



Gladman Developments Ltd

Appeal Reference: APP/J2210/W/25/3373183

Land at The Hill, Littlebourne, Canterbury, CT4 5EA

Flood Risk and Drainage Proof of Evidence of Colin Whittingham BSc(Hons) MSc C.WEM PIEMA

January 2026



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1. Personal details

- 1.1 My name is Colin Whittingham. I am a Director at RSK, responsible for technical expertise in the impacts of development on the water environment, flood risk, drainage consultancy, and design. I work within RSK's Land & Development Engineering (LDE) division, which specialises in sustainable engineering and environmental consultancy.
- 1.2 I am a Chartered Member of the Chartered Institution of Water and Environmental Management (CIWEM) and a Practitioner Member of the Institute of Environmental Management and Assessment (IEMA). I have extensive experience in flood risk and surface water drainage, gained through academic qualifications and varied roles within consultancy.
- 1.3 My experience encompasses public and private sector projects, including Environment Agency flood mapping studies and flood and drainage assessments for residential, industrial, and infrastructure developments. I regularly prepare Environmental Impact Assessment chapters on hydrology, flood risk, and water resources, and I supervise, coordinate, review and author RSK Flood Risk Assessments (FRAs), as well as train staff on flood risk and sustainable drainage.
- 1.4 I hold specialist expertise in hydrological modelling and flood estimation techniques using industry-standard software.
- 1.5 My evidence demonstrates that flood risk both to and as a result of the development of the site has been integral to determining the location and layout of built development at the application site, with full regard to relevant National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) policies for flood risk.
- 1.6 The evidence provided herein is true and has been prepared in accordance with the guidance of my professional institutions. The opinions expressed are my genuine and considered professional views.

2. Context and Flood Risk Summary

Context

2.1 This Proof of Evidence addresses:

- National policy and guidance relevant to flood risk and drainage.
- The site flood risk baseline from all sources (fluvial/tidal, surface water, groundwater, sewers, reservoirs/other artificial sources).
- Application of climate change allowances for peak river flow and rainfall intensity to the development lifetime.
- Compliance with the Sequential Test and, where applicable, the Exception Test.
- A robust SuDS-based drainage strategy in line with national and local standards and the CIRIA SuDS Manual (C753).
- Safe access and egress considerations and emergency planning.

Main Issues Relating to Flood Risk

2.2 Flood risk is a key consideration for any planning application, both flood risk to the development and as a result of the development. Whilst neither the Environment Agency (EA) or Kent County Council acting as the Lead Local Flood Authority (LLFA) objected on the ground of flood risk or impacts on surface water drainage, existing flood risk and the impacts on existing drainage infrastructure in the area is a concern for interested parties, and the potential for effects of the development on the chalk stream as well as issues in respect of foul drainage have been raised as main issues in this appeal.

Existing Flood Risk to the Site

2.3 A Flood Risk Assessment (Ref: 680117-R1(04)-FRA, April 2024) **[CD2.50]** was prepared for the Planning Application for the Appeal site. This FRA document was produced to assess the flood risk from tidal, fluvial, surface water, groundwater, sewer and artificial sources in line with the National Planning Policy Framework (NPPF) and its corresponding Planning Practice Guidance (PPG). It includes a summary of the proposed surface water drainage strategy, showing how Sustainable Drainage Systems (SuDS) have been used to demonstrate surface water is appropriately managed on-site, with the aim that there is no increased risk of flooding on-site or elsewhere as a result of the development.

2.4 Since the production of the FRA in April 2024 there have been revisions to the NPPF, PPG as well as the EA published flood zone mapping. The FRA was prepared in line with the data available at the time of submission. Section 4 of this proof considers the impacts of the latest NPPF and PPG, while this section will consider the flood risk based on the latest EA datasets.

- 2.5 The submitted FRA concluded that the site is located in Flood Zone 1 (low risk from fluvial sources) and low risk from all other sources. Groundwater and water ingress into the downstream sewerage system are noted, but do not impact on the site in terms of flood risk to the development.
- 2.6 Since the production of the submitted FRA, revised national flood risk datasets have been published by the EA.
- 2.7 Figure 3.1 below shows the latest EA Flood Zone mapping, this confirms that the site is still located wholly in Flood Zone 1, indicating a low risk from fluvial sources.

