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London, W1W 5PE

Mat Jackson  
Flood Risk Management Team  
West Sussex County Council

03/06/2025

Dear Mat,

**RE: R/143/24/PL - 57 Queensway, Bognor Regis, PO21 1QN**

Following your comments regarding drainage and flood risk, please find our responses below and refer to the two documents that were submitted as part of the planning application:

- FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW - Flood Risk Assessment
- DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW - Drainage Strategy

Council query	Council objection	Designer Response	Designer document reference
Surface water flow path originating offsite	Objection - please provide	This is provided in the Flood Risk Assessment (FRA). The surface water flood maps are included in Appendix C. These do not show any clear and obvious flow path around the existing site.	Refer to FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix C - Page 27/33 - Section 5 - Page 10/33
Rainwater surcharged sewer flooding	Objection - please provide	There is no information regarding sewer flooding in the area according to the Arun District Council data. Engagement with Southern Water regarding connection to the surface water sewer is ongoing, and a formal agreement in principle is being sought.	
Historic flood information	Objection - please provide. Southern Water Records checked?	Historic Flood Map is provided in the FRA. There is no history of flooding in the site area according to the Arun District Council data.	Refer to FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix C - Page 31/33 - Section 5.2 - Page 10/33
Provide information on safe access and egress as part of an emergency plan. Temporary refuge is no longer acceptable.	Objection - please provide	This site is located in Flood Zone 1. There are no identified flood risks (fluvial, tidal or surface water, reservoir or sewer from the EA and LLFA datasets), therefore it is concluded that all access and egress routes remain dry and emergency services can reach the site according to the available information. Please advise if you have any further information that may inform a different risk.	Refer to FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Section 5 (p 9 to 11) - Appendix C (p 25 to 31)

<p>Demonstrate that any residual risk is managed with appropriate flood resistance and resilience measures</p>	<p>Objection - please provide</p>	<p>This site is located in Flood Zone 1. There are no identified flood risks (fluvial, tidal or surface water, reservoir or sewer from the EA and LLFA datasets), therefore no flood resistance/resilience measures for these are provided, in accordance with NPPF / PPG. General precautionary measures including a tanking membrane up to 300mm above ground level is proposed to mitigate the risk of groundwater.</p>	<p>Refer to FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Section 6.16 (p 13)</p>
<p>Include evidence of appropriate freeboard to finished floor levels from the design flood level.</p>	<p>Objection - please provide</p>	<p>There is no applicable "design flood level" for this site, as it is located in Flood Zone 1 and is not subject to fluvial, tidal or surface water as confirmed by the EA and LLFA datasets.</p> <p>As such, freeboard above a design flood level is not required. Nonetheless, in order to mitigate the risk of potential groundwater flooding, finished floor levels have been set at 7 m AOD, which is 150 mm above adjacent external ground levels, ensuring resilience under standard building regulations.</p>	<p>Refer to FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Section 6.6 and Section 6.16 (p 12 and 13)</p>
<p>Include appropriate climate change allowance for assessment of the lifetime of the development (including the 3.33% AEP design flood event).</p>	<p>Objection - please provide</p>	<p>The site is located in Flood Zone 1 with no identified flood risk from fluvial, tidal or surface water, reservoir or sewer from the EA and LLFA datasets. As such, there is no design flood level to assess, and applying a climate change allowance, including for the 3.33% AEP (1 in 30 year) event, is not applicable in this context.</p> <p>In line with NPPF and PPG, no additional climate change assessment is required for developments in Flood Zone 1 with no mapped risk.</p>	<p>Refer to FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Section 5 (p 9 to 11) - Appendix C (p 25 to 31)</p>
<p>Use up to date FEH2022 rainfall data for all design flood events</p>	<p>Objection - please provide</p>	<p>The site is located in Flood Zone 1, with no identified flood risk from fluvial, tidal or surface water, reservoir or sewer from the EA and LLFA datasets.</p> <p>The Flood Risk Assessment provided is proportionate to the site's low-risk classification, in line with the NPPF and PPG. As such, a detailed hydraulic analysis or climate-adjusted rainfall modelling using FEH2022 data is not required in this context.</p>	<p>Refer to FRA[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Section 5 (p 9 to 11) - Appendix C (p 25 to 31)</p>

