

Flood Risk Assessment & Drainage Strategy

Arundel Court, 47 Elmer Road, Bognor Regis PO22 6LB

Sussex Develop & Build Ltd.

Ref: D2317/FRA1.0

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1 INTRODUCTION

1.1 Background

- 1.1.1 BP Civils is instructed by Sussex Develop & Build Ltd. to prepare a flood risk assessment and drainage strategy to accompany a planning application in relation to the proposed residential development at Arundel Court, Elmer Road, Bognor Regis.
- 1.1.2 This report has been undertaken in accordance with National Planning Policy Framework (NPPF) and The Planning Practice Guidance Flood Risk and Coastal Change.
- 1.1.3 The surface water drainage strategy has been developed in view of the National Standards for Sustainable Drainage System (June 2025) and The SuDS Manual (CIRIA C753).
- 1.1.4 The proposed development involves the construction of 6 No. flats at the site, in place of the existing 4 No. flats. The architectural development proposals are contained within **Appendix A**.
- 1.1.5 In preparing this report, BP Civils has referred to the following documents and information:
- Amber Group's Drainage Investigation
 - Arun District Council's Strategic Flood Risk Assessment
 - Ashdown Site Investigation's Ground Investigation, Groundwater Monitoring & Infiltration Testing
 - British Geological Survey's (BGS) records and information
 - Coastal Drains' Drainage Investigation
 - Environment Agency's Flood Map for Planning
 - Long-term Flood Risk Service (Gov.uk)
- 1.1.6 This report has been prepared to assess flood risk at the site, and to advise of any mitigation which may be required in order to ensure that the proposed development remains safe for its design life in accordance with current design standards.
- 1.1.7 This report has been prepared for the benefit of the named client only.

2 SITE LOCATION AND DESCRIPTION

- 2.1.1 A site location plan is included within this report (drawing **PL001 'Site Location Plan'**).
- 2.1.2 The site measures 570m² (0.06Ha) and is located on Elmer Road, to the west of Harefield Road.
- 2.1.3 The National Grid Reference for the site is SU 97568 00409.
- 2.1.4 The site is currently occupied by 4 No. flats and associated parking and is fully impermeable.
- 2.1.5 A topographic survey has been undertaken at the site, provided to BP Civils by Folkes Architects, dated February 2024. The survey is contained within **Appendix B**.
- 2.1.6 Levels are indicated broadly within the range of 4.80m and 5.20m AOD, falling to the northern and southern boundaries of the site.

3 GROUND CONDITIONS

- 3.1.1 Ashdown Site Investigation has undertaken intrusive investigation at the site.
- 3.1.2 Site works were undertaken on 2nd December 2024, consisting of the excavation of 4 No. boreholes and 1 No. trial pit.
- 3.1.3 TP01 was excavated to a depth of 0.96m below ground level for the purpose of infiltration testing.
- 3.1.4 The 4 No. boreholes were excavated to depths of 3.00m below ground level (WS01, WS03, WS04) and 5.00m below ground level (WS02).
- 3.1.5 Made Ground was encountered at all 5 No. locations to depths in the range of 300mm to 900mm below ground level, predominantly underlain by clay (River Terrace Deposits).
- 3.1.6 Chalk (White Chalk Subgroup) was encountered at WS02 at a depth of 4.30m below ground level.
- 3.1.7 Infiltration testing was attempted within TP01. A single test was attempted, and the result was extrapolated as the water level within the test pit did not fall below 25% of the initial test depth. An estimated rate of infiltration of 6.31×10^{-6} was calculated.
- 3.1.8 Full records relating to Ashdown Site Investigation's work are contained within **Appendix C**.
- 3.1.9 Reference has also been made to the British Geology Survey (BGS) Geology of Britain Viewer.
- 3.1.10 The BGS Geology of Britain Viewer indicates a 'Lewes Nodular Chalk, Seaford Chalk, Newhaven Chalk, Culver Chalk and Portsdown Chalk Formations - Chalk' bedrock geology as shown in **Figure 1**.

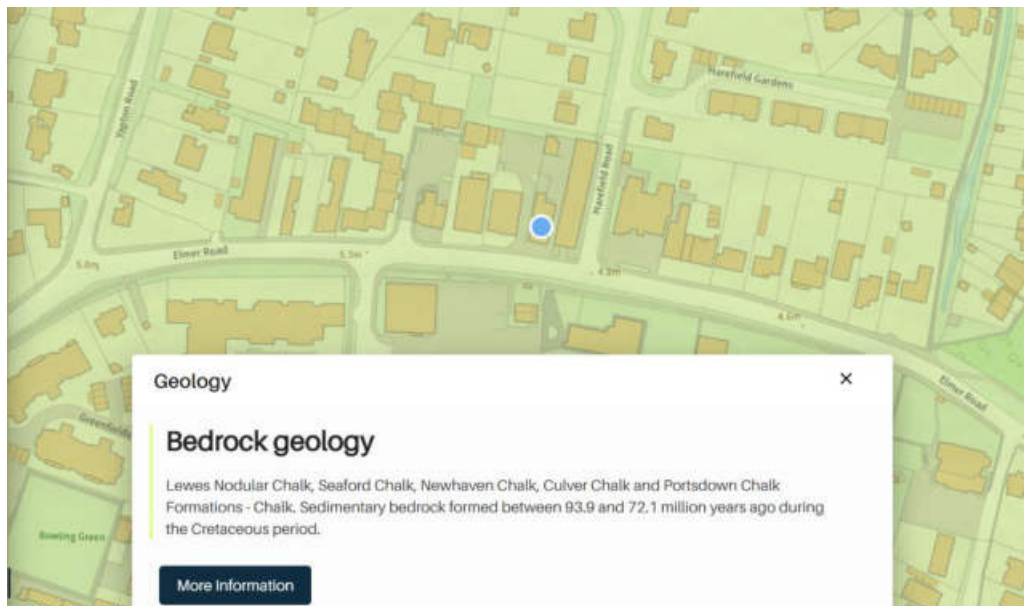


Figure 1. BGS Geology of Britain Viewer – Bedrock Geology

- 3.1.11 The BGS Geology of Britain Viewer identifies superficial deposits consisting of 'River Terrace Deposits – Sand, silt and clay' as shown in **Figure 2**.
- 3.1.12 The encountered geology recorded by Ashdown Site Investigation is consistent with the expectation as set by the BGS Geology of Britain Viewer.

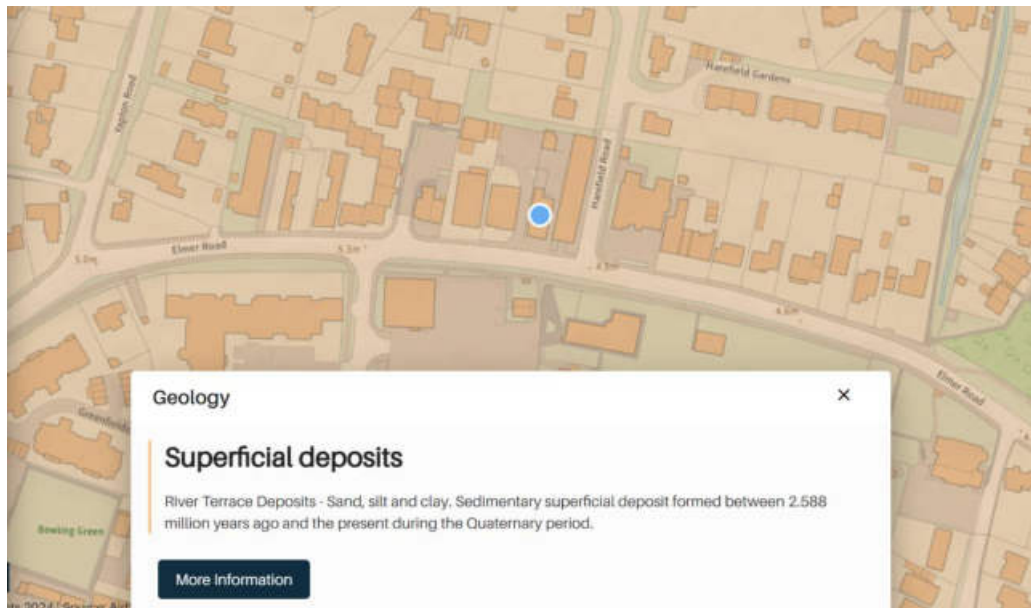


Figure 2. BGS Geology of Britain Viewer – Superficial Deposits

3.2 Groundwater

- 3.2.1 Ashdown Site Investigation has undertaken winter groundwater monitoring, spanning 2nd December 2024 to 14th April 2025.
- 3.2.2 From the period of groundwater monitoring, groundwater peaked at c. 0.50m below ground level in January 2025.
- 3.2.3 Mapping managed by MAGIC (magic.defra.gov.uk) provides geographic information concerning the natural environment from across government. This mapping tool has been referred to in order to confirm aquifer designations, as well as whether the site is located within any groundwater source protection zones, groundwater vulnerability zones, drinking water protected areas or drinking water safeguard zones.
- 3.2.4 The site falls within a 'Principal' bedrock aquifer and a 'Secondary A' superficial drift aquifer.
- 3.2.5 'Principal' aquifers provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands.
- 3.2.6 'Secondary A' aquifers comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.

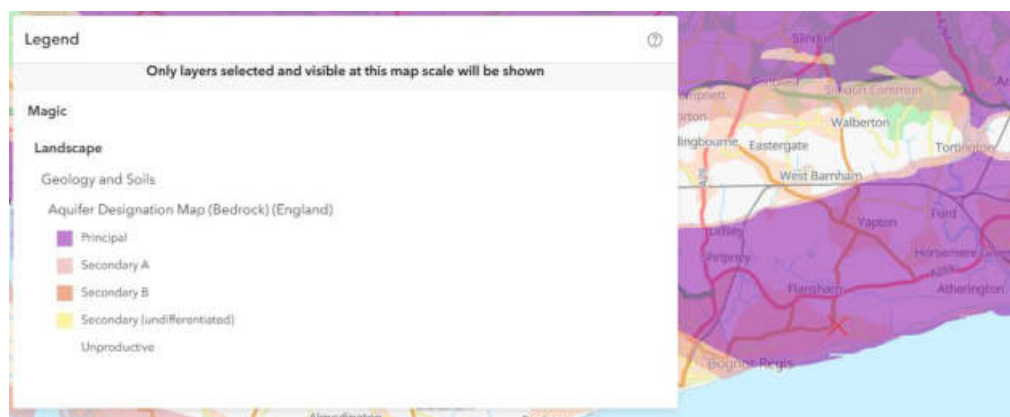


Figure 3. Bedrock Aquifer Designation Map (DEFRA)

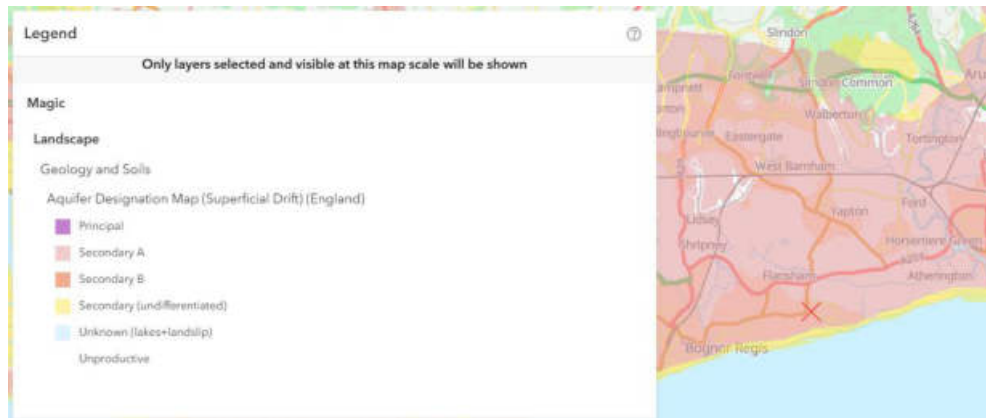


Figure 4. Superficial Drift Designation Map (DEFRA)

- 3.2.7 The Groundwater Vulnerability Map confirms that the site falls within a 'Medium - High' groundwater vulnerability zone, with a 'Soluble Rock Risk' identified.
- 3.2.8 Areas classified as 'Medium' groundwater vulnerability zones are defined as areas that offer 'some' groundwater protection. 'High' groundwater vulnerability zones are defined as areas that can easily transmit pollution to groundwater.