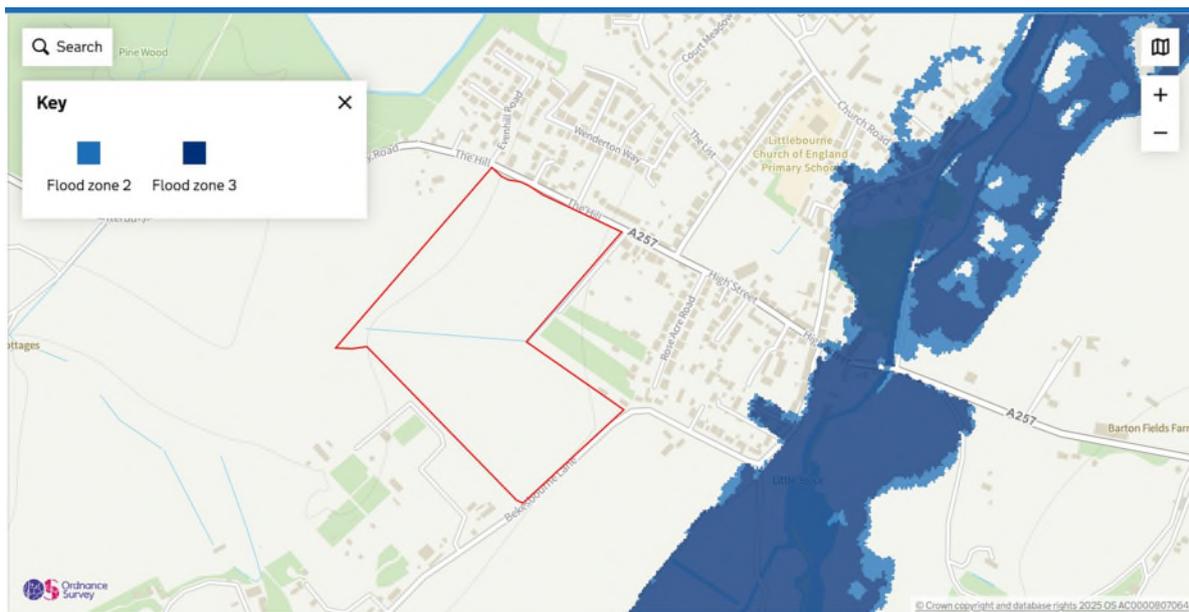


Figure 3.1: EA Online Flood Zone Mapping (Accessed December 2025)

- 2.8 Figure 3.2 below shows the latest EA Risk of Flooding from Surface Water mapping (1 in 100 year event), this confirms that whilst small sections of the site are at potential risk from this source, the developable sections of the site are still located wholly in areas not shown to be at risk.

