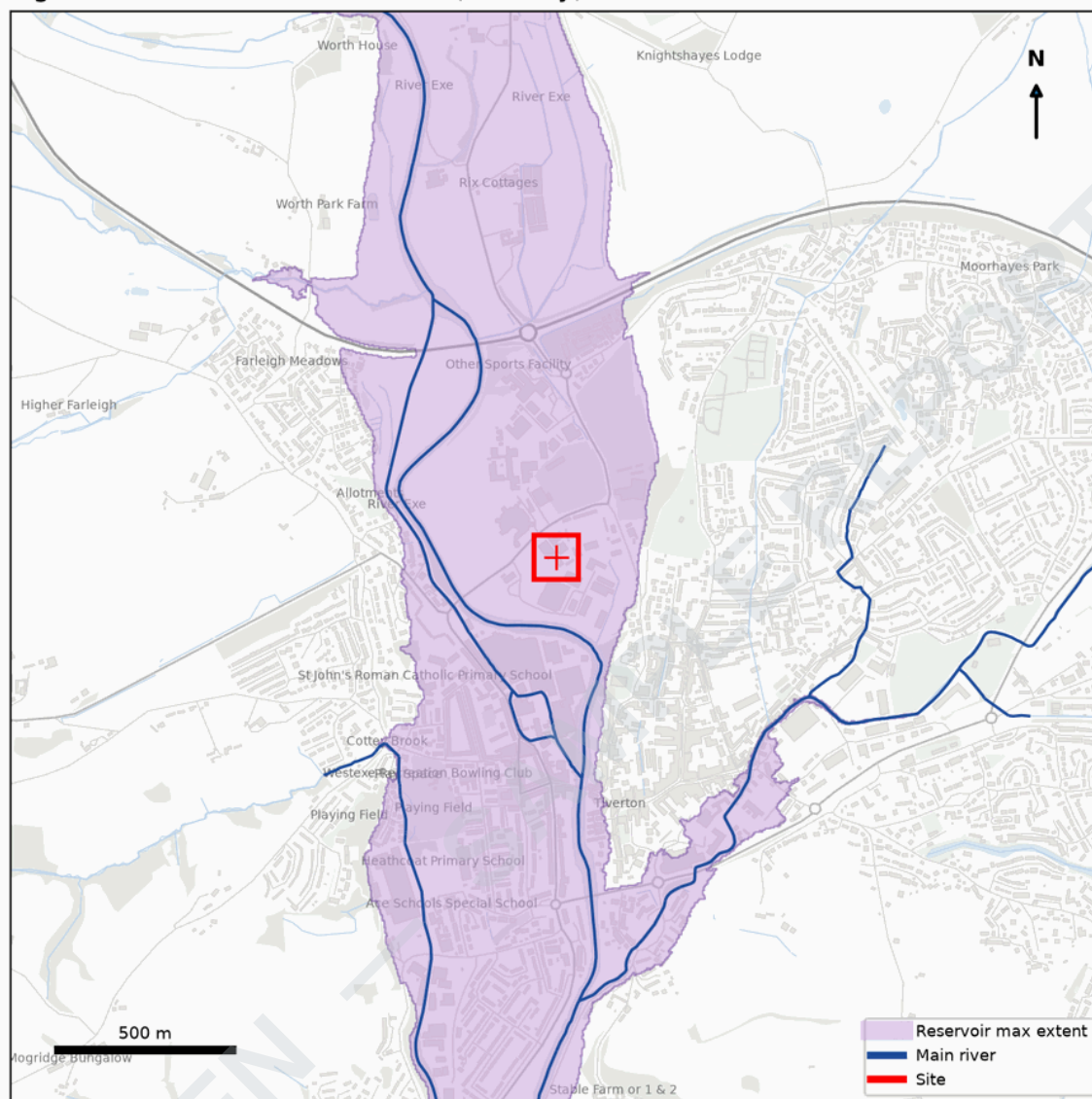
Figure 7 — Terrain (LiDAR DTM hillshade)



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layer: EA/Welsh Gov LiDAR 1m DTM (OGL); provenance in Appendix E/audit trail.

Figure J7 — Terrain (LiDAR DTM hillshade).