Evidence required on ground conditions / BRE365 or similar infiltration testing / dissolution potential / seasonally high groundwater levels.	Objection: BRE365 testing is required to confirm infiltration is unviable	Given the spatial constraints of the site, a soakaway is not considered feasible as it would not meet the 5m minimum clearance from a building. Therefore a soakaway solution is not proposed, requiring no infiltration testing. The proposed drainage solution includes discharging to the public surface water sewer at a controlled rate limited to providing a 60% betterment of existing brownfield rates, with below ground attenuation.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41
Greenfield runoff rates and volumes missing.		Greenfield run-off rates are presented in the report and calculations.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix C - Calculations - p 28/41 - Table 6 of Section 4 - p 5
Pre-development brownfield runoff rates missing.	Objection: Brownfield rates have not been provided	Pre-development run-off rates are presented in the report and calculations.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix C - Calculations - p 29/41 - Table 6 of Section 4 - p 5
Drawing required to show where existing drainage network and outfall/s are, plus confirmation if will they be retained or removed.	Objection - please provide	All existing site drainage network is to be removed prior to construction. This has been added to the drainage plan in the Drainage Report	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41
Drainage survey required to provide evidence of existing discharge rate and condition (may include detailed asset or CCTV survey).	Objection - please provide	A detailed drainage survey (e.g. CCTV) is not considered necessary as all existing drainage infrastructure will be abandoned and removed.  Proposed discharge rates are based on the Modified Rational Method (MRM) for a fully paved brownfield site, with a 60% betterment.  A GPR survey will be undertaken during enabling works to confirm the location of any residual assets. As a new SuDS-based system is proposed, the condition of existing drainage is not relevant to the design.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41
Drainage location hierarchy has not been followed, further information is required on; evidence why rainwater reuse can't be included	Objection: The LLFA require the applicant to submit information on why rainwater cannot be reused.	Water butts have been added to the development to provide reuse for the external landscaping.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41
Interception has not been calculated and /or provided	Objection: The LLFA require the applicant to submit information on interception.	The drainage proposals include: - Permeable paving for external hardstanding, allowing the first 5 mm of rainfall to infiltrate and evaporate on-site, and - Water butts connected to roof drainage, providing rainwater harvesting for landscape irrigation.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41

Surface water sewer – no in principle agreement from owner of the asset	Objection - please provide	Engagement with Southern Water regarding connection to the surface water sewer is ongoing, and a formal agreement in principle is being sought. As this relates to the technical approval and adoption process under separate legislation (e.g., Water Industry Act 1991), we respectfully suggest that this matter be addressed via a planning condition to be discharged prior to commencement of drainage works. This approach ensures no delay to the planning decision while allowing Southern Water the necessary time to complete their review.	
Combined sewer – no in principle agreement from owner of the asset	Objection - please provide	Engagement with Southern Water regarding connection to the surface water sewer is ongoing, and a formal agreement in principle is being sought. As this relates to the technical approval and adoption process under separate legislation (e.g., Water Industry Act 1991), we respectfully suggest that this matter be addressed via a planning condition to be discharged prior to commencement of drainage works. This approach ensures no delay to the planning decision while allowing Southern Water the necessary time to complete their review.	
Overarching proposals of how application must provide water quantity benefits in open, at the surface or above ground SuDS.	Objection - no open, at surface or above ground SuDS are proposed	The site constraints do not allow for specific open drainage features. Permeable surfacing is proposed to allow for in-situ shallow infiltration for the hard-paved external areas. Soft landscaping is provided on the southern edge of the development, and within each dwelling plot as garden amenities.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41
Commitment to the use of SuDS and high-level assessment to include: <input type="checkbox"/> water quality <input checked="" type="checkbox"/> biodiversity <input checked="" type="checkbox"/> amenity	Objection: Please provide information on biodiversity and amenity.	The site constraints do not allow for specific open drainage features. Permeable surfacing is proposed to allow for in-situ shallow infiltration for the hard-paved external areas. Soft landscaping is provided on the southern edge of the development, and within each dwelling plot as garden amenities.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41
The most precautionary infiltration rate should be used in the design of the attenuation feature.	Objection: Infiltration testing has not been undertaken	Given the spatial constraints of the site, a soakaway is not considered feasible as it would not meet the 5m minimum clearance from a building. Therefore a soakaway solution is not proposed, requiring no infiltration testing. The attenuation is proposed in the form of a below ground geocellular storage tank.	Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41

