

WORCESTER
LLOYD

ARCHITECTS | ENGINEERS

Our Process. Your Project.

127 Kedleston Road,
Derby
DE22 1FW

Flood Resilience and
Resistance Measures Report

September 2026



For the proposed change of use and conversion of the existing outbuilding to form a café, including replacement roof and associated refurbishment works.

1. Introduction

This Flood Resilience and Resistance Measures Report has been prepared in support of the discharge of the planning condition attached to planning permission 25/00662/FUL at 127 Kedleston Road, Derby, DE22 1FS.

The approved development comprises the change of use and alteration of the existing outbuilding, including raising and replacement of the roof, to form a café with associated outdoor seating.

The proposal involves the comprehensive refurbishment and reuse of the existing building. No extension beyond the established footprint of the outbuilding is proposed.

The works primarily comprise upgrading of the internal walls and floor construction, replacement and alteration of external openings, construction of a new pitched roof and associated drainage and external works.

The existing concrete ground-floor slab is retained and upgraded with a new insulated floor build-up incorporating a damp-proof membrane, while the existing solid brick external walls are retained and thermally upgraded.

2. Purpose of Report

The purpose of this report is to demonstrate how the approved development will incorporate appropriate flood resistance and flood resilience measures in response to the flood risk affecting the site.

The assessment considers:

- Environment Agency Flood Zone classification;
- fluvial flood risk;
- surface-water flood risk;
- local drainage conditions;
- building openings;
- external wall and ground-floor construction;
- roof drainage;
- external ground levels; and
- construction measures intended to reduce the potential for floodwater to enter or damage the building.

The report has been prepared to demonstrate that the development can be made appropriately resistant and resilient to flooding and will not increase flood risk elsewhere.

3. Site Description

The application relates to an existing outbuilding situated to the rear of 127 Kedleston Road, Derby, close to Redshaw Street.

The site location and block plan show the building within the established urban area between Kedleston Road and Redshaw Street.

The existing outbuilding is in a dilapidated condition, and the development seeks to secure its beneficial reuse through refurbishment and conversion.

The existing building footprint is retained, with no enlargement of the building at ground-floor level.

4. Flood Zone Classification

The site lies within Environment Agency Flood Zone 1 – Low Probability.

Flood Zone 1 comprises land with a less than 0.1% annual probability of flooding from rivers or the sea.

The site is therefore outside Flood Zones 2 and 3 and is within the lowest category of fluvial flood risk.

The primary residual flood-risk consideration is associated with localised surface-water flooding and drainage conditions surrounding the site.

5. Flood Risk Context

The local flood-risk context includes the presence of Markeaton Brook, which passes through the wider area and is culverted close to properties along Redshaw Street.

The Council's land-drainage comments associated with the planning application identified the possibility of low-level flooding associated with roads around Markeaton Brook.

The site is nevertheless within Flood Zone 1 and is not located within the principal fluvial floodplain.

The principal risk is therefore considered to be from localised surface-water accumulation during periods of intense rainfall rather than significant direct river flooding.

The proposed development does not materially increase this risk because:

- the existing building footprint is retained;
- no ground-floor extension is proposed;
- there is no additional loss of floodplain storage;
- the roof is being replaced within the established building footprint; and
- drainage associated with the refurbished building will be improved and maintained.

6. Flood Resistance Measures

Flood resistance measures are intended to reduce the likelihood of floodwater entering the building.

6.1 External Openings

New and replacement external doors and windows will be appropriately sealed around frames and junctions with the existing masonry.

The proposed development includes new powder-coated aluminium bifold doors and replacement window openings.

External thresholds will be detailed to reduce the potential for surface-water ingress while maintaining appropriate access requirements.

Where practicable, external openings will also be detailed so that proprietary demountable flood barriers could be installed in the future if monitoring of the site demonstrates that additional protection is necessary.

6.2 Ground-Floor Construction

The existing concrete ground-floor slab is to be retained and upgraded.

The proposed floor construction comprises a new floor finish over 65mm sand/cement screed, separating layer, rigid insulation and a 1200 gauge damp-proof membrane over the existing slab.

The DPM will be installed continuously across the floor and sealed at laps, edges and penetrations.

It will be appropriately linked with the damp-proof course to the perimeter of the building to reduce moisture and potential water ingress through the floor construction.

6.3 External Walls

The existing solid brick external walls will principally be retained.

Existing brickwork will be inspected during the works and defective mortar joints, cracks or damaged masonry will be repaired where necessary.

The proposed construction includes internal upgrading of the existing solid brickwork with DPC separation and insulated wall construction.

Existing damp-proof courses will be retained, repaired or enhanced where required.

New masonry associated with altered openings will be properly tied, sealed and detailed to provide a robust weather-resistant external envelope.

6.4 Service Penetrations

Where drainage pipes, ducts or other services pass through the external walls or floor construction, penetrations will be appropriately sealed.

Low-level service penetrations will be kept to a minimum where practicable and proprietary sealing systems will be used where necessary to reduce potential routes for water ingress.

7. Replacement Roof and Rainwater Drainage

The existing roof is to be replaced and reconstructed as part of the development.

The detailed design comprises a new pitched roof with roof tiles, vapour-permeable roofing membrane, insulated timber rafters and associated rooflights.

