

FLOOD RISK ASSESSMENT

Land East of Heath Place
Ash Grove Industrial Estate,
Bersted,
West Sussex,
PO22 9SL

*Change of use of land to open storage and parking,
raising of land levels (retrospective) and laying of
hardstanding, associated landscape works*

August 2026

Executive Summary

This Flood Risk Assessment supports a planning application for approximately 0.3223 hectares of land at the north-western corner of Land East of Heath Place, immediately adjoining Ash Grove Industrial Estate, Bersted.

The application description is: "Change of use of land to open storage and parking, raising of land levels (retrospective) and laying of hardstanding, associated landscape works." The proposal includes 16 parking spaces principally to serve employees of the existing commercial units immediately to the west, together with native hedging, two native trees and a 3 metre-wide landscaped flood-storage/restoration strip along the northern and eastern boundaries where ground levels would be locally reduced.

No buildings, sleeping accommodation or enclosed commercial floorspace are proposed. The application seeks retrospective permission for the existing raised land levels, but no further general raising beyond those existing levels is proposed.

The assessment draws upon the March 2025 Arun District Council pre-application advice (PAA/9/25), the Environment Agency's consultation response to the previous industrial development proposal, available Environment Agency flood modelling, topographical and LiDAR information, and groundwater investigation data.

A floodplain storage calculation for the previous, substantially larger site indicates that historic raising displaced a theoretical 2,550 m³ of floodplain storage. When spread across the wider modelled 1 in 100 year plus climate change floodplain of approximately 148,353 m², that volume equates to a theoretical uniform increase in flood level of approximately 17 mm. This represents a very small change in flood depth/level across the wider floodplain.

The present application site is materially smaller than the earlier assessment area, and no further detailed hydraulic modelling is available. It would therefore be inappropriate to attribute the whole 2,550 m³ figure to this application parcel or to pro-rate it by area. This FRA instead adopts a proportionate approach based on the existing evidence, while clearly identifying the assumptions made.

The development would not itself create a material new loss of floodplain storage because no buildings or further general raising are proposed. In addition, the proposed 3 metre-wide lowered corridor would provide a real and measurable increase in floodwater storage compared with the existing physical condition and is presented as partial restoration and positive flood-risk betterment.

Subject to the mitigation and management measures set out in this FRA, the proposal is considered capable of being accommodated without materially increasing flood risk elsewhere.

1. Introduction

1.1 This Flood Risk Assessment has been prepared in support of a planning application concerning approximately 0.3223 hectares of land at the north-western corner of Land East of Heath Place, immediately adjoining Ash Grove Industrial Estate, Bersted.

1.2 The application description is: "Change of use of land to open storage and parking, raising of land levels (retrospective) and laying of hardstanding, associated landscape works." The detailed proposals comprise open storage, 16 parking spaces, retention of the existing raised land levels, hardstanding, native hedging along the northern and eastern boundaries, two native trees within the parking area, and a landscaped flood-storage/restoration strip approximately 3 metres wide along the northern and eastern boundaries within which existing ground levels would be locally reduced.

1.3 The proposed parking spaces are principally intended to serve employees of the existing commercial units immediately to the west within Ash Grove Industrial Estate. Those units presently experience a significant shortfall in staff parking. The parking element therefore has a direct functional relationship with the adjoining established industrial estate.

1.4 No buildings are proposed. The proposal does not include new industrial floorspace, offices, residential or sleeping accommodation, solid flood barriers or significant retaining structures. The existing raised land levels form part of the retrospective application, but no further general raising beyond those existing levels is proposed.

1.5 This distinction is important. The application is fundamentally different from previous applications BE/138/23/OUT and BE/112/25/OUT, which proposed the construction of three industrial/workshop buildings across the wider land parcel.

1.6 This FRA has been informed by available Environment Agency flood modelling, topographical survey information, historic LiDAR data, groundwater investigation data, the March 2025 Arun District Council pre-application advice and the Environment Agency's consultation response to the previous industrial development proposal. Existing surveyed ground levels across the wider site are approximately 1.43 m AOD to 1.84 m AOD.