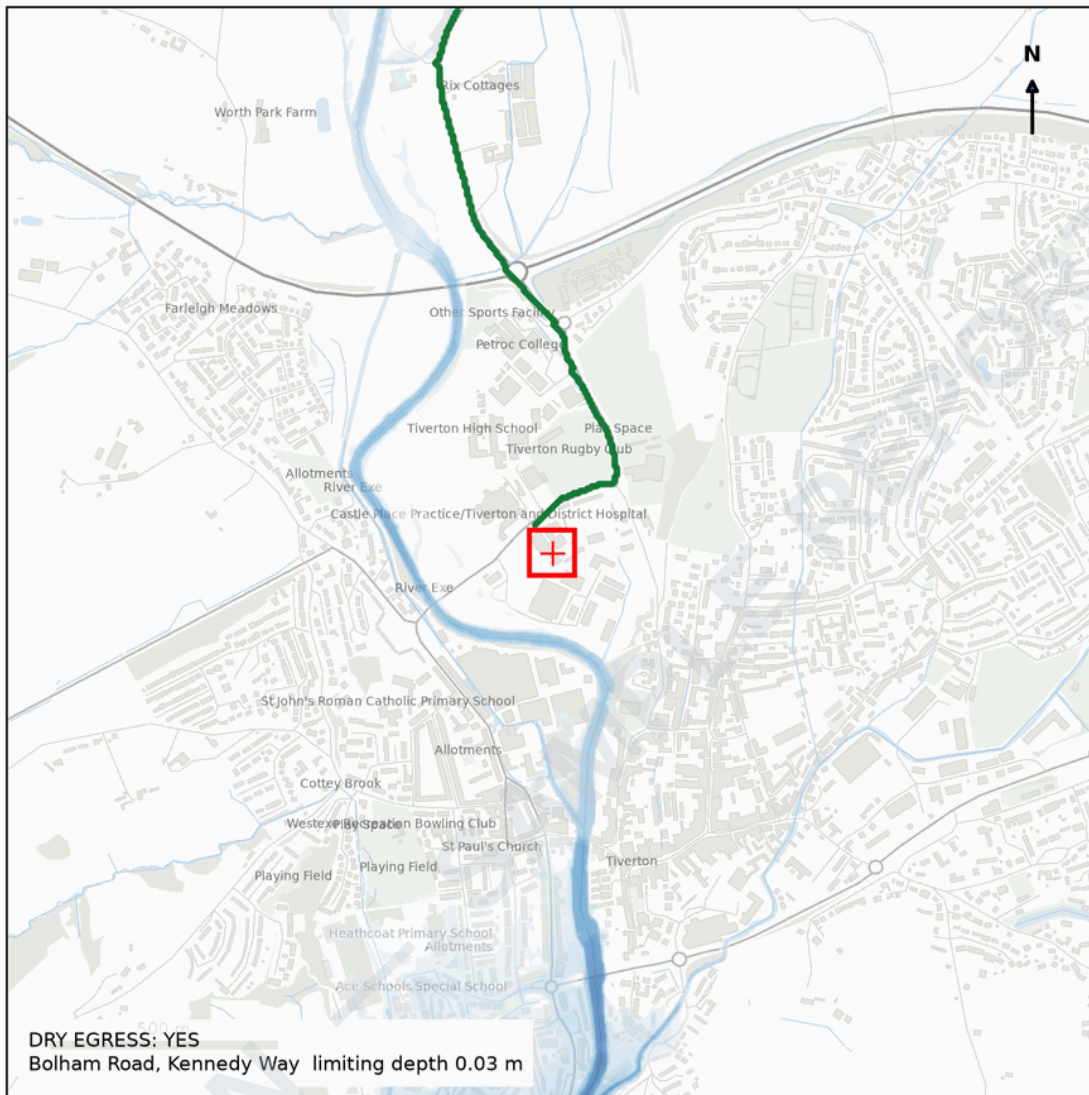
Figure 8 — Reservoir maximum (wet-day) inundation extent



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Layer: EA reservoir maximum flood extent (wet day).

Figure J8 — Reservoir maximum (wet-day) inundation extent.

Figure 9 — Dry access/egress route assessment



Contains OS data (C) Crown copyright and database right 2026. Environment Agency / Defra data (C) Crown copyright, OGL v3. Strata Flood. Roads: OS Open Zoomstack; depth: site model max-depth grid; passability threshold 0.10 m (disclosed), window ± 1200 m.

Figure J9 — Dry access/egress route assessment (road network vs modelled flood extent).

Contains OS data © Crown copyright and database right 2026. Environment Agency / Defra data © Crown copyright, Open Government Licence v3. Prepared deterministically by the Strata Flood engine; no fitted parameters; full machine audit trail in scenarios.json. DRAFT — not for submission until competent-person sign-off.

Collect expert edits