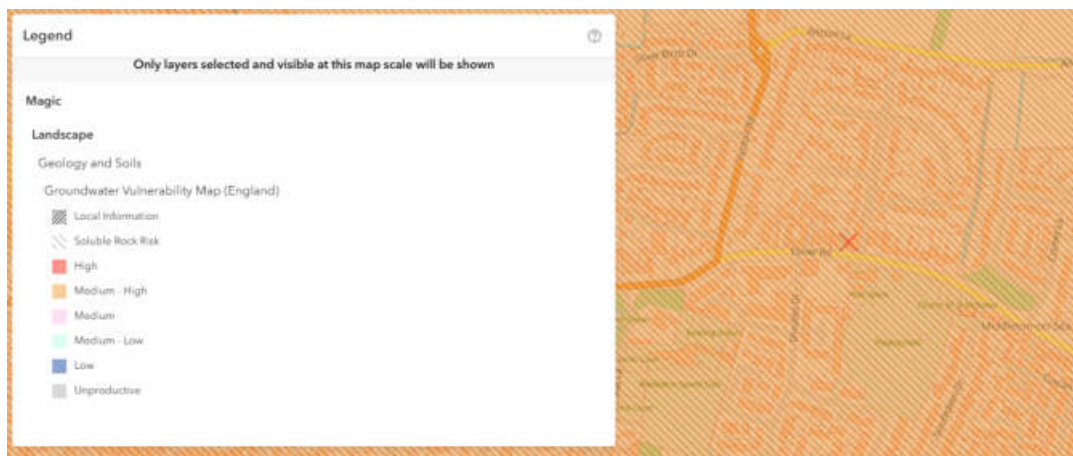


Figure 5. Groundwater Vulnerability Map (DEFRA)

- 3.2.9 The site falls outside of any Drinking Water Protected Areas for Surface Water, Drinking Water Safeguard Zones for Surface Water and/or Groundwater as well as Source Protection Zones.



Figure 6. Drinking Water Protected Areas (Surface Water), Drinking Water Safeguard Zones (Surface Water and Groundwater) and Source Protection Zones Map (DEFRA)

4 EXISTING DRAINAGE

4.1 Surface Water

- 4.1.1 The local sewerage undertaken is Southern Water. Public sewer records have been obtained from Southern Water, as contained within **Appendix D**.
- 4.1.2 The existing building on site drains via rainwater pipes which discharge below ground.
- 4.1.3 Investigation undertaken by Coastal Drains (January 2026, **Appendix E**) has identified that the rainwater pipes serving the existing building discharge to a combined drain on site which discharges to Southern Water's public foul water sewer located beneath Elmer Road.
- 4.1.4 It is estimated that c. 154m² of impermeable area (the existing building footprint) currently drains to the on-site combined drainage system which drains to Southern Water's public foul water sewer.
- 4.1.5 Based on a flat rainfall rate methodology with a rainfall intensity of 50mm an hour, this existing catchment of 154m² will generate a rate of brownfield run-off totalling 2.14 l/s.
- 4.1.6 The site falls to the north and south from a high point of 5.20m located on the existing access drive.
- 4.1.7 A channel drain collects run-off from the access drive falling north from the high point of 5.20m, which is understood to drain to a soakaway at the northern boundary of the site. A catchment of 308m² is believed to drain to this soakaway.
- 4.1.8 The access drive falling south from the high point of 5.20m AOD drains to a gully located at the site entrance which drains to the public highway drain located beneath the public footway. It is likely that any run-off not captured by this gully will be collected by the gully located in the carriageway which also drains to the public highway drain (Amber Group Drainage Investigation, **Appendix F**).



Figure 7. Existing gullies in the footway and carriageway, collecting run-off from the existing access drive

- 4.1.9 It is understood from further on-site investigation that the highway drain located beneath the footway to the south of the site drains to the west, connecting to a 225mm dia. public surface water sewer located at the junction of Elmer Road and Shrubbs Drive.
- 4.1.10 It is evident that the existing off-site drainage arrangement is an amalgamation of an historic public highway drainage system, and a more recent public surface water sewer system. West Sussex County

Council highway drainage records are contained within **Appendix G**, although only depict gully locations.

- 4.1.11 Further to review, it would appear that c. 108m² of the existing impermeable surfacing at ground level on site currently drains to this existing amalgamated piped system, unattenuated.
- 4.1.12 Based on a flat rainfall rate methodology with a rainfall intensity of 50mm an hour, this existing catchment of 108m² will generate a rate of brownfield run-off totalling 1.5 l/s.
- 4.1.13 Greenfield run-off rates have been established in relation to the site area (570m²) and also the proposed positively drained area, post-development (518m²) using HR Wallingford's 'Greenfield run-off rate estimation' tool. The calculated rates are as follows:

	Site Area (570m ²)	Proposed Catchment (518m ²)
QBAR	0.2 l/s	0.2 l/s
1 in 1 Year	0.1 l/s	0.1 l/s
1 in 2 Year	0.2 l/s	0.1 l/s
1 in 10 Year	0.3 l/s	0.3 l/s
1 in 30 Year	0.4 l/s	0.4 l/s
1 in 100 Year	0.5 l/s	0.5 l/s
1 in 200 Year	0.6 l/s	0.6 l/s

- 4.1.14 As established in 4.1.4 and 4.1.11, given the existing brownfield nature of the site, the rate of run-off will be greater than the greenfield run-off rates established above.
- 4.1.15 There are no ordinary watercourses and/or designated 'Main Rivers' within the immediate vicinity of the site, and no other known water bodies within close proximity of the site either.

4.2 Foul Water

- 4.2.1 Southern Water's public sewer records show a 175mm dia. public foul water sewer located beneath the carriageway of Elmer Road, flowing in an easterly direction.
- 4.2.2 The site is currently served by a connectivity to the Southern Water public foul water sewer network.

4.3 Highway Drainage

- 4.3.1 Elmer Road is served by a combination of traditional road gullies and kerb inlet gullies. These gullies discharge to, what is understood to be, an amalgamation of the historic highway drainage system and a Southern Water public surface water sewer system.
- 4.3.2 West Sussex County Council's highway drainage records are contained within **Appendix G**.

5 PROBABILITY

5.1 Sources of Information

- 5.1.1 The NPPF requires that all sources of flooding are considered being tidal, fluvial, pluvial, groundwater, sewers and man-made reservoirs/canals.
- 5.1.2 The likelihood of the site flooding has been established by reviewing the following information:
- Environment Agency's Flood Map for Planning
 - Long-Term Flood Risk Service (Gov.uk)
 - Arun District Council's Strategic Flood Risk Assessment

5.2 Flood Maps and Modelling

- 5.2.1 Flood Map for Planning identifies that the site lies within Flood Zone 1 in the present day.

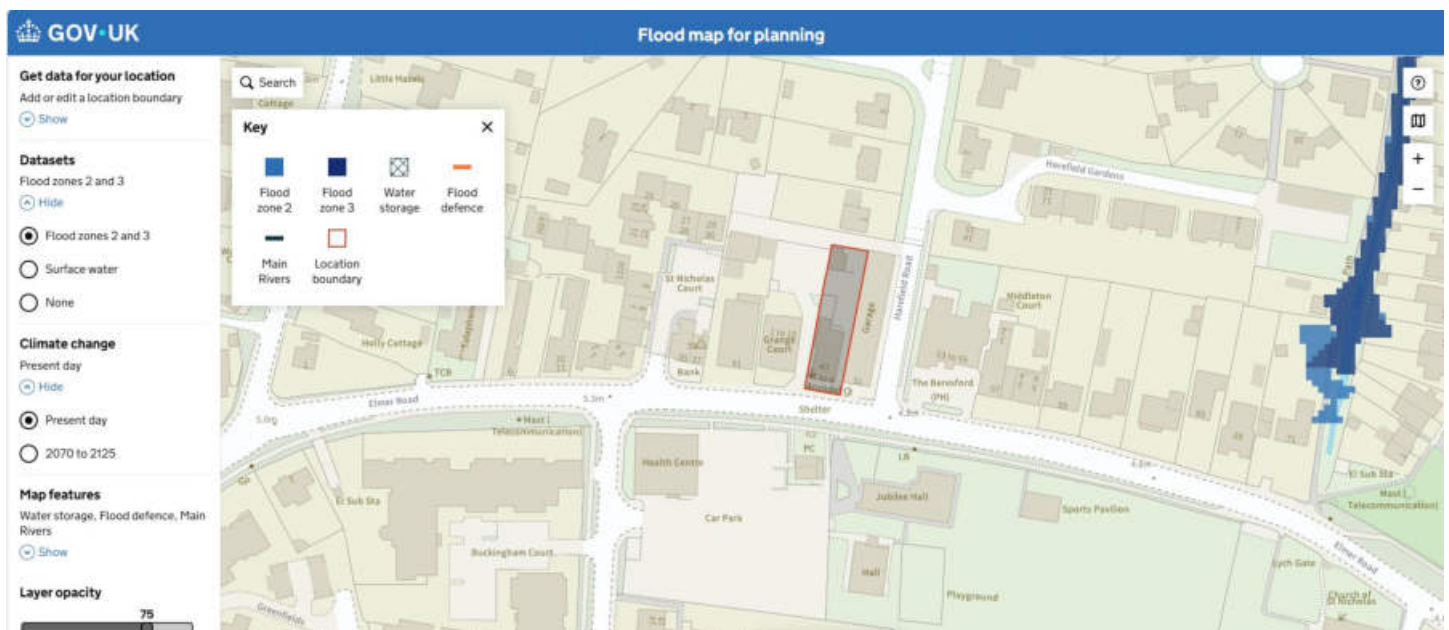


Figure 8. Flood Map for Planning – Present Day (Gov.uk)