1.7 The present assessment also directly addresses matters previously raised by the Environment Agency concerning Flood Zone 3b / functional floodplain, historic land raising, potential loss of floodplain storage, the historic infilling of a ditch, the appropriate flood-risk baseline, and the need to avoid increasing flood risk elsewhere.

2. Scope and Assumptions

2.1 No further hydraulic modelling or revised floodplain-volume analysis is available for the present application. This assessment therefore uses the best available existing technical evidence and identifies clearly where reasonable assumptions have been made.

- Available Environment Agency flood modelling and the flood levels derived from it are taken as representative of the local hydraulic regime for the purposes of this assessment.
- The current application site forms part of, but is materially smaller than, the wider site previously assessed through the planning process.
- No additional general land raising is proposed.
- Existing levels within the operational parking and storage area will generally be retained.
- A continuous landscaped strip approximately 3 metres wide will be provided along the northern and eastern boundaries, insofar as practicable having regard to access and planting requirements.
- This strip will be excavated below adjoining existing levels to provide additional floodwater storage. Its detailed profile will respond to existing ground levels and ground conditions.
- The strip will remain hydraulically connected to the surrounding floodplain and will not be enclosed by bunds or other structures that would prevent floodwater entering or leaving it.

2.3 The FRA does not claim that the proposed boundary lowering necessarily restores the entirety of any theoretical floodplain storage previously displaced across the wider landholding. Such a claim could only reliably be made following detailed level-for-level volumetric modelling.

2.4 Instead, the lowering is proposed as a positive flood-risk betterment measure which creates additional floodplain storage compared with the existing physical condition of the application site and provides partial restoration of historic floodplain capacity.

2.5 This is considered a proportionate approach given the limited nature of the development now proposed and the absence of buildings or further raising.

3. Planning and Flood-Risk History

3.1 BE/138/23/OUT

Application BE/138/23/OUT sought outline permission for three light-industrial/workshop units. Arun District Council's subsequent pre-application advice records that the application was refused for three reasons relating to flood risk, surface-water drainage and ecology.

A Sequential Assessment was subsequently prepared. Arun District Council's March 2025 pre-application advice confirmed that the assessment considered 401 potential alternative sites and that the Council had no objection to the Sequential Assessment.

The Council advised that less vulnerable industrial development could be acceptable within Flood Zone 3a but that development should be kept outside Flood Zone 3b. Its summary concluded that there was no objection to the submitted Sequential Assessment and advised that, subject to development remaining outside Flood Zone 3b and appropriate ecological information being provided, an officer recommendation for approval was likely.

3.2 BE/112/25/OUT

A subsequent application, BE/112/25/OUT, again proposed three Class E light-industrial units.

The Environment Agency objected to that development on the basis that part of the development was regarded as falling within Flood Zone 3b and that the proposed industrial development was classified as Less Vulnerable and therefore incompatible with functional floodplain.

The Environment Agency additionally raised significant concerns regarding historic land raising and the resultant potential reduction in floodplain storage. The EA's position was that because the raising had occurred without the necessary permissions and had been subject to enforcement action, it was not prepared simply to accept the contemporary raised levels as the appropriate baseline for determining functional floodplain.

The present proposal has been deliberately formulated differently. The substantial buildings previously proposed have been removed altogether and the application now concerns only a 0.3223 ha open parking/storage use.

4. National Flood-Risk Policy

4.1 National planning policy seeks to avoid inappropriate development in areas at greatest flood risk and to ensure that development is safe for its lifetime without increasing flood risk elsewhere.

4.2 Storage and distribution uses and car parks are classified as Less Vulnerable development.

4.3 Less Vulnerable development is generally compatible with Flood Zone 3a without requiring the Exception Test, but is not normally compatible with Flood Zone 3b functional floodplain.