<p>Require justification and supporting calculations for brownfield % betterment and why this can't be closer to the predevelopment greenfield scenario.</p>	<p>Objection - please provide</p>	<p>The site is a fully paved brownfield site with no existing SuDS or attenuation, and currently discharges surface water uncontrolled at rates significantly above the greenfield baseline.</p> <p>The proposed drainage strategy achieves controlled rate with a 60% betterment on existing 1 in 2 year brownfield runoff rates for all storms up to and including the 1 in 100 year + 45% climate change, which is a substantial reduction that complies with CIRIA C753 as per LLFA guidance.</p> <p>Achieving discharge rates closer to the greenfield scenario would require disproportionately large attenuation volumes which are not feasible on a constrained urban site, and would not allow for self-cleansing velocity of the pipes.</p> <p>Supporting drainage calculations and flow control details are included in the submitted strategy to evidence the betterment. This represents a significant net gain in surface water management compared to the predevelopment condition.</p>	<p>Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 to 41 - Section 4 Table 6 - p 5 and 6</p>
<p>Include appropriate climate change allowance for the lifetime of the development (including 3.33% AEP design) for storage volumes.</p>	<p>Objection: The LLFA require the applicant to submit calculations for the 3.33% AEP which also includes climate change allowance.</p>	<p>These calculations are provided in the Drainage Report, and includes the critical storms for the 1 in 30 year event + 45% allowance for climate change and the 1 in 100 year event + 45% allowance for climate change</p>	<p>Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix C - p 30 to 38</p>
<p>Calculations should be resubmitted and demonstrate how 10% urban creep has been included in the volume of SuDS storage required.</p>	<p>Objection: The LLFA require the applicant to submit calculations for the 3.33% AEP.</p>	<p>The actual catchment areas are provided in Appendix A of the report (0.038ha of impermeable area). The areas have been increased by 10% in the modelling calculations (0.044ha of impermeable area) presented in Appendix C to account for urban creep</p>	<p>Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix A - p 13 - Appendix C - p 30 to 38 - Section 2.2 - p3</p>
<p>Use up to date FEH2022 rainfall parameters in any modelling scenarios</p>	<p>Objection - please provide</p>	<p>The Drainage Report and calculations have been updated to use the FEH2022 rainfall parameters for the modelling of the proposed development.</p>	<p>Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix C - p 30 to 38</p>
<p>Masterplan drawings need to show the high-level location of all SuDS and demonstrate that the volume of storage can be achieved in the layout.</p>	<p>Objection - please provide</p>	<p>This is included in the Drainage Report.</p>	<p>Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 of 41</p>
<p>Details of required maintenance of any SuDS features and structures and who will be adopting these features for the lifetime of the development.</p>	<p>Objection - please provide</p>	<p>This is included in the Drainage Report.</p>	<p>Refer to DS[U0560] 57 Queensway , Bognor Regis, PO21 1QW: - Appendix D - p 40 and 41 - Section 6 - p9 to 11 of 41</p>