The replacement roof will substantially improve the weather resistance of the existing building.

New rainwater goods are also proposed, including new gutters and rainwater downpipes.

The rainwater system will be designed to efficiently collect and discharge water from the roof and minimise the risk of uncontrolled discharge adjacent to the external walls.

Gutters and downpipes will be appropriately connected to the existing or improved surface-water drainage system.

8. Surface Water Management

The development does not increase the established footprint of the building and does not introduce a material increase in impermeable roof area.

The replacement roof therefore replaces the existing built form rather than creating a new area of hard surface.

Existing surface-water drainage routes, gullies and connections will be investigated and retained or upgraded where required.

The detailed drawings require the Principal Contractor to investigate the existing foul and surface-water drainage systems and determine whether any new connections or alterations are necessary.

External surfaces around the building will be arranged, wherever levels permit, so that surface water falls away from the external walls.

The external areas will not be formed in a way that directs additional surface-water runoff towards neighbouring properties or the public highway.

Where appropriate and practicable, localised permeable surfacing, planting or attenuation measures may also be incorporated into the external areas to assist with surface-water management.

9. External Ground Levels

Existing and proposed external ground levels will be reviewed during the refurbishment to ensure that water is not directed towards the building.

Where alterations to external surfaces are required, the finished falls will direct water away from external door openings and masonry walls.

Localised drainage channels or gullies will be incorporated where necessary, particularly adjacent to entrances or low points.

The relationship between external ground levels and the damp-proof course will be maintained in accordance with normal construction requirements.

10. Drainage Infrastructure

Existing drainage infrastructure serving the outbuilding will be inspected prior to completion of the works.

Blocked, damaged or defective gullies and drainage runs will be cleared, repaired or replaced as necessary.

Where there is a risk of surcharge from drainage systems during extreme rainfall events, the use of non-return valves may be considered where technically appropriate.

Rainwater and surface-water drainage infrastructure will be maintained so that the system remains capable of operating effectively during periods of heavy rainfall.

11. Climate Change and Residual Risk

Climate change is expected to increase the frequency and intensity of extreme rainfall events.

Although the site is located within Flood Zone 1, the design therefore incorporates measures intended to provide additional resistance and resilience to localised surface-water flooding.

The residual risk is considered to arise primarily from extreme rainfall events which exceed the capacity of the surrounding highway or drainage system.

The combination of upgraded damp-proofing improved external openings, repaired masonry, controlled roof drainage and appropriate external ground levels provides a proportionate response to this residual risk.

12. Construction Phase Considerations

During the construction works:

- existing drainage routes will be maintained and kept clear;
- construction debris will not be allowed to enter gullies or drainage systems;
- temporary works will not obstruct established surface-water flow routes;
- the building will be kept weather tight as far as practicable during roof replacement;
- the new DPM will be inspected prior to being covered over;
- service penetrations will be fully sealed; and
- final external ground levels will be checked to ensure that water drains away from the building.

These measures will reduce the risk of temporary flooding or water ingress during the construction phase.

13. Maintenance

The continued effectiveness of the flood-resilience measures will depend upon normal building maintenance.

The following items should therefore be periodically inspected and maintained:

- external door and window seals;
- brickwork and pointing;
- damp-proof course interfaces;
- gutters and rainwater pipes;
- gullies and drainage channels;
- surface-water drainage connections; and
- external ground falls adjacent to the building.

Gutters and drainage systems should be kept clear of debris to minimise the risk of localised surface-water accumulation.

14. Conclusion

The proposed development at 127 Kedleston Road, Derby, DE22 1FS comprises the change of use and refurbishment of an existing outbuilding to form a café with associated outdoor seating.

The site lies within Environment Agency Flood Zone 1 – Low Probability, where the probability of flooding from rivers or the sea is less than 0.1% annually.

The principal residual flood-risk consideration affecting the site is associated with localised surface-water flooding and the surrounding drainage network, including the wider influence of the culverted Markeaton Brook.

The proposal does not increase the established ground-floor footprint of the building and therefore does not create additional built development within the site or materially reduce flood-storage capacity.

The refurbishment provides a significant opportunity to improve the flood resistance and resilience of the existing dilapidated structure.

The principal measures include:

- retention and upgrading of the existing concrete slab;
- installation of a new continuous damp-proof membrane;
- repair and upgrading of the existing external masonry walls;
- appropriately sealed external doors and windows;
- sealing of low-level service penetrations;
- complete replacement of the existing roof;
- new and improved rainwater drainage;
- investigation and maintenance of existing surface-water drainage infrastructure; and
- external ground levels arranged to direct water away from the building.

The proposed ground-floor construction incorporates a 1200-gauge DPM over the existing slab, providing improved protection against moisture and low-level water ingress.

The replacement pitched roof and new rainwater goods will further improve the weather resistance and drainage performance of the existing building.

The measures identified within this report are considered proportionate to the site's Flood Zone 1 classification and identified residual surface-water flood risk.

Accordingly, the development is considered capable of being made appropriately flood resistant and resilient for its intended use without materially increasing flood risk elsewhere, and the submitted measures are considered suitable to support the discharge of the planning condition relating to flood resilience and resistance measures.