4.4 The present FRA therefore does not rely upon an argument that Less Vulnerable development is automatically acceptable within confirmed functional floodplain. Instead, consideration is given to whether and to what extent the specific 0.3223 ha application site actually performs a functional-floodplain role, the appropriate interpretation of historic ground levels, the physical consequences of the particular development now proposed, and whether the proposal increases flood risk elsewhere.

4.5 Functional floodplain comprises land where floodwater has to flow or be stored. The national starting point is generally the present-day 3.3% annual probability / 1 in 30-year event, although the identification of functional floodplain should reflect actual local circumstances.

5. Existing Topography and Historic Land Raising

5.1 A detailed topographical survey has previously been undertaken. Existing ground levels across the wider site are approximately 1.43 m AOD to 1.84 m AOD.

5.2 Historic LiDAR information has also been reviewed alongside correspondence with the EA/LLFA concerning historic raising. Comparison of LiDAR datasets indicates relatively limited variation between the datasets from 2006 to 2022, although the subsequent 2024 topographical survey shows a more marked increase in levels across much of the wider area.

5.3 Ground investigation provides direct evidence of Made Ground. Two exploratory boreholes found variable fill including gravel, brick rubble and concrete fragments extending locally to approximately 0.9 metres below current ground level.

5.4 The applicant therefore does not dispute that historic filling/raising has occurred.

- The current application does not propose or depend upon any further land raising.
- The present red-line area of 0.3223 ha is significantly smaller than the wider site previously considered.
- The consequences of the current open development for floodplain storage are substantially different from the construction of three industrial buildings.

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6. Appropriate Flood-Risk Baseline

6.1 The Environment Agency previously indicated that it did not consider the raised contemporary site levels could simply be relied upon as the sole baseline for establishing functional floodplain. That concern is acknowledged.

6.2 This FRA therefore considers the site on two complementary bases.

Assessment basis	Approach
Existing physical condition	The contemporary topographic survey identifies the wider land as presently existing at approximately 1.43 to 1.84 m AOD.
Historic / sensitivity condition	Historic LiDAR levels are also considered when assessing likely flood response prior to the most recent raising.

6.3 This avoids relying solely upon the historic raising to establish the acceptability of development. At the same time, the planning assessment must recognise the actual physical effects of the proposal now being considered.

6.4 The present planning application expressly seeks retrospective permission for retention of the existing raised land levels. It does not propose any further general raising beyond those existing levels. The relevant planning question is therefore whether retention of those levels, together with the proposed open parking/storage use, hardstanding and landscape works, can be safely accommodated and whether the development would result in an unacceptable increase in flood risk elsewhere.

7. Fluvial Flood Risk

7.1 The principal fluvial watercourse is the Aldingbourne Rife, located to the east, together with the tributary running along the northern side of the wider site. Both are Environment Agency Main Rivers.

7.2 Present-day 1 in 30-year / 3.3% AEP event

The most important modelled event for considering functional floodplain is the present-day 1 in 30-year / 3.3% annual probability event.

Review of the Environment Agency Aldingbourne Rife model identifies a modelled flood level of approximately 1.12 m AOD for the present-day 1 in 30-year event. The model indicates that some areas within the wider site fall within the modelled flood extent.

Current surveyed levels of approximately 1.43 to 1.84 m AOD are above that modelled flood level. Even using the older LiDAR levels, identified as approximately 0.90 to 1.40 m AOD, comparison with the 1.12 m AOD modelled flood level indicates maximum potential depths during the 1 in 30-year fluvial event of approximately 0.21 m.

This evidence demonstrates that the functional-floodplain position across the wider site is not uniform. It would therefore be inappropriate simply to assume that every part of the smaller 0.3223 ha north-western application site necessarily functions in the same manner.

7.3 Present-day 1 in 100-year event

For the present-day 1 in 100-year fluvial event, the available Environment Agency modelling identifies a flood level of approximately 1.42 m AOD.