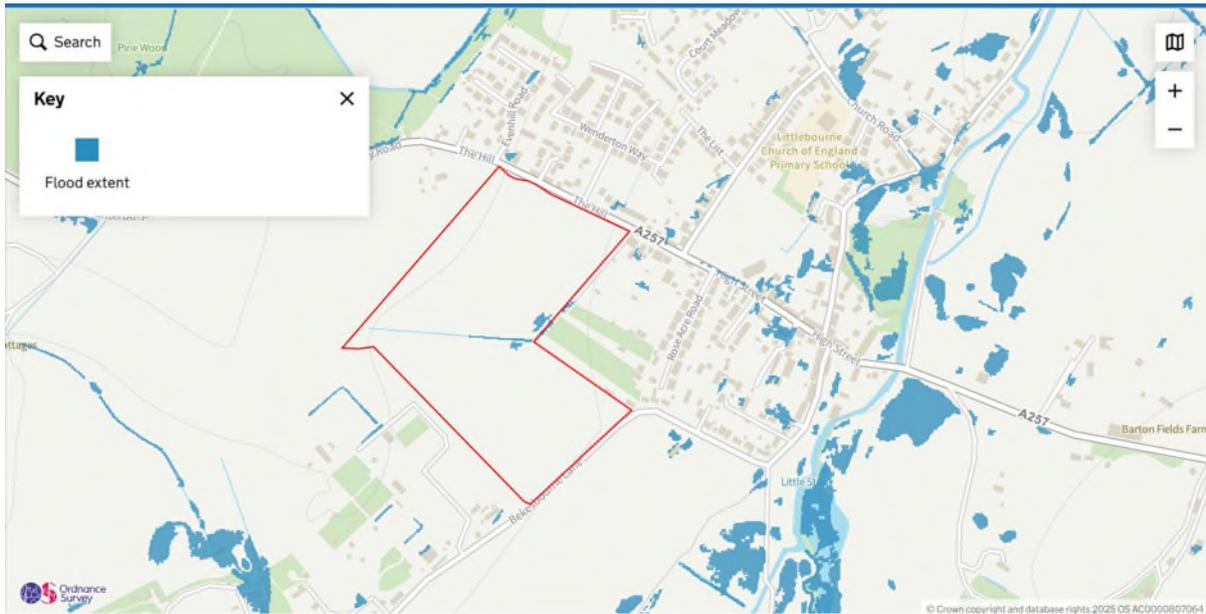


Figure 3.2: Risk of Flooding from Surface Water mapping (1 in 100 year event) (Accessed December 2025)

- 2.9 In addition, following development of the site, much of the contributing catchment to this area of surface water ponding will be actively drained via a traditional drainage system, as such the flood risk of this area will be further reduced with the additional flows being captured, managed and directed towards a suitably designed SuDS system.
- 2.10 As detailed in the Flood Risk Assessment, the flood risk to the site from all other sources is low.

Surface Water Drainage

- 2.11 The submitted Flood Risk Assessment (Ref: 680117-R1(04)-FRA, April 2024) **[CD2.50]** includes details on the proposed surface water drainage from the developed site. The FRA (and agreed with the LLFA) indicates a current greenfield run-off discharge rate of 16.7l/s (QBAR) across the whole site. The maximum discharge rate for the proposed development, as agreed with the LLFA, is limited to 11l/s. This reduction in flow from the development will significantly reduce run off entering the chalk stream.
- 2.12 Any flows generated from the development in excess of 11l/s will be retained on site in two basins. These basins will not naturally infiltrate due to the underlying ground conditions and will therefore not contribute to the known groundwater issues within the village. Instead, discharge from the site will be to an existing culvert located on site.
- 2.13 Discharge from the site is limited to greenfield run off rates to ensure flood risk off site is not increased. Due to some of the site not falling towards the proposed discharge point of the ditch along the eastern boundary of the site, only the contributing catchment has been considered. For this reason, it is proposed to limit the offsite discharge from the drainage

network totalling 11l/s (the QBAR greenfield rate for the current contributing area) to be split between the two proposed basins.

- 2.14 As water is retained within the development at a reduced rate, the impact of the development of the existing flood risk issues in the village will not be exacerbated.

Southern Water Infiltration Reductions Scheme

- 2.15 Southern Water is implementing an Infiltration Reduction Plan (IRP) for the Lower Nailbourne catchment, which includes the Littlebourne area, to address sewer flooding caused by high groundwater levels and water infiltrating into the sewerage network. Groundwater infiltration is a persistent issue in villages along the Nailbourne stream, particularly during wet winters when the aquifer is full. The excess groundwater seeps into the public sewer network, overwhelming the system and causing sewer flooding. It is understood that the required works in the area will be to reline the sewers in the area to reduce the risk of groundwater ingress.
- 2.16 The proposed development and the associated surface water drainage proposals will not place additional pressure on the existing system, or be reliant on the proposed works to be undertaken by Southern Water or increase flood risk downstream. The drainage strategy is deemed acceptable by KCC LLFA acting as the leading authority on surface water flood and drainage issues for planning submissions, and it does not object to the scheme.
- 2.17 Due to the restriction in off-site flows and the retention of surface water within the site, surface water flows leaving the site will be reduced from the current greenfield conditions in more extreme rainfall events.

3. Flood Risk Policy

- 3.1 The National Planning Policy Framework (NPPF) provides the Government's planning policies for England and forms a material consideration for decision making purposes. Flood risk and minimising inappropriate development within areas at risk of flooding is fundamental to the underlying sustainability principles of national planning policy.
- 3.2 Planning Practice Guidance (PPG): Flood Risk and Coastal Change PPG provides detailed guidance on managing flood risk through plan-making and decision-taking, including:
- site-specific FRAs;
 - the sequential approach, Sequential Test, Exception Test; and
 - Flood Zone/vulnerability tables.
- 3.3 Updates published 17 September 2025 clarify application-stage proportionality, search areas, and circumstances where an FRA addressing surface water risk can obviate the need for a Sequential Test (paragraph 27), alongside a new paragraph 27a on defining search areas and revision to paragraph 28 on 'reasonably available' sites.
- 3.4 Section 14 of the NPPF (December 2024, amended February 2025) sets out policies for meeting the challenge of climate change, flooding and coastal change, including the requirement to avoid inappropriate development in areas at risk of flooding and to ensure proposals are safe for their lifetime without increasing flood risk elsewhere.
- 3.5 The NPPF is intended to be implemented via the sequential approach to development. Paragraph 170 of the NPPF reads: "Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere."
- 3.6 The Appeal site comprises proposed residential development which is categorised nationally as 'more vulnerable'. The NPPF and PPG sets a 'high bar' for residential development required in flood risk areas. If it is possible to locate development on land at a lower flood risk taking into account the wider range of land available and capable of delivering residential development, development should be avoided in higher risk areas. Where it is found to be not possible to do this, national policy indicates that the sequential test should be passed, and for certain types of development, depending on its vulnerability, the Exceptions Test becomes engaged.
- 3.7 Paragraph 181 of the NPPF states that " When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:
- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