5.2.2 In respect of climate change (2070 to 2125) the site is identified as being at risk of flooding.

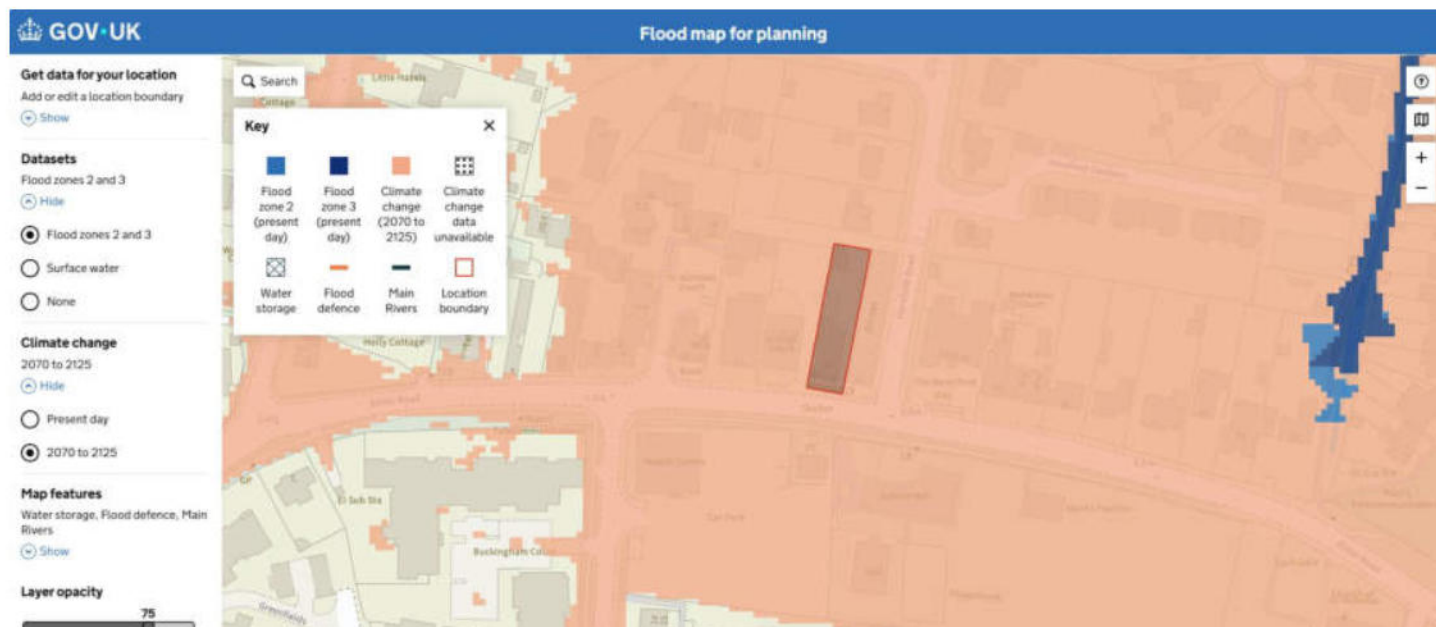


Figure 8. Flood Map for Planning – Climate Change (2070 to 2125) (Gov.uk)

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b).
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map).
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map).
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of function floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: - Land having a 3.3% or greater annual probability of flooding, with any existing flood management infrastructure operating effectively; or - Land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional

	floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map).
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- 5.2.3 As the site is located in Flood Zone 1 (present day) the Environment Agency does not have any modelled flood level data relative to the site.
- 5.2.4 Following release of the updated National Flood Risk Assessment (NaFRA2) in 2025 and the subsequent changes to the online Flood Map for Planning, the Environment Agency is not currently releasing data from the model(s) that underpins the updated mapping which is published on Flood Map for Planning (Gov.uk). As such, depth and level data is not currently available in respect of the areas identified as being at risk of flooding. In this specific instance, this means that modelled flood level data is not available in respect of the areas identified as being at future flood risk owing to climate change (2070 to 2125).
- 5.2.5 In some instances, the Environment Agency continues to issue depth and level data from historic models, as this is stated as still representing the 'best available data' in lieu of the updated modelling outputs. As the site is located in Flood Zone 1 (and has historically fallen within Flood Zone 1 in relation to earlier mapping and modelling), however, historic flood depth and level data is not available.
- 5.2.6 In view of the above factors, it is not possible to ascertain a flood level in respect of the areas identified as being at increased risk of flooding in respect of climate change (2070 to 2125).
- 5.2.7 The site is not identified as being at risk of surface water flooding in the present day in respect of the 1 in 30, 1 in 100 or 1 in 1000 annual exceedance probability events.

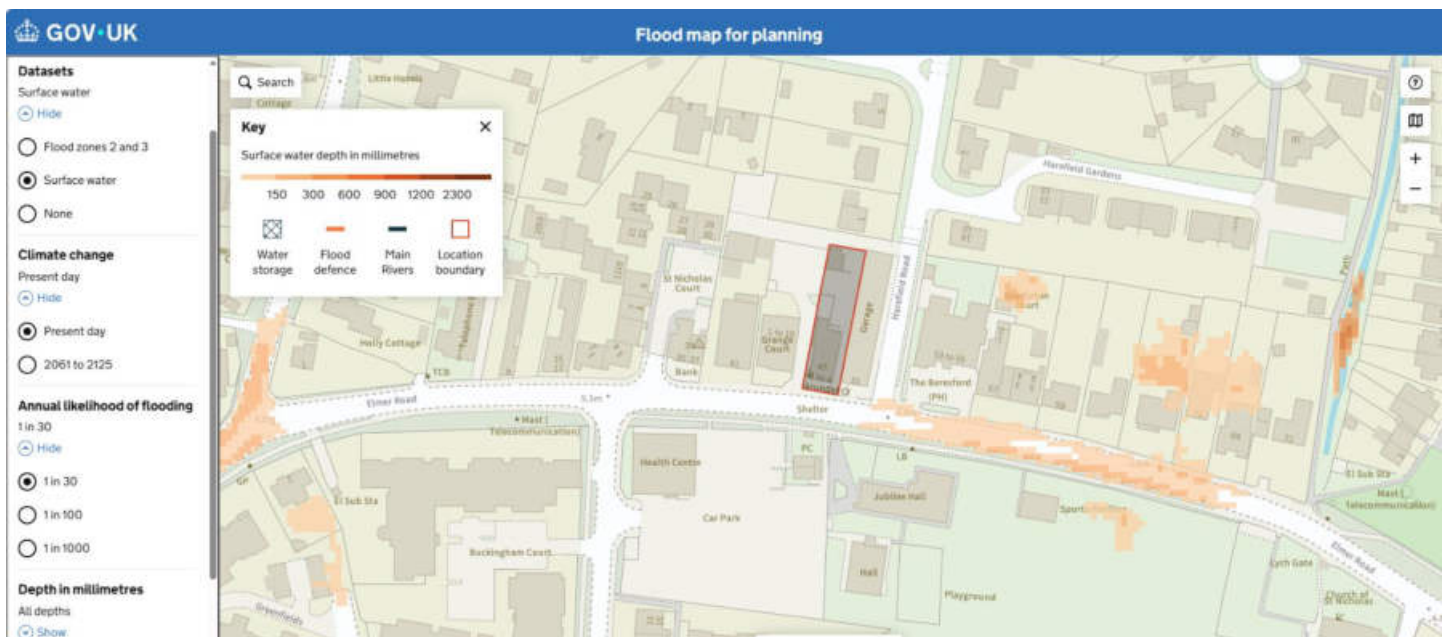


Figure 9. Flood Map for Planning – Surface Water 1:30, Present Day (Gov.uk)

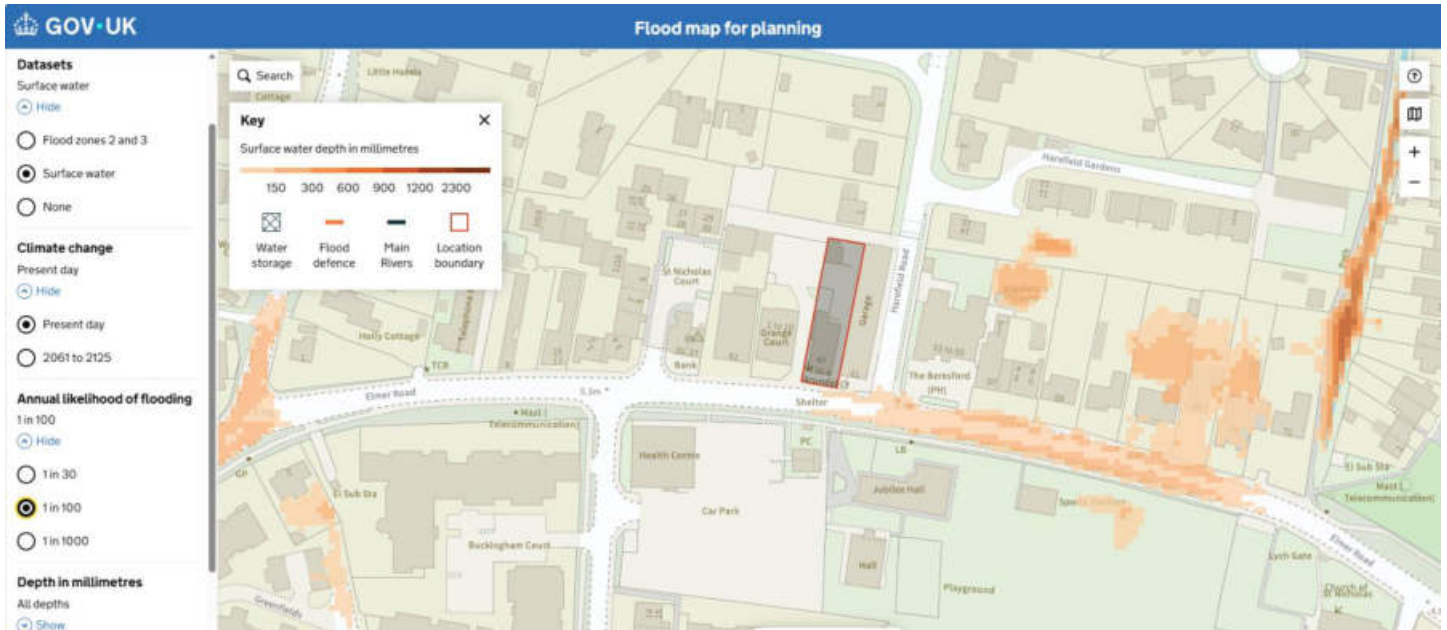


Figure 10. Flood Map for Planning – Surface Water 1:100, Present Day (Gov.uk)