The assessment observes that current surveyed levels are generally at or above that level, whereas comparison with historic LiDAR could result in flood depths of up to approximately 0.52 m.

7.4 Climate-change design event

For this assessment, the available 1 in 100-year +35% climate-change event has been adopted as a conservative design scenario. The modelled flood level is approximately 1.51 m AOD.

Against contemporary surveyed levels, the calculated maximum flooding is approximately 0.12 m in the lower parts of the site. Against historic LiDAR levels, potential depths could be greater.

On the basis of the available modelling, fluvial flood risk to the proposed open storage and parking use is considered moderate, noting in particular the absence of additional built footprint.

8. Historic Ditch

8.1 Concern has previously been raised regarding a ditch identified on a historic 1990 topographical survey. It appears to have operated historically as an overflow or relief feature associated with the watercourse to the north and appears subsequently to have been infilled.

8.2 The Environment Agency's 2015 Aldingbourne Rife hydraulic model has been reviewed to investigate the significance of the historic ditch. The ditch does not correspond with any modelled cross-section, model node or model breakline and was therefore not represented as a discrete hydraulic feature within the 2015 model.

8.3 That conclusion was tested against the 1 in 2-year modelled flood extent. During that relatively frequent event the modelled flow remains within the established channel network, with no indication that the historic ditch alignment was required either for conveyance or attenuation.

8.4 Hydraulic modelling necessarily simplifies the physical catchment. Nevertheless, the available model evidence does not demonstrate that the historic ditch performed a necessary conveyance function within the modelled fluvial system.

8.5 There is therefore no available hydraulic evidence demonstrating that the proposed parking and storage use would worsen flood conditions as a consequence of the historic ditch having been infilled.

9. Historic Loss of Floodplain Storage

9.1 A floodplain storage calculation has been undertaken to assess the potential storage displaced by historic land raising.

- 2022 LiDAR surface.
- Base flood level of 1.51 m AOD, representing the modelled 1 in 100-year +35% climate-change event.
- Raster volume analysis measuring the volume below that level.

9.2 Across the previous larger site, that exercise calculated approximately 2,550 m³ of theoretical floodwater-storage volume which was no longer available following raising.

9.3 The 2,550 m³ figure should not be directly attributed to the present application site. The earlier development plan enclosed approximately 5,944 m², whereas the current application is only 3,223 m².

9.4 More importantly, flood-storage volume is a function of the elevation of individual areas relative to the relevant flood level. It is therefore not technically appropriate simply to divide or pro-rate the previous 2,550 m³ figure according to site area.

9.5 In the absence of further modelling, this FRA therefore does not assign an artificial precise historic lost-storage volume to the current red line.

10. Significance of the Historic Storage Loss

10.1 The floodplain storage calculation also allows the likely hydraulic consequence of the historic raising to be considered.

10.2 The 2,550 m³ theoretical displaced volume was compared with the modelled 1 in 100-year +35% climate-change floodplain extending between Roman Way and Shripney Road. That floodplain was calculated to extend to approximately 148,353 m².

10.3 If the entire 2,550 m³ theoretical displaced volume is distributed uniformly across the wider floodplain, the resulting theoretical increase in flood level is approximately 17 mm / 0.017 metres. This represents a very small change in flood depth/level across the wider floodplain.

10.4 This is a material finding. It demonstrates that while historic filling may have reduced theoretical storage capacity, the available technical assessment indicates that the hydraulic consequence across the receiving floodplain is very small.

10.5 Furthermore, the present development covers only part of the former assessment area and does not propose any further raising. The proposed development therefore cannot reasonably be said to reproduce the effect calculated for the whole historic land-raising exercise.

11. Proposed Floodplain Restoration and Betterment

11.1 Notwithstanding the evidence set out above that the hydraulic consequence of the historic land raising is limited, the applicant proposes a substantive and measurable element of floodplain restoration and flood-risk betterment as an integral part of the development.