- b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
- d) any residual risk can be safely managed; and
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.”

3.8 Canterbury District Local Plan (2017) establishes the strategic approach to managing flood risk across the District. It identifies that approximately 15% of the district is within Flood Zone 3, highlighting vulnerability to river and coastal flooding and the need for robust flood mitigation as development occurs. Specifically, it:

- Requires new developments to demonstrate no increased flood risk to people or property,
- Mandates surface water and sewage drainage schemes that prevent discharge rates greater than greenfield rates,
- Promotes the implementation of sustainable drainage systems (SuDS) solutions.

3.9 Canterbury District Local Plan, 2017 policy CC4 states that “Development proposals within Flood Zones 2 and 3 and sites larger than 1 ha in Flood Zone 1 shall be subject to a Flood Risk Assessment. The Flood Risk Assessment shall be in accordance with the Council’s Drainage Impact Assessment Guidance Note and Strategic Flood Risk Assessment, including the requirement for a contribution towards any necessary new flood defence or mitigation measures. Where relevant, the assessment should also address the risk of flooding from surface water, groundwater and ordinary watercourses. Where there is evidence that water from these sources ponds or flows over the proposed site the assessment should state how this will be managed and what the impact on neighbouring sites will be.”

3.10 The proposed drainage strategy for the Appeal site has demonstrated that surface water generated from the development will be managed on site in line with National and Local Policy (Policy CC11 of the Canterbury District Local Plan, 2017) requirements by restricting off site flows and attenuation on site. The result of which is to offer a reduction in flood risk downstream of the site. EA guidance defines Flood Zones and when and how to prepare an FRA for planning applications, including sequential/exception test triggers, content requirements, and standing advice for LPAs and applicants. The Flood Risk Assessment has been carried out in accordance with these requirements with no outstanding objection on flood risk grounds from the EA.

3.11 Climate Change Allowances – EA guidance requires climate change allowances for peak river flows and rainfall intensity to be included in FRAs, with allowances based on UKCP projections and applied by management catchment and development lifetime. The Submitted flood risk assessment utilised the latest climate change allowance within the assessment and the proposed surface water drainage calculations.

3.12 SuDS Standards and Good Practice - Defra’s National (non-statutory) standards for SuDS (updated 2025) provide design, operation and maintenance principles (including peak

flow/volume control and long-term performance), complemented by CIRIA SuDS Manual C753, which sets out best practice in planning, designing, constructing, operating and maintaining SuDS to manage runoff quantity and quality while delivering amenity and biodiversity benefits.

- 3.13 Additional Technical References - The FD2320/FD2321 supplementary note clarifies flood hazard ratings and thresholds for planning; LPAs and applicants should use the simplified FD2320 approach for assessing safe access/egress and flood hazard to people. As the flood risk to the site is low, there is no hazard to assess.
- 3.14 Whilst the Flood Risk Assessment submitted with the Planning Application was prepared prior to the latest versions of both the NPPF and accompanying PPG, the Flood Risk Assessment has demonstrated that flood risk to the site from all sources is low and therefore aligns with these latest versions of National and Local Policies in terms of flood risk to the proposed development and flood risk as a result of the development.

4. Statutory Consultation Position

Environment Agency (EA)

- 4.1 The EA previously held an objection to the scheme based on the proposed use of a package treatment plant to treat foul water given that a connection to the mains system was possible. This has now been removed from the proposals as a connection to the main sewerage system is available. The latest correspondence from the EA (EA Ref: KT/2023/130653/04-L01 dated 14th May 2024) **[CD3.45]** confirms the EA hold no objection to the submitted application.