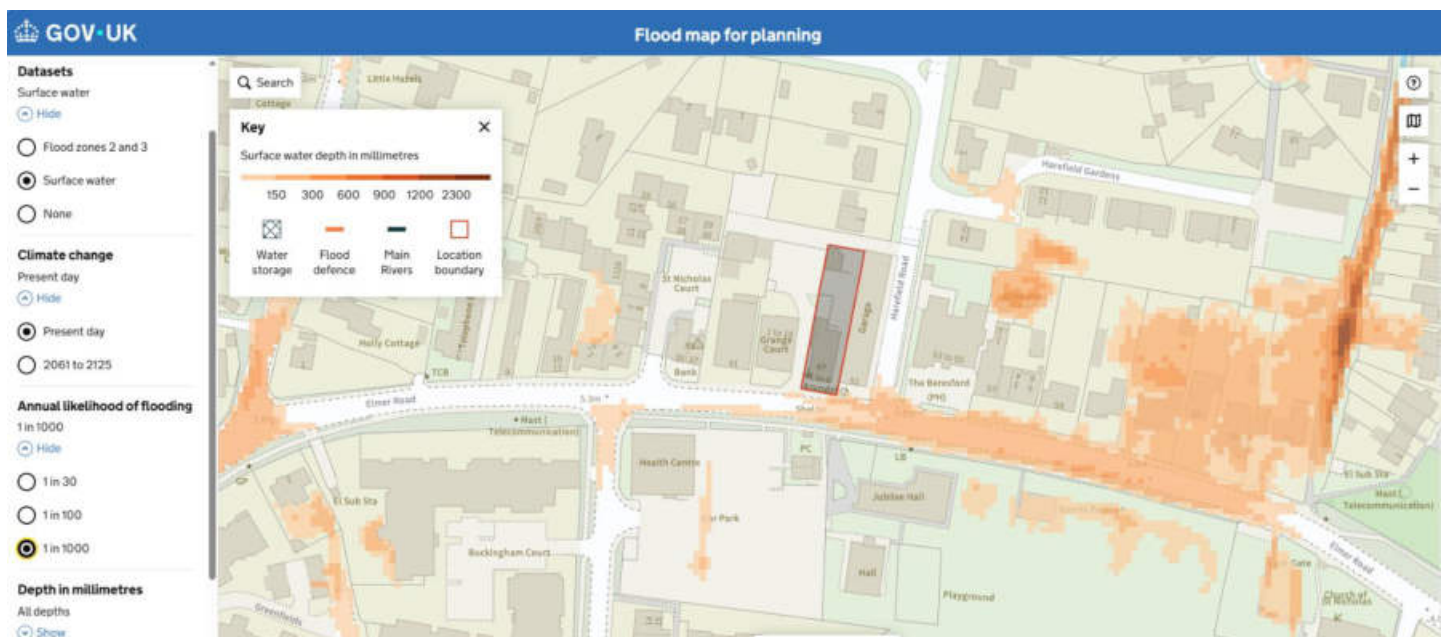


Figure 11. Flood Map for Planning - Surface Water 1:1000, Present Day (Gov.uk)

5.2.8 In respect of climate change (2061 to 2125), the site is not identified as being at risk of surface water flooding in the 1 in 30 or 1 in 100 annual exceedance probability events.

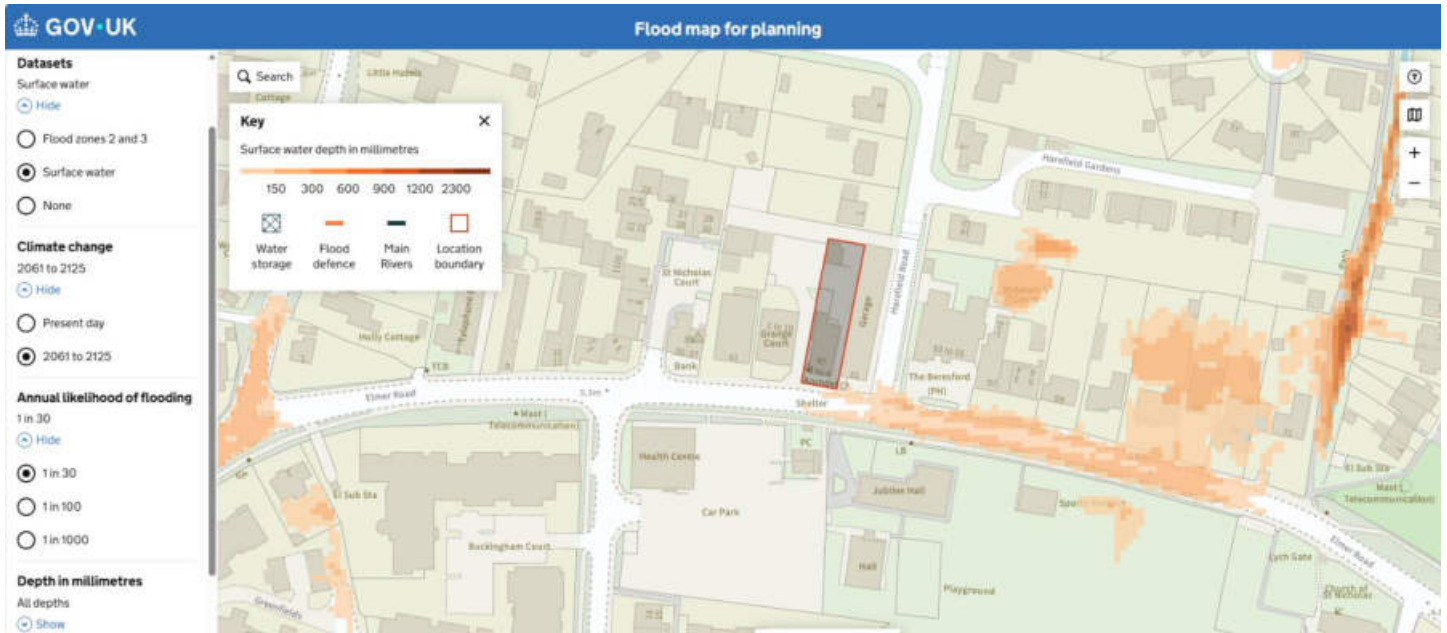


Figure 12. Flood Map for Planning - Surface Water 1:30, Climate Change (2061 to 2125) (Gov.uk)

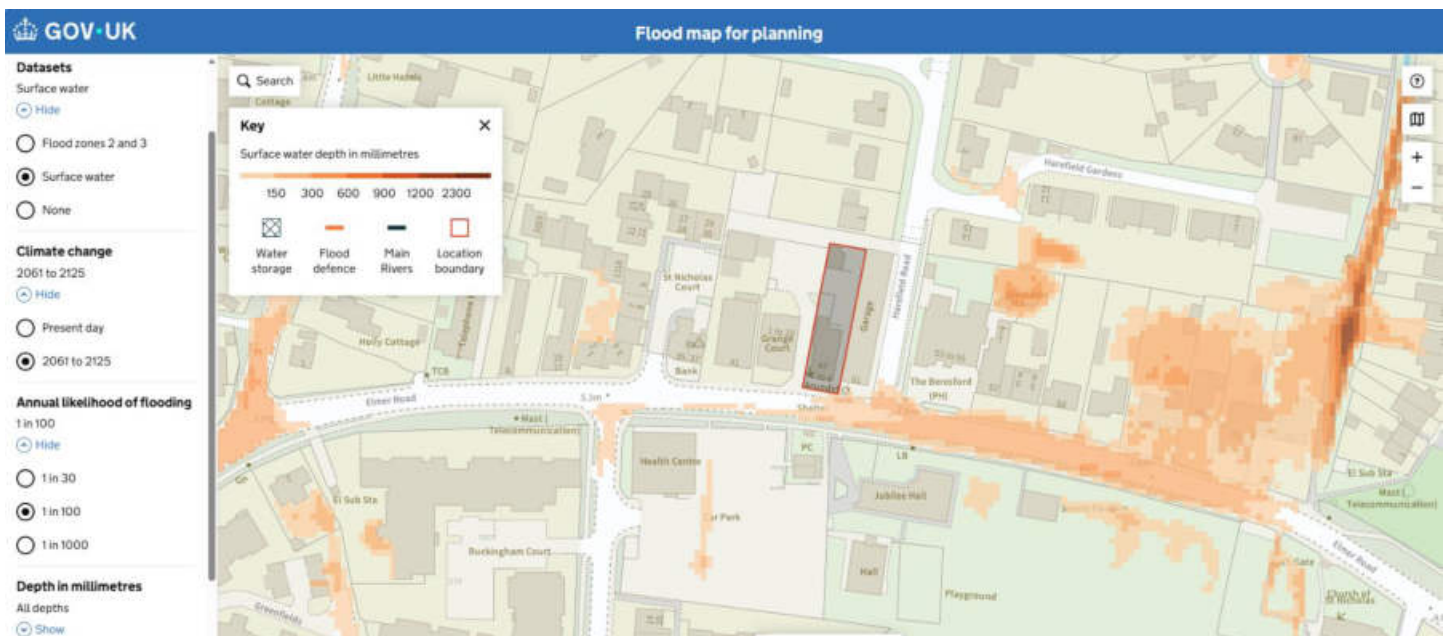


Figure 13. Flood Map for Planning - Surface Water 1:100, Climate Change (2061 to 2125) (Gov.uk)

5.2.9 In respect of the 1 in 1000 annual exceedance probability event with climate change (2061 to 2125) an area at the northern/north-eastern extent of the site is identified as being at risk of surface water flooding, albeit with depths of less than 150mm. This area corresponds with the low point on the site, and does not reflect a wider surface water flow path. As such, this will be managed through the development of the site and the proposed surface water drainage strategy.