11.2 A continuous landscaped flood-storage corridor will be created along the northern and eastern margins of the application site. The corridor will have a total length of approximately 102 metres, a width of 3 metres, and will be lowered by approximately 600 mm relative to the existing ground level.

11.3 The proposed lowered area therefore extends to approximately 306 m² (102 m × 3 m). With an average lowering of 0.60 m, this would create approximately 183.6 m³ of additional potential floodwater-storage volume. The proposal therefore provides approximately 184 m³ of new flood-storage capacity when compared with the existing physical condition of the application site.

11.4 This is not simply an indicative or theoretical mitigation measure. The lowering forms a defined physical component of the proposed development and can be shown expressly on the approved site and landscaping plans. The corridor will:

- remain entirely free from buildings;
- remain free from parking and open storage;
- be lowered by approximately 600 mm from existing site levels;
- principally comprise native landscaping;
- remain open and hydraulically connected to the adjoining floodplain;
- allow floodwater to enter and leave the area without obstruction; and
- be permanently retained as floodable landscaped land.

11.5 The lowered area would consequently provide a substantial new volume into which floodwater can enter during flood events. Unlike buildings, hard structures or raised land, the corridor would increase rather than reduce the volume available to accommodate floodwater.

11.6 The development should therefore be considered against the physical position which would exist following implementation of the proposed works. The application does not merely seek retention of the existing raised site without mitigation; it proposes positive intervention to partially reverse the effects of historic land raising by removing material from approximately 306 m² of the site and creating approximately 183.6 m³ of additional storage capacity.

11.7 No claim is made that the 183.6 m³ represents precise level-for-level compensation for the entirety of any historic flood-storage capacity potentially displaced across the wider landholding. Such a conclusion would require detailed hydraulic modelling of the historic site surface at individual elevation bands. That, however, does not diminish the clear benefit of the proposed works. The relevant comparison for the current development is that the site would provide approximately 184 m³ more flood-storage volume following development than it provides in its present physical condition.

11.8 The proposal is therefore materially different from a scheme which merely retains historic raised levels. It combines retention of the operational part of the site with a substantial area of purposeful floodplain restoration around its northern and eastern margins. This represents a clear and quantifiable flood-risk betterment.

11.9 The proposed lowering should also be considered alongside the wider characteristics of the scheme:

- no buildings are proposed;
- no further general raising of land is proposed;
- the operational use remains open;
- no substantial walls or structures would obstruct flood conveyance;
- permeable or semi-permeable hardstanding will be used where practicable; and
- the lowered corridor will be kept permanently free from parking and storage.

11.10 The development therefore combines the creation of new flood-storage capacity with a form of use that produces very limited permanent displacement of floodwater.

11.11 The proposed 183.6 m³ of additional storage should also be viewed in the context of the wider floodplain assessment. The historic raising across the substantially larger land parcel has been calculated to correspond to approximately 2,550 m³ of theoretical lost storage. When considered across the approximately 148,353 m² modelled wider floodplain, that volume equates to a theoretical uniform change in water level of approximately 17 mm. The present application relates to only part of that former area and it would not be appropriate to attribute the entirety of the 2,550 m³ figure to the current 0.3223 ha application site.

11.12 Nevertheless, the current proposal would physically restore approximately 184 m³ of potential storage within the application boundary itself. This is a meaningful contribution towards addressing the historic position and demonstrates that the applicant has responded positively and proportionately to the Environment Agency's previous concerns.

11.13 The lowered corridor also performs complementary landscape and ecological functions. Native planting would establish a softer edge to the industrial estate while ensuring that the area remains predominantly open and capable of accommodating floodwater. Planting and ground treatment within the corridor would be designed so as not to materially impede the passage or storage of floodwater.

11.14 The proposed floodplain restoration works can be secured through the planning permission and implemented before the parking and open-storage use is brought into use. They would thereafter be retained permanently as part of the approved development.