KCC LLFA

- 4.2 Correspondence from KCC LLFA (LLFA Ref: CCC/2023/095115 dated 24th May 2024) **[CD3.46]** confirms that “the information submitted to date, the LLFA removes our earlier objection. While we are lifting our objection, we would request a number of planning conditions be attached to any permissions given. Further design works would be required as part of any Reserved Matters application and planning conditions that provides a detailed layout of the site and how surface water drainage is incorporated.

Southern Water

- 4.3 Southern Water have confirmed through the latest correspondence (SW Ref: DSA000023004 dated 9th December 2025 **[CD3.51]** that their initial assessment has confirmed that additional flows from the site may lead to an increased risk of foul flooding from the sewer network and that any reinforcement works to mitigate this will be provided by Southern Water. Southern Water confirm that they will liaise with the developer in order to review if the delivery of our network reinforcement aligns with the proposed occupation of the development, as it will take time to design and deliver any such reinforcement.
- 4.4 The planning witness is forecasting approximately 24 months from determination of this Appeal to first occupation which aligns with the forecast upgrades by Southern Water and therefore the upgrade works are expected to have been carried out prior to first occupation.

5. Interested Party Comments

- 5.1 Correspondence from interested parties has been considered in relation to my Proof. There are three recurring themes in relation to flood risk and surface water drainage:
- This development will increase the flood risk for the area;
 - The potential impact of pollution from the development on the chalk stream; and
 - Additional pressure of the sewerage system.
- 5.2 To address the first point on increased flood risk. The appellant is aware of historic flooding in the area mainly as a result of surface water and ground water issues. The proposed development will incorporate a surface water drainage scheme, designed to capture, control and retain surface water generated from the development within the site boundary. Whilst previous iterations of the drainage scheme have considered the potential for infiltration and discharge from a package treatment works, both of these principals have been removed from the scheme. The foul is proposed to discharge to existing foul network and the appellant is in consultation with Southern Water to ensure any upgrade works are carried out to ensure flood risk from this source is not increased. Infiltration has been discounted as an option to discharge surface water from the developed site. The point of discharge is the existing ditch on site which drains via culvert to the main river. Flows are to be restricted from the developed site in line with all relevant national and local policies, as agreed with KCC LLFA acting as the leading authority on surface water flood and drainage issues for planning submissions who do not object to the scheme.
- 5.3 In relation to the second point on watercourse pollution, the submitted Flood Risk Assessment included an assessment of the potential pollution risk in line with the latest CIRIA guidance. This assessment shows that with the use of a combination of SuDS features as outlined above should demonstrate that in line with current guidelines, runoff is limited from the site following redevelopment. The incorporation of a treatment train using filter strips, filter drains, swales, permeable paving and infiltration basins will also demonstrate significant water quality benefits. The findings of this assessment did not invoke any further comments from the LLFA.
- 5.4 The proposed SuDS treatment train is designed to achieve significant water quality improvements in line with CIRIA guidance. Based on standard performance benchmarks:
- Suspended solids reduction: typically 80–90% removal through combined swales, filter drains, and permeable paving.
 - Hydrocarbon reduction: typically 60–80% removal via filtration and sedimentation processes.
 - Nutrient and pollutant control: multi-stage treatment reduces risk of contamination to the receiving chalk stream.

These measures ensure compliance with water quality objectives and mitigate pollution concerns raised by interested parties. The details of the final SuDS scheme will be submitted to and approved by the LLFA prior to commencement on site and secured through planning condition.

- 5.5 The third common theme from interested parties relates to the potential for increased risk of flooding as a result of increased foul flows. As stated in section 3.3 of this proof Southern Water have confirmed through the latest correspondence (SW Ref: DSA000023004 dated 9th December 2025 **[CD3.51]**) that their initial assessment has confirmed that additional flows from the site may lead to an increased risk of foul flooding from the sewer network and that any reinforcement works to mitigate this will be provided by Southern Water. To ensure the risk of flooding from the foul network is not increased, Southern Water have suggested a planning condition to be imposed to ensure reinforcement works are carried out and the scheme is phased accordingly, and as such a condition has been duly included in the list of conditions for the Inspector.