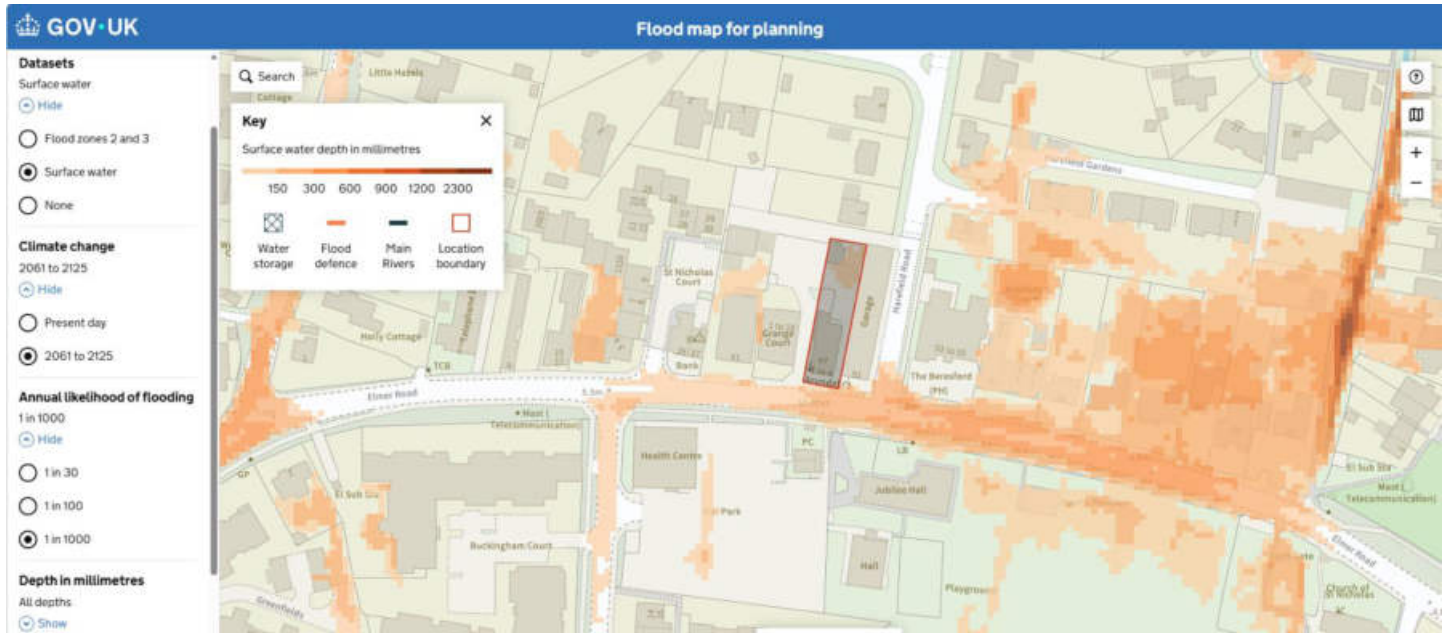


Figure 14. Flood Map for Planning - Surface Water 1:1000, Climate Change (2061 to 2125) (Gov.uk)

5.2.10 The Long-term Flood Risk Service confirms that the site is located outside of any groundwater flood alert areas and that flooding from reservoirs is 'unlikely' in this area.

5.3 Strategic Flood Risk Assessment

5.3.1 Arun District Council has a published Strategic Flood Risk Assessment (2026).

5.3.2 The site is not specifically referenced within the Strategic Flood Risk Assessment.

5.3.3 Mapping contained within the Strategic Flood Risk Assessment is consistent with that reviewed from other sources.

5.4 Historic Flooding

5.4.1 No instances of historic flooding have been identified at the site in relation to the sources of information reviewed in the undertaking of this flood risk assessment.

5.5 Summary of Flood Risk

5.5.1 The potential sources of flooding are:

Source of Flooding	Level of Risk
Rivers and Coastal	Low The site is located in Flood Zone 1 (present day). Elmer is identified as being at future flood risk in respect of climate change (2070 to 2125) which captures the site, although modelled flood level data is not available from the Environment Agency in respect of these extents.
Surface Water	Very Low The site is only identified as being at risk of surface water flooding in respect of the 1 in 1000 annual exceedance probability event with climate change incorporated (2061 to 2125). The extents identified are located at the northern/north-eastern extent of the site, which is the lowest point of the site. No overland flow routes have been identified in relation to these extents – instead identifying a localised low point in topography.
Groundwater	Very Low Winter groundwater monitoring has confirmed peak groundwater levels at 0.50m below ground level. Additionally, the site is located outside of any groundwater flood alert areas.
Sewers	Very Low No instances of historic sewer flooding have been identified, and no issues with capacity have been identified.
Artificial Sources	None The site is not shown to be at risk of flooding due to artificial sources.

5.5.2 The site has been assessed as being at 'Very Low' or 'Low' risk of flooding from all of the sources of potential flood risk considered in the undertaking of this flood risk assessment. The greatest risk identified relates to Rivers and/or the Sea, in respect of current climate change projections (2070 to 2125).

6 PROPOSED DEVELOPMENT

6.1 Description of Development

- 6.1.1 The proposed development will involve the construction of 6 No. flats at the site, in place of the existing 4 No. flats. The architectural development proposals are contained within **Appendix A**.
- 6.1.2 The type of development proposed falls within the "More Vulnerable" flood risk vulnerability classification (Annex 3: Flood risk vulnerability classification, NPPF) and is appropriate in Flood Zone 1 (Flood Risk and Coastal Change Table 2).

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone 1	✓	✓	✓	✓	✓
Flood Zone 2	✓	Exception Test Required	✓	✓	✓
Flood Zone 3a†	Exception Test Required †	✗	Exception Test Required	✓	✓
Flood Zone 3b*	Exceptions Test Required *	✗	✗	✗	✓*
✓ = Development is appropriate ✗ = Development should not be permitted					

- 6.1.3 The pre-development impermeable area totals 570m² (0.06Ha).
- 6.1.4 The post-development impermeable area totals 518m² (0.05Ha).
- 6.1.5 The reduction in impermeable area, post development, amounts to 52m² (9%), owing to the introduction of soft landscaping.
- 6.1.6 The use of SuDS methods and techniques, where site conditions and constraints allow, will be utilised to assist in the management of surface water run-off generated by the proposed development, whilst adhering to the principles and standards contained within the National Standard for Sustainable Drainage Systems (June 2025).
- 6.1.7 The specific surface water and foul water drainage proposals are detailed in **Section 8** of this report.

7 SEQUENTIAL AND EXCEPTION TESTS

7.1 Sequential Test

- 7.1.1 Paragraph 024 of Flood Risk and Coastal Change confirms that *'The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites; within medium risk areas; and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas.'*
- 7.1.2 Paragraph 175 of the National Planning Policy Framework (NPPF) states that *'The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).'*
- 7.1.3 The site is located in Flood Zone 1 (present day) and has been assessed as being at 'Very Low' or 'Low' risk of flooding from all of the potential sources of flood risk considered in the undertaking of this flood risk assessment.
- 7.1.4 The site is identified as being at future flood risk in respect of climate change (2070 to 2125). Modelled flood level data is not available from the Environment Agency in relation to these extents.
- 7.1.5 The site is not identified as being at risk of flooding in respect of surface water in the 1 in 30, 1 in 100 or 1 in 1000 annual exceedance probability events.
- 7.1.6 In respect of climate change (2061 to 2125), the site is not identified as being at risk of surface water flooding in the 1 in 30 or 1 in 100 annual exceedance probability events.
- 7.1.7 In respect of the 1 in 1000 annual exceedance probability event with climate change (2061 to 2125) an area at the northern/north-eastern extent of the site is identified as being at risk of surface water flooding, albeit with depths of less than 150mm. This area corresponds with the low point on the site, and does not reflect a wider surface water flow path. As such, this will be managed through the development of the site and the proposed surface water drainage strategy.
- 7.1.8 The risk of groundwater flooding has been assessed as being 'Low' with peak groundwater levels identified at c. 0.50m below ground level. Additionally, the site is located outside of any groundwater flood alert areas.
- 7.1.9 Flooding from reservoirs is 'unlikely' at the site as confirmed by the Long-term flood risk service (Gov.uk).
- 7.1.10 As detailed in **Section 5.5**, the site has been assessed as being at 'Very Low' or 'Low' risk of flooding from all of the potential sources of flood risk considered in the undertaking of this flood risk assessment.

7.2 Exception Test

- 7.2.1 Paragraph 031 of Flood Risk and Coastal Change states *'The Exception Test requires two additional elements to be satisfied (as set out in paragraph 164 of the National Planning Policy Framework) before allowing development to be located or permitted in situations where suitable sites at lower risk of flooding are not available following application of the sequential test. It should be demonstrated that; development that has to be in a flood risk area will provide wider sustainability benefits to the community that outweigh flood risk; and the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.'*

- 7.2.2 As detailed in 6.1.2, "More Vulnerable" development is appropriate in Flood Zones 1, and application of the exception test is not required.
- 7.2.3 Regardless of the above point, the proposed re-development of the site will provide wider sustainability benefits in the following forms:
- a. Regeneration of a brownfield site, promoting local regeneration
 - b. Improved drainage methods and techniques which in turn assist in reducing flood risk locally, by removing surface water from the public foul water sewer network and providing attenuated discharge off-site with the introduction of SuDS.

8 PROPOSED SURFACE WATER DRAINAGE STRATEGY

8.1.1 The National Standards for Sustainable Drainage Systems (June 2025) detail principles and standards for the management of surface water run-off for new infrastructure and development.

8.1.2 There are two types of standards:

- i. The hierarchy standard (Standard 1) gives criteria for prioritising the choice of final run-off destination
- ii. Fixed standards (Standards 2 to 7) state the minimum design criteria that all surface water drainage systems should satisfy and how they should be built, maintained and operated.

Both types of standards have accompanying requirements which provide details on how to interpret, deliver and evaluate each standard.

8.1.3 The seven standards are complementary, and the delivery of each standard should support delivery of the other standards. A surface water drainage system design that delivers multiple benefits will include a range of features and each of these should contribute to the delivery of several, if not all, of the standards.

8.1.4 There may be specific circumstances or constraints, such as the type or size of a development that mean it is not possible to deliver one or more of the standards. In these circumstances the opportunity to meet the standard shall be maximised and justification be developed in consultation with the approving body, who may agree to a departure unless regulatory controls prohibit such a departure.

8.1.5 The National Standards for Sustainable Drainage Systems can be viewed at <https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds>

8.2 Standard 1: Run-off Destinations

A 'SuDS approach' shall be adopted to address the management of surface water by the development and where it should be discharged. Runoff shall be treated as a resource and managed in a way that avoids negative impacts of the development on flood risk, the morphology and water quality of receiving waters and the associated ecology.

Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- Collected for non-potable use
- Infiltrated to ground
- Discharged to an above ground surface water body
- Discharged to a surface water sewer, or another piped surface water drainage system
- Discharged to a combined sewer
- To utilise a lesser priority final destination, appropriate evidence shall be provided that demonstrates all higher priority final destinations have been utilised to the maximum extent practicable.

Note 1: priority 1 is the highest priority and priority 5 is the lowest.

Note 2: for the purposes of this standard, a combined sewer is a sewer intended to receive both foul sewage and surface runoff and does not include a sewer intended to receive only foul sewage, even if it has the capacity to accommodate additional flows or has an element of surface water in it already.

To utilise a lesser priority final destination, appropriate evidence shall be provided that demonstrates all higher priority final destinations have been utilised to the maximum extent practicable. Higher cost alone shall not be a reason to utilise lower priority final destinations.

Where more than one final destination is utilised, each final destination's ability to accept runoff shall be maximised in order of priority.