11.15 It is therefore concluded that the proposal would result in a demonstrable improvement in floodplain storage compared with the existing condition, comprising approximately 306 m² of restored lowered land and approximately 183.6 m³ of additional flood-storage volume. This provides a significant and quantifiable element of flood-risk betterment and should be afforded material weight when considering the retrospective retention of the existing raised levels and the overall acceptability of the development.

12. No Development-Related Loss of Floodplain Storage

12.1 It is important to distinguish the historic works from the development now proposed.

- No construction of buildings.
- No new raised slabs.
- No further general raising beyond the existing raised levels.
- No significant foundations.
- No earth bunds.
- No solid walls across potential flood-flow routes.

12.2 The proposed parking and open-storage use therefore produces no significant permanent volumetric displacement of floodwater comparable with built development.

12.3 Vehicles and stored materials are temporary/movable objects rather than permanent landform. Appropriate controls can ensure that stored goods do not impede identified flood-flow routes.

12.4 The proposed development itself therefore creates no material new loss of floodplain storage. Instead, the 102 m long, 3 m wide and 600 mm deep floodplain restoration corridor provides approximately 183.6 m³ of additional storage and a measurable improvement over the existing condition.

13. Flood Zone 3b / Functional Floodplain Consideration

13.1 The applicant acknowledges that Less Vulnerable development is not normally compatible with confirmed Flood Zone 3b.

13.2 The question is therefore whether the specific operational area of this substantially smaller site is properly characterised as functional floodplain.

13.3 The existing hydraulic information is material. The modelled present-day 1 in 30-year fluvial level is approximately 1.12 m AOD. By comparison, contemporary surveyed levels are approximately 1.43 to 1.84 m AOD, historic LiDAR indicates levels generally around 0.90 to 1.40 m AOD, and even under the historic LiDAR comparison the calculated maximum 1 in 30-year flood depth was approximately 0.21 m.

13.4 This demonstrates significant variation within the wider land parcel and does not support treating the whole area as though it performs an identical hydraulic function.

13.5 The application site should therefore be considered on its own merits, with particular weight given to its north-western location, its substantially reduced extent, the 1 in 30-year model, the absence of buildings, its open and permeable form, and the proposed lowered flood-storage margins.

13.6 Where there remains uncertainty over the precise boundary between Zones 3a and 3b, the nature and consequence of the development are also important material considerations. The proposal would remain floodable and would not rely upon buildings or raised finished-floor levels to exclude floodwater.

14. Surface-Water Drainage

14.1 No buildings are proposed and there will consequently be no roof-water runoff.

14.2 Parking areas should be formed from a permeable or semi-permeable material wherever operationally practicable.

- Permeable reinforced aggregate.
- Porous paving.
- Appropriately designed permeable hardstanding.
- Another equivalent SuDS construction.

14.3 Arun Local Plan Policy W DM3 identifies permeable driveways and parking as appropriate source-control SuDS measures.

14.4 The proposed lowered perimeter landscape area also provides an opportunity for temporary shallow surface-water storage during significant rainfall events.

14.5 No surface-water drainage system will be designed so as to discharge water more rapidly from the site than occurs under the existing condition.

15. Groundwater

15.1 Previous groundwater monitoring found shallow groundwater/seepage. Borehole monitoring recorded water rising locally to approximately 0.32 m below ground level.

15.2 The proposed boundary lowering should therefore remain relatively shallow and should not be designed as a deep permanently dry basin. Its function is to provide additional floodplain storage and landscaped floodable space, rather than a conventional infiltration basin.

15.3 Detailed excavation depths can be finalised on site having regard to ground conditions, provided the overriding objective of reducing the existing levels within the designated corridor is achieved.

16. Flood Conveyance

16.1 The proposal has been deliberately designed to avoid impeding flood flows.

- No buildings.
- No solid northern or eastern boundary walls.
- No raised flood defences.
- No significant retaining walls.
- No further general land raising beyond the existing raised levels.

16.2 Native hedging is proposed along the north and east boundaries. A hedge is materially more permeable to floodwater than solid fencing or walls and will not constitute a substantial barrier to flood conveyance.