6. Planning Conditions

6.1 The following planning conditions have been suggested from the relevant statutory consultees relating to flood risk and drainage, and reflected in the conditions which have been set out for the assistance of the Inspector below:

6.2 Kent County Council – Lead Local Flood Authority

- No development shall take place until the details required by Condition 1 (assumed to be reserved matters condition for layout) shall demonstrate that requirements for surface water drainage for all rainfall durations and intensities up to and including the climate change adjusted critical 100-year storm can be accommodated within the proposed development layout.
- Development shall not begin in any phase until a detailed sustainable surface water drainage scheme for the site has been submitted to (and approved in writing by) the local planning authority. The detailed drainage scheme shall be based upon the principles contained within the Flood Risk Assessment and Outline Surface Water Drainage Strategy report (Issue 4-09/04/2024) and shall demonstrate that the surface water generated by this development (for all rainfall durations and intensities up to and including the climate change adjusted critical 100 year storm) can be accommodated and disposed of without increase to flood risk on or off-site. The drainage scheme shall also demonstrate (with reference to published guidance):
 1. that silt and pollutants resulting from the site use can be adequately managed to ensure there is no pollution risk to receiving waters.
 2. appropriate operational, maintenance and access requirements for each drainage feature or SuDS component are adequately considered, including any proposed arrangements for future adoption by any public body or statutory undertaker.
 3. The drainage scheme shall be implemented in accordance with the approved details.
- No building on any phase (or within an agreed implementation schedule) of the development hereby permitted shall be occupied until a Verification Report, pertaining to the surface water drainage system and prepared by a suitably competent person, has been submitted to and approved by the Local Planning Authority. The Report shall demonstrate that the drainage system constructed is consistent with that which was approved. The Report shall contain information and evidence (including photographs) of details and locations of inlets, outlets and control structures; landscape plans; full as built drawings; information pertinent to the installation of those items identified on the critical drainage assets drawing; and the submission of an operation and maintenance manual for the sustainable drainage scheme as constructed.

6.3 Southern Water suggest the following planning condition:

Occupation of the development is to be phased and implemented to align with the delivery by Southern Water of any sewerage network reinforcement required to ensure that adequate wastewater network capacity is available to adequately drain the development.

7. Conclusions

- 7.1 Revisions to the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) reinforce the requirement for a sequential approach to development in areas with any element of flood risk. Paragraphs 170 and 181 of the NPPF set out that inappropriate development should be directed away from areas at highest risk and, where development is necessary, it must be made safe for its lifetime without increasing flood risk elsewhere.
- 7.2 The submitted Flood Risk Assessment (FRA) and this Proof of Evidence demonstrate that the appeal site is wholly located within Flood Zone 1 and is at low risk from all sources of flooding, including fluvial, tidal, surface water, groundwater, sewer, and artificial sources. Built development within the site has been guided to areas of lowest flood risk, satisfying the sequential approach within the site boundary. In accordance with PPG paragraph 27a, this means a Sequential Test is not required.
- 7.3 The FRA incorporates the latest Environment Agency climate change allowances, applying a 40% uplift for rainfall intensity and peak river flow for the South East management catchment, ensuring the drainage design remains robust for the lifetime of the development. The proposed surface water drainage strategy limits discharge to 11 l/s—below the existing greenfield QBAR rate of 16.7 l/s—and provides on-site attenuation for all rainfall events up to and including the climate change-adjusted 1 in 100-year storm. This approach complies with Defra’s non-statutory SuDS standards and CIRIA SuDS Manual C753, delivering both quantity and quality benefits through a treatment train of swales, filter drains, permeable paving, and attenuation basins.
- 7.4 Concerns raised by interested parties regarding increased flood risk, watercourse pollution, and sewer capacity have been addressed. Pollution risk has been mitigated through SuDS components that achieve significant reductions in suspended solids and hydrocarbons, in line with CIRIA guidance. Southern Water has confirmed that any reinforcement works required to maintain foul network capacity will be delivered and secured through a planning condition requiring phased occupation aligned with network upgrades. The expected timeframe of 24 months from determination to first occupation is anticipated to align the proposed upgrade works.
- 7.5 None of the statutory consultees including the Environment Agency, Kent County Council LLFA, or Southern Water maintain an objection to the proposals, subject to the imposition of standard planning conditions relating to detailed drainage design, verification, and phasing.
- 7.6 Given the site’s location in Flood Zone 1, its low risk from all sources, and the robust drainage strategy that reduces off-site flows compared to existing conditions, the proposed development accords with national and local policy requirements. It will not exacerbate existing flood risk issues downstream and is not dependent on third-party infiltration reduction schemes. On this basis, national policy considerations do not justify refusal on flood risk or drainage grounds.