- 8.2.1 Potential run-off destinations have been considered, in accordance with the hierarchy detailed within the National Standards for Sustainable Drainage Systems (June 2025), in respect of the proposed development:

Run-off Destination	Viable?	Justification
Collected for non-potable use	Yes	Standard 1 states that rainwater harvesting shall be considered where there is a demand for non-potable water and an available contributing catchment area that will deliver safe and efficient water savings, there is a need for landscape irrigation, or if the development is in an area identified as seriously water stressed. There is not an immediate demand for non-potable water in relation to the proposed development. With the catchment being relatively small, it is not considered likely that such a system would result in efficient water savings. Additionally, with the limited soft-landscaping proposed, there is not an apparent need for non-potable water for significant landscaping irrigation. It is proposed that rainwater butts will be provided to give residents the opportunity to benefit from a non-potable water supply for general householder activities. This is considered to be proportionate to the level and type of development proposed.

Infiltrated to ground	No	Winter groundwater monitoring has established peak groundwater levels at c. 0.50m below ground level. The National Standards for SuDS state that 1.00m clearance must be provided between peak groundwater levels and the base of infiltration features. Additionally, the ability to infiltrate is impacted by the presence of made ground (which conflicts with peak groundwater levels) and poor infiltration rates (it was not possible to complete infiltration tests in accordance with BRE365, with rates extrapolated owing to the slow rate of infiltration encountered on site). Because of these reasons, infiltration is not considered viable.
Discharged to an above ground surface water body	No	No such features exist in the immediate locality.
Discharged to a surface water sewer, or another piped surface water drainage system	Yes	As existing the site currently drains, partially, to the off-site amalgamated historic highway drainage system / Southern Water's public surface water sewers. It is proposed that the site will drain to this existing system, albeit with significant betterment proposed.
Discharged to a combined sewer	No	The existing building currently drains to a combined drainage system on site, which drains to Southern Water's public foul water sewer beneath Elmer Road. This is no longer considered acceptable, and a drainage strategy has been developed which provides significant betterment compared with the existing arrangement, and will result in surface water being removed from the public foul water sewer

		network.
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8.2.2 As detailed within the table above, and justified, post-development run-off will discharge to the existing off-site piped drainage network, which is an amalgamation of the historic public highway drainage system and Southern Water public surface water sewers.

8.2.3 Consideration has also been afforded as to the SuDS methods and techniques which can be introduced to support the development:

SuDS Method / Technique	Suitable	Comments
Green roofs or walls	No	Green roof is not considered appropriate in view of the type of development proposed.
Rainwater harvesting systems	Yes	Rainwater re-use – on a level which is appropriate in view of the scale of the proposed development – will be incorporated, with rainwater butts to be introduced.
Soakaway or infiltrations systems	No	Ground conditions dictate that infiltration methods and techniques are not viable.
Permeable surfaces	Yes	Permeable paving is to be introduced to provide water quality benefits in addition to surface water attenuation.
Swales and filter strips	No	Not viable in view of development proposals and site use.
Basins and ponds (such as wetlands, balancing ponds, detention basins, retention ponds)	No	Not viable in view of development proposals, site use and/or spatial constraints.
Tanked systems	Yes	Can be used to provide supplementary storage, where necessary.

8.2.4 Widespread permeable paving is proposed across the site (256m²) with sub-base depths of 200mm and 500mm thick, providing on-site attenuation.

8.2.5 A flow control will restrict flows leaving the site to a maximum of 1.00 l/s for all design storm events, up to and including the 100-year plus climate change (45%) event.

8.2.6 Rainwater butts are to be provided to promote rainwater re-use.

8.2.7 The proposed surface water drainage arrangement is shown on drawing **PL005 'Proposed Drainage Strategy'**.

8.3 Standard 2: Management of Everyday Run-off (Interception)

Apply a 'SuDS approach' so that at least the first 5mm of rainfall for the majority of rainfall events does not result in run-off from the site to surface waters or piped drainage systems.

Evidence shall be provided that the approach to managing run-off from 'everyday' rainfall has been developed alongside and in support of the management of run-off quality (Standard 4) and the delivery of amenity and biodiversity benefits (Standards 5 and 6).

- 8.3.1 Opportunities to achieve interception compliance are limited given that infiltration is not viable.
- 8.3.2 The existing access drive and parking area is to be replaced with permeable paving. Permeable paving, when serving it's own area is considered to provide interception.
- 8.3.3 Additional methods of providing interception for the remaining areas of hardstanding have been considered, and discounted for the following reasons:
- i. Green roofs / walls

Green roofs / walls are not considered appropriate in view of the proposed development. Introducing a green roof on a residential building, specifically flats, represents a health and safety risk given the required frequency of maintaining the feature. This encourages access and working at height which should be avoided.
 - ii. Rainwater harvesting systems

Rainwater harvesting systems are not appropriate as no need has been identified for a non-potable supply of water for landscape irrigation, in view of the lack of open areas of soft landscaping. Rainwater butts are proposed to provide a proportionate level of non-potable water for householder activities in view of the scale of the proposed development, however, it is acknowledged that rainwater butts are not considered to provide interception. Additionally, with the catchment being relatively small, it is not considered likely that such a system would result in efficient water savings.
 - iii. Soakaway or infiltration systems

Site specific constraints dictate that such methods are not appropriate, owing to the presence of made ground, groundwater at shallow depths in addition to poor rates of infiltration.
 - iv. Swales

The spatial constraints of the site dictate that such features are not appropriate in addition to the localised urban landscape and proposed discharge location. The narrow width of the existing access drive between 2 No. buildings limits the available space to accommodate a swale, whilst it is proposed run-off from the development will drain downstream to Southern Water's public surface water sewer network. Southern Water will not accept flows which may be considered to be 'land drainage' and have historically refused connections where unlined features such as swales are connected upstream of their network. As a result, it would not be possible to provide an unlined swale feature.
 - v. Infiltration trenches

As outlined above, infiltration methods are not appropriate given ground conditions and associated constraints.

vi. Detention basins

The National Standards for SuDS state that detention basins shall be unlined in order to achieve interception. Unlined features cannot be provided for reasons detailed in relation to the above points. Additionally, the proposed site arrangement and associated spatial constraints dictate that detention basins cannot be accommodated.

vii. Bioretention areas and rain gardens

The National Standards for SuDS state that such features must be unlined to provide interception. Features cannot be unlined on this site owing to site constraints as detailed in relation to earlier points, above.

- 8.3.4 In view of the above considerations, interception is provided in respect of the proposed extents of permeable paving. A relaxation in relation to Standard 2 is, however, requested in relation to the remaining impermeable areas, specifically the proposed roof areas.

8.4 Standard 3: Management of Extreme Rainfall and Flooding

A 'SuDS approach' shall be adopted to address the management of development run-off during extreme rainfall, including allowances for climate change and urban creep to:

- protect people and property on the development from flooding of the surface water drainage system
- mitigate any increased flood risk to people and property adjacent to or downstream of the development
- protect the receiving water body from morphological damage or minimise the impact on sewer capacity

When discharging to an infiltration feature, the system shall be appropriately sized to accommodate the design event based on ground conditions and contributing areas.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water run-off (rate and volume) for the 1% annual exceedance probability (AEP) event shall be controlled to ensure the run-off from the development does not increase flood risk elsewhere.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water run-off rate for the 50% AEP event shall be controlled to ensure development run-off from an event of this magnitude has no negative impact.

Any flooding from the surface water drainage system for events up to the 1% AEP event shall be managed within the development.

Any flooding from off-site sources for the 1% AEP event should be managed on site or safely routed through the site, ensuring any downstream risks are not increased compared to the pre-development scenario.

The risks (both on and off the development) associated with flooding from the surface water drainage system for exceedance events greater than the 1% AEP event shall be appropriately managed.

- 8.4.1 Standard 3 states that 'The peak allowable discharge rate from the development to surface waters or sewers for the 50% AEP event shall be limited to the equivalent greenfield run-off rate, or 3 l/s/ha,

whichever is greater.'

- 8.4.2 Additionally, 'Where the volume of run-off discharged from the development to surface waters or sewers for the 1% AEP, 6-hour rainfall event is greater than the volume of greenfield runoff for the same rainfall event, the peak allowable discharge rate from the development for the 1% AEP event shall be limited to the 50% AEP greenfield runoff rate or 3l/s/ha, whichever is the greater.'
- 8.4.3 Furthermore, 'Where the volume of runoff discharged from the development to surface waters or sewers for the 1% AEP, 6-hour rainfall event is less than or equivalent to the volume of greenfield runoff for the same event, the peak allowable discharge rate from the development for the 1% AEP event shall be limited to the 1% AEP greenfield runoff rate or 3l/s/ha, whichever is the greater.'
- 8.4.4 Relative to the post-development positively drained area (518m²), greenfield run-off rates have been calculated as follows:
- QBAR: 0.2 l/s
 - 1 in 1-Year: 0.1 l/s
 - 1 in 10-Year: 0.3 l/s
 - 1 in 30-Year: 0.4 l/s
 - 1 in 100-Year: 0.5 l/s
 - 1 in 200-Year: 0.6 l/s
- 8.4.5 Based on the allowance of 3 l/s/ha, relative to this catchment area, a flow rate of 0.16 l/s would be permitted.
- 8.4.6 In view of the above, the QBAR rate of 0.2 l/s is the greater of the two.
- 8.4.7 Standard 3 also states that 'For previously developed sites a 'relaxation factor' shall be applied to the target 50% and 1% AEP greenfield runoff rates where evidence is provided that demonstrates why greenfield runoff or 3l/s/ha rates cannot be achieved and this is agreed with the approving body.'
- 8.4.8 As a result of the above, with a relaxation of up to x5 on 0.2 l/s (QBAR), a flow rate of 1.0 l/s is permitted.
- 8.4.9 Assessment has been provided of existing brownfield run-off rates (Section 4), relative to the respective catchments draining to the existing combined on-site system which discharges to Southern Water's public foul water sewer network (2.14 l/s) and the amalgamated off-site drainage system (1.5 l/s). As existing, it has been assessed that up to 3.64 l/s is draining off-site to the two respective systems, in a 50mm rainfall event.
- 8.4.10 In view of all of the above considerations, it is proposed that run-off discharging off-site will be restricted to a maximum of 1.0 l/s for all considered storm events, up to and including the 100-year event, inclusive of an allowance for climate change in accordance with current requirements.
- 8.4.11 In respect of climate change, Gov.uk provides guidance for local planning authorities preparing strategic flood risk assessments and developers and their agents preparing flood risk assessments for planning applications, and development consent orders for nationally significant infrastructure projects.
- 8.4.12 Climate change allowances are predictions of anticipated change for peak river flow, peak rainfall intensity, sea level rise and offshore wind speed and extreme wave height.
- 8.4.13 Allowance for climate change shall be provided in the undertaking of site-specific flood risk assessments where new development is proposed to minimise vulnerability and provide resilience to flooding and

coastal change.

- 8.4.14 The 'Peak Rainfall Allowances Map' shows anticipated changes in peak rainfall intensity.
- 8.4.15 Based on the latest allowances, for the 3.3% annual exceedance rainfall event, an increase of 40% should be applied to peak rainfall in relation to the proposed development.
- 8.4.16 For the 1% annual exceedance rainfall event, an increase of 45% should be applied to peak rainfall in relation to the proposed development.

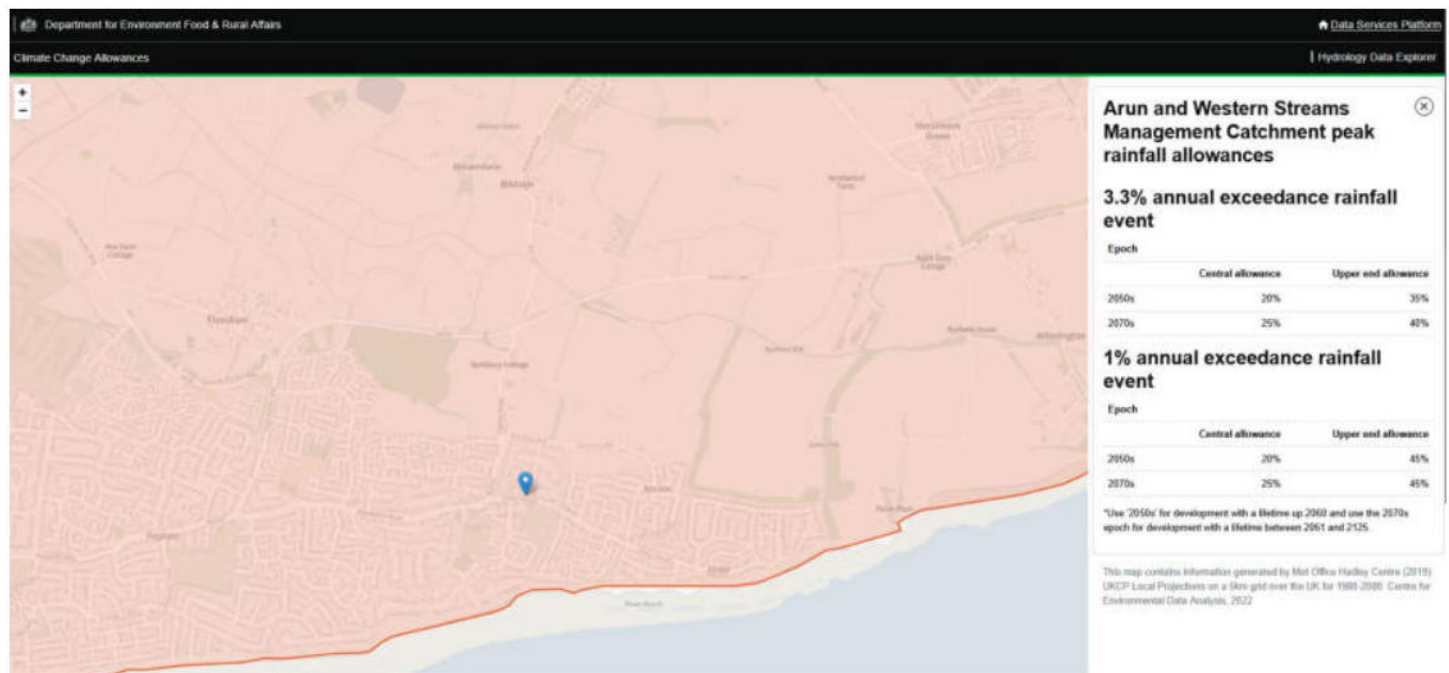


Figure 14. Climate Change Allowances – Peak Rainfall Allowances (Gov.uk)

- 8.4.17 No allowance has been made in respect of urban creep given that the proposed development concerns the construction of flats, therefore not requiring an additional uplift for the potential impacts of urban creep.

8.5 Standard 4: Water Quality

Apply a 'SuDS approach' that protects surface waters, groundwater and coastal waters by managing the quality of the surface water run-off to adequately address water quality risks from development.

The proposed SuDS management train(s) shall be based on robust water quality risk assessment, appropriate to the pollution hazard and sensitivity of receiving waters, reflecting industry recognised guidance or other quantitative assessment as agreed with the approving body and permitting requirements.

- 8.5.1 In accordance with the SuDS Manual (CIRIA C753) regarding methods for managing pollution risks, the risk posed by surface water run-off to the receiving environment depends on the pollution hazard at the site (the source), SuDS treatment techniques (the pathway), and the sensitivity of the environment (the receptor).
- 8.5.2 The simple index approach considers whether SuDS techniques are appropriate for the site. The states that for SuDS components to deliver adequate treatment, the total pollution mitigation index for each contaminant type should equal or exceed the pollution hazard index.

8.5.3 The SuDS Manual outlines three categories of pollution hazard identification, which vary depending on proposed land use, which are as follows:

- Total Suspended Solids (TSS).
- Metals (M).
- Hydrocarbons (H).

8.5.4 In accordance with C753 Table 26.2, the proposed land uses at the site are categorised as follows:

- Residential roofs – Very Low/TSS=0.2/M=0.2/H=0.05
- Individual property driveways/low traffic roads – Low/TSS=0.5/M=0.4/H=0.4

8.5.5 In accordance with C753 Table 26.3, the values of SuDS Mitigation indices are provided for permeable paving:

- Permeable Pavement – TSS=0.7/M=0.6/H=0.7

8.5.6 As the pollution hazard index does not exceed any pollution mitigation index for any contaminant type, for any proposed land use, the proposed SuDS methods will provide sufficient treatment for the proposed development.

8.6 Standard 5: Amenity

A 'SuDS approach' shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

8.6.1 The existing drainage arrangement which serves the site provides little to no amenity benefit.

8.6.2 The proposed redevelopment of the site and introduction of a new surface water drainage system will introduce amenity benefits which do not currently exist.

8.6.3 The widespread introduction of permeable paving provides a multi-functional surface which not only serves as part of the proposed surface water drainage system but also provides a surface which offers amenity benefits. This serves as a multi-purpose, multi-functional surface.

8.6.4 The introduction of water butts provides a supply of non-potable water which can be used for householder activities such as water plants and other such gardening activities.

8.7 Standard 6: Biodiversity

A 'SuDS approach' shall be adopted to ensure the surface water drainage system maximises biodiversity benefits throughout the development lifecycle.

The surface water drainage system shall add biodiversity value by:

- creating diverse, self-sustaining, resilient local ecosystems which contribute to net gains in biodiversity
- supporting and promoting natural local habitat and species, for example, through local nature recovery strategies
- contributing to the delivery of local biodiversity strategies
- contributing to habitat connectivity

- 8.7.1 The existing drainage arrangement which serves the site provides little to no biodiversity benefits.
- 8.7.2 The introduction of SuDS Pods/Planters will increase biodiversity at the site in respect of the proposed surface water drainage system.
- 8.7.3 Given the restricted width between the two existing buildings either side of the access drive, it is not likely to be possible to include SuDS Pods/Planters on all rainwater pipes, particularly on the eastern elevation. With the exception of the eastern elevation if this proves restrictive in terms of vehicle movements entering or exiting the site, SuDS Pods/Planters shall be provided on each rainwater pipe in maximise the potential of biodiversity benefits.

8.8 Standard 7: Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity

A 'SuDS approach' shall be adopted to ensure that surface water drainage systems are designed so they can be easily and safely constructed, operated and maintained taking account of the need to minimise negative impacts on natural resources and the environment.

The designer shall provide a management and maintenance plan that supports the design objectives detailed in standards 1 to 6 and ensures the performance of the surface water drainage system with regards to run-off destinations, everyday and extreme rainfall, water quality, amenity and biodiversity is maintained throughout the lifetime of the development.

Surface water drainage design shall examine for the likelihood and consequences of potential failure scenarios that may occur during the operation phase and safely manage the associated risks.

The surface water drainage system shall be designed to ensure structural integrity of all components under anticipated loading conditions for the design life of the development so that it does not affect the structural integrity of any existing or proposed components within, or adjacent to, the development.

- 8.8.1 Maintenance is required to ensure the long-term operational performance of the proposed surface water drainage system.
- 8.8.2 A separate document detailing management and maintenance particulars shall be provided upon completion of the proposed development and may be subjected to a suitably worded planning condition.
- 8.8.3 It is anticipated that maintenance activities will be the responsibility of an appointed management company, details of which are not currently available given the site development proposals have not yet been granted planning approval.
- 8.8.4 It is not envisaged that any materials are to be stored on site once the development has been completed, which could cause major spills and/or potential pollution issues within the drainage system.

- 8.8.5 If this situation alters in the future consultation with a specialist will be required in order to confirm if any upgrades to the existing system are necessary.
- 8.8.6 Any future alterations to the foul and/or surface water drainage systems should confirmed by a specialist.

9 PROPOSED FOUL WATER DRAINAGE STRATEGY

- 9.1.1 It is proposed that foul water from the proposed development will drain to Southern Water's public foul water sewer, located beneath Elmer Road.
- 9.1.2 Subject to confirmation of condition and suitability, the site's existing connection may be retained, albeit the upstream system will be replaced. Foul and surface water will be separated and will discharge to appropriate receiving assets, as opposed to currently draining to a combined system on site that drains, in part, to the public foul water sewer network.
- 9.1.3 Post development, there will be an estimated increase in peak foul water flows of 0.09 l/s in relation to the 2 No. new flats (based on Sewer Sector Guidance, Appendix C, Design and Construction Guidance). Overall flows for the 6 No. flats will be 0.28 l/s.
- 9.1.4 Connection to the public foul water sewer will be subject to a S106 application, and approval from Southern Water.
- 9.1.5 Recent changes to infrastructure and connection charges (OFWAT Charging Rules) place the onus on the sewerage undertaker to reinforce their network should there no longer be sufficient capacity to serve the new development. Funding for this is provided by revised charging arrangements for infrastructure and connection charges for each dwelling constructed comprising a Network Reinforcement Charge and Site-Specific Charges. The revised charging arrangement (funded by the developer) covers alterations to the Existing Sewer Network and the sewerage undertaker remains responsible for the cost of reinforcing their Strategic Assets. The developer is responsible for connecting the development to the public sewer network.

10 LIDSEY DRAINAGE IMPACT ASSESSMENT

- 10.1.1 The site is located within the Lidsey wastewater treatment catchment area.
- 10.1.2 Communities which fall within the catchment area have, historically, experienced foul water flooding of roads and property which has also led to the pollution of watercourses. The stated cause is assumed to have been as a result of the sewerage system being overloaded, as a result of groundwater infiltration/ingress and surface water inundation of the sewerage system.
- 10.1.3 West Sussex County Council has published the Lidsey Surface Water Management Plan (2014) which does not identify the site as falling within any of the defined Local Flood Risk Zones.
- 10.1.4 As stated in Section 4 of this report, the site currently drains partially to a combined system on site which discharges to Southern Water's public foul water sewer beneath Elmer Road. Additionally, run-off from the site drains to the amalgamated surface water drainage system off-site consisting of the historic highway drainage system and Southern Water's public surface water sewers. A soakaway is also understood to serve the northern extents of the site.
- 10.1.5 The proposed redevelopment of the site will see the introduction of a dedicated surface water drainage system, which will remove surface water flows from the public foul water sewer network.
- 10.1.6 Flows discharging off-site will also be cut by up to 73% with flows being restricted to a maximum of 1 l/s for all storm events.
- 10.1.7 A reduction in the overall impermeable area at the site post development will also result in a reduced drainage catchment.

11 RESIDUAL RISK AND MITIGATION

11.1 Residual Risk

11.1.1 The following residual risks have been identified in relation to the proposed development:

- i. Flooding of the site in view of future flood risk, in respect of climate change
- ii. Extreme rainfall events that exceed the design criteria used for the drainage system causing surface water flooding
- iii. Blockage/failure of the proposed drainage system causing flooding to the site
- iv. Surface water flooding of proposed buildings
- v. Surcharged outfall scenario, resulting in flooding at the site

11.2 Mitigation

11.2.1 Consideration has been taken to the residual risks stated in Section 10.1, and the following mitigation measures are proposed:

- i. The site is located in Flood Zone 1 (present day) and has been assessed as being at 'Very Low' or 'Low' risk of flooding from all of the sources of potential flood risk considered in the undertaking of this flood risk assessment. As detailed earlier within this report, the site is, however, identified as being at future flood risk in respect of climate change (2070 to 2125). No modelled flood level data is available in relation to the extents identified – which go far wider than the site itself. The proposed development involves the construction of 6 No. flats. The site is currently occupied by 4 No. flats. There will be no change at ground floor level, which currently houses 2 No. flats. The additional 2 No. flats will be on the upper floors of the building.
- ii. The proposed drainage system has been developed to current day standards, accommodating a 1 in 100-year design event, with a 45% allowance for the potential impacts of climate change. However, should a more extreme rainfall event occur, there is the potential for the drainage system to be exceeded. In exceedance events, run-off would follow the topography of the site, falling towards Elmer Road, where run-off would be intercepted by the existing highway drainage infrastructure.
- iii. As in the event of exceedance, should blockage of the on-site drainage system occur, run-off would follow the topography of the site, falling towards Elmer Road where it would be intercepted by the existing highway drainage infrastructure. Maintenance plays a vital role in managing and reducing flood risk. The surface water drainage system, post development, shall be managed and maintained in accordance with the applicable maintenance requirements.
- iv. The site is not identified as being at risk of surface water flooding in the 1 in 30, 1 in 100 or 1 in 1000 annual exceedance probability events, in the present day. In respect of climate change (2061 to 2125) the site is also not identified as being at risk of flooding in the 1 in 30 or 1 in 100 annual exceedance probability events, however, minor extents towards the northern/north-

eastern boundary of the site are identified as being at risk of surface water flooding in respect of climate change in the 1 in 1000 annual exceedance probability event. This area represents a localised low point in the existing site topography. The proposed redevelopment of the site will remove this localised low point, with the surface water drainage system managing the site. The site will incorporate the use of widespread permeable paving which will help to manage surface water which hits its surface.

- v. Hydraulic calculations prepared have considered a surcharged outfall scenario.

12 FLOOD RISK MANAGEMENT

12.1 Safe Access and Egress

- 12.1.1 Access to the site will be retained, via Elmer Road.
- 12.1.2 The site is located in Flood Zone 1 and access/egress routes within the site are not identified as being at risk of surface water flooding, groundwater flooding or flooding from artificial sources.
- 12.1.3 Areas of Elmer Road immediately to the east of the site are identified as being at risk of surface water flooding, although areas west of the site are not. As such, this represents a potential dry route of escape.
- 12.1.4 In view of the above factors, safe access and egress is available.

13 OFFSITE IMPACTS

13.1.1 The proposed redevelopment of the site will have positive impacts off-site, in respect of the foul and surface water drainage arrangements. Betterment will be provided in the following forms:

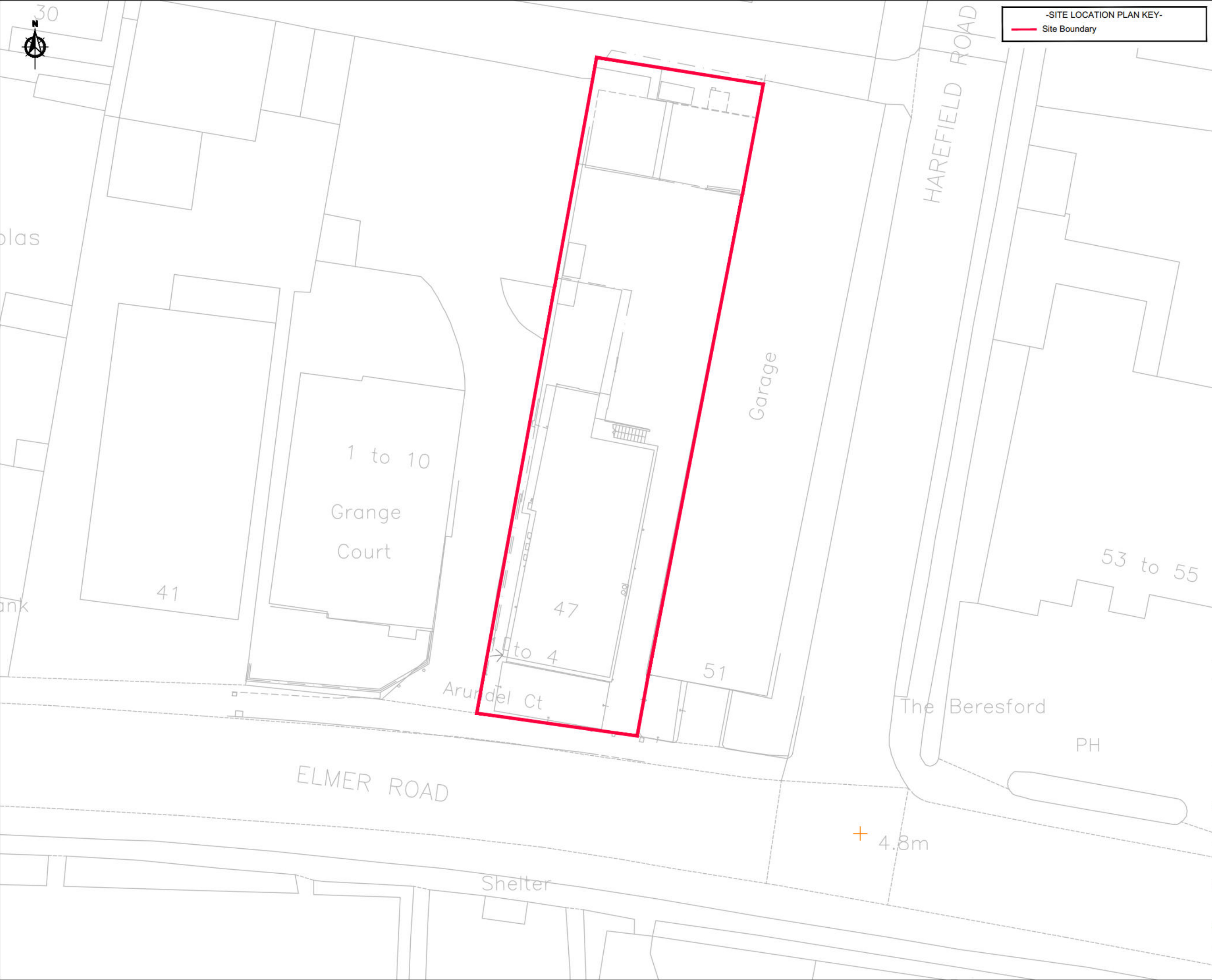
- Provision of a new, dedicated, surface water drainage system which will result in surface water being removed from the public foul water sewer network (as the site currently drains partially to a combined drain on site which drains to the public foul water sewer beneath Elmer Road)
- Flows discharging off site being cut by up to 73% through the introduction of on-site attenuation
- Improved water quality in respect of run-off, owing to the introduction of permeable paving
- An increased design standard, with the proposed surface water drainage system being design to current day standards (100-year storm event, with an allowance of 45% for the potential impacts of climate change)
- A reduction in the overall impermeable area on site, resulting in a reduced drainage catchment.

14 SUMMARY

- 14.1.1 The proposed development involves the construction of 6 No. flats at the site, in place of the existing 4 No. flats. The architectural development proposals are contained within **Appendix A**.
- 14.1.2 The site measures 570m² (0.06Ha) and is currently occupied by 4 No. flats. The site area is entirely impermeable.
- 14.1.3 The site topographic survey indicates levels broadly within the range of 4.80m and 5.22m AOD, falling to the northern and southern boundaries of the site.
- 14.1.4 Intrusive site investigation has established made ground, predominantly underlain by clay (River Terrace Deposits).
- 14.1.5 Groundwater was recorded as peaking during a period of winter monitoring at c. 0.50m below ground level.
- 14.1.6 The site is located in Flood Zone 1 and has been assessed as being at 'Very Low' or 'Low' risk of flooding from all of the potential sources of flood risk considered in the undertaking of this flood risk assessment.
- 14.1.7 The site is identified as being at potential future flood risk in respect of climate change (2070 to 2125). No modelled flood level data is available from the Environment Agency.
- 14.1.8 The site currently drains, partially, to a below ground combined system which discharges to Southern Water's public foul water sewer beneath Elmer Road. The remainder of the site drains, in part, to the amalgamated off-site surface water drainage system as well as to a soakaway on site.
- 14.1.9 Post development, surface water flows will be separate, and attenuated on site, with the introduction of widespread permeable paving. No surface water will discharge to Southern Water's public foul water sewer network.
- 14.1.10 Flows will be restricted to a maximum of 1.00 l/s for all modelled storm events, up to and including the 100-year plus climate change (45%) event.
- 14.1.11 Foul water will drain to Southern Water's public foul water sewer.
- 14.1.12 The completion of the development will not increase flood risk on or off the site and will provide overall betterment in respect of surface water drainage.
- 14.1.13 In conclusion, this development is suitable with regards to flood risk and surface water drainage.

DRAWINGS

- PL001** Site Location Plan
- PL002** Topographic Survey with Contours
- PL003** Existing Drainage Arrangements
- PL004** Impermeable Areas
- PL005** Proposed Drainage Strategy



-SITE LOCATION PLAN KEY-

Site Boundary

1. This drawing is to be read in conjunction with all other BP Civils drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
2. BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
3. Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
5. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
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8. The client shall ensure all licences, consents and approvals required to implement the works are in place prior to commencing construction.

Rev.	Date	Amendments

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Client

Sussex Develop & Build Ltd.