16.3 The two trees within the parking area occupy a negligible floodplain volume.

16.4 The site therefore remains substantially open to floodwater.

17. Flood Risk to Users

17.1 The vulnerability of users is significantly less than would arise from residential development or from buildings occupied continuously.

- The site will principally be used during normal working hours.
- Users will largely be employees associated with the adjoining industrial estate.
- The site will be used for vehicle parking and open storage.
- There is no sleeping accommodation and no overnight residential occupation.

17.2 Vehicles can be removed in advance of a foreseeable flood event.

17.3 Staff using the parking area will also normally already be associated with the employment premises immediately to the west.

17.4 The site operator should sign up to the Environment Agency flood-warning system and formalise evacuation procedures. That recommendation is incorporated into this assessment.

18. Flood Warning and Evacuation Plan

1. Register for all relevant Environment Agency flood warnings.
2. Nominate a responsible site manager.
3. Monitor warnings during periods of prolonged or extreme rainfall.
4. Cease use of the parking/storage area where flooding is reasonably anticipated.
5. Where practicable, remove vehicles before significant flooding occurs.
6. Prevent staff entering the application site during a flood event.
7. Direct users westwards towards the established industrial estate and onward to safe ground.
8. Brief regular users of the site on the procedure.
9. Review the arrangements periodically.

18.1 Given the open nature of the development and the absence of sleeping accommodation, this provides a proportionate method for managing residual risk.

19. Open-Storage Management

19.1 Stored materials will be managed so they do not create an unacceptable hazard in the event of flooding.

19.2 Materials should not be positioned within the 3 m lowered northern/eastern flood-storage corridor.

19.3 No hazardous or significantly polluting substances should be openly stored without appropriate containment.

19.4 Where items could reasonably float or become mobile during flooding, they should be restrained, securely stored or removed following receipt of an appropriate warning.

19.5 The use should therefore not introduce an unacceptable pollution or debris risk downstream.

20. Tidal Flooding

20.1 Tidal flood risk has been considered using the available River Arun to East Head Coastal Model information.

20.2 Under defended conditions, the wider site was not shown as affected by the present-day 1 in 200 or 1 in 1,000-year events or the 2070 climate-change event. The 2115 climate-change flood level was identified as approximately 1.05 m AOD.

20.3 The principal issue for the present application is therefore considered to remain fluvial rather than tidal risk.

21. Other Sources of Flooding

21.1 Groundwater, reservoir, sewer and other sources of flooding have also been considered.

21.2 Groundwater susceptibility mapping showed the site in a wider grid cell within which less than 25% was considered susceptible to groundwater flooding.

Available mapping, groundwater information and the nature of the site indicate that flood risk from reservoir, sewer and other sources is low. Nothing inherent in the present substantially smaller open parking/storage proposal is considered to materially alter that position.

22. Effect upon Flood Risk Elsewhere

22.1 The central requirement is that development should not increase flood risk elsewhere.

- The proposal introduces no buildings.
- The proposal involves no further land raising.
- The proposal creates no major physical obstruction to flood flow.
- The proposal employs permeable/open boundary treatment.
- The proposal retains the land as an open use.
- The proposal incorporates permeable surface treatment.
- The proposal introduces a lowered flood-storage corridor.
- The proposal creates additional storage compared with the present landform.
- The proposal provides formal arrangements for managing residual flood risk.

22.2 The floodplain storage calculation indicates that even the theoretical impact of the historic raising across the much larger previous site would translate into an approximately 17 mm uniform increase across the relevant wider modelled floodplain.

22.3 There is therefore no technical evidence presently available to indicate that the modest use now proposed would result in a significant increase in flood risk to neighbouring land or property.

22.4 Indeed, compared with the present physical condition, the proposed development introduces a positive reduction in flood risk through the creation of additional flood-storage capacity around the site's northern and eastern margins.

23. Sequential Approach

23.1 The Sequential Test undertaken for the former industrial proposal was reviewed by Arun District Council.

23.2 The Council recorded positively that 401 potential sites had been identified and assessed and expressly concluded that there was no objection to the submitted Sequential Assessment.

23.3 The current development is considerably more site-specific than the previous industrial proposal. The principal parking component exists to address a shortage of employee parking at the industrial premises immediately adjoining the application site to the west.

23.4 A remote alternative car park would not perform the same function. The geographical relationship with the units being served is therefore an important factor when considering reasonably available alternative sites.

23.5 The previous Sequential Assessment should accompany or be cross-referenced by the application where available. The present FRA concludes that the greatly reduced proposal does not undermine the previous sequential assessment.

24. Sustainability and Wider Benefits

24.1 The proposal provides a number of benefits relevant to the flood-risk planning balance.

- Resolve a significant existing staff-parking shortage within Ash Grove Industrial Estate.
- Reduce pressure for informal/displaced parking elsewhere within the estate.
- Make productive use of land immediately adjacent to established commercial uses.
- Involve no buildings.
- Introduce no further general land raising.
- Incorporate permeable surfaces.
- Introduce native hedging.
- Provide two native trees.
- Create a dedicated floodable landscaped corridor.
- Increase flood-storage capacity relative to the site's existing physical state.
- Allow the land to continue to accommodate floodwater during extreme events.

25. Conclusions

25.1 The application concerns only 0.3223 hectares at the north-western corner of the wider Land East of Heath Place site.

25.2 This is materially different from the previous proposals for substantial industrial buildings. No buildings, sleeping accommodation or enclosed commercial floorspace are proposed.

25.3 The applicant acknowledges that historic land raising has occurred and does not seek to rely solely upon the contemporary raised levels as justification for development. The assessment instead considers existing surveyed levels, historic LiDAR, existing Environment Agency hydraulic modelling, historic flood-storage calculations, and the physical consequences of the specific development proposed.

25.4 The existing model identifies the present-day 1 in 30-year fluvial flood level at approximately 1.12 m AOD. The available evidence demonstrates considerable variation in flood susceptibility across the wider land and consequently does not justify an assumption that the whole of the much smaller application parcel performs an identical functional-floodplain role.

25.5 A floodplain storage calculation indicates that historic raising across the previous, substantially larger site displaced a theoretical 2,550 m³ of floodplain storage. That figure cannot properly be attributed to the present 0.3223 ha application parcel without further modelling.

25.6 More importantly, distributing that entire theoretical displaced volume across the relevant 148,353 m² floodplain would result in only approximately a 17 mm theoretical increase in flood level. This represents a very small change in flood depth/level across the wider floodplain.

25.7 The development now proposed creates no additional general raising and no permanent built footprint. It therefore creates no comparable new loss of floodplain storage.

25.8 Furthermore, a dedicated 3 m-wide lowered landscaped corridor along the northern and eastern boundaries is proposed. That measure creates additional hydraulically available floodwater storage compared with the present condition.

25.9 While no unsupported claim is made that this represents precise full level-for-level compensation for all historic works, it represents a genuine partial restoration of floodplain capacity and positive flood-risk betterment.

25.10 The proposal also provides an open and floodable land use, permeable surfacing, no solid obstruction to flood flows, native hedge boundaries, management of potentially mobile stored materials, and a Flood Warning and Evacuation Plan.

25.11 The previous hydraulic modelling also provides no evidence that the historic ditch formed a necessary component of the modelled flood-conveyance system.

25.12 Taken as a whole, the proposal represents an inherently flood-resilient and low-consequence form of development compared with the previously proposed industrial buildings. It does not generate a further material loss of floodplain storage and introduces measures which improve the storage position compared with the existing physical condition.

25.13 It is therefore concluded that, subject to implementation and retention of the measures identified within this FRA, the development can be accommodated without materially increasing flood risk elsewhere and with positive flood-risk betterment within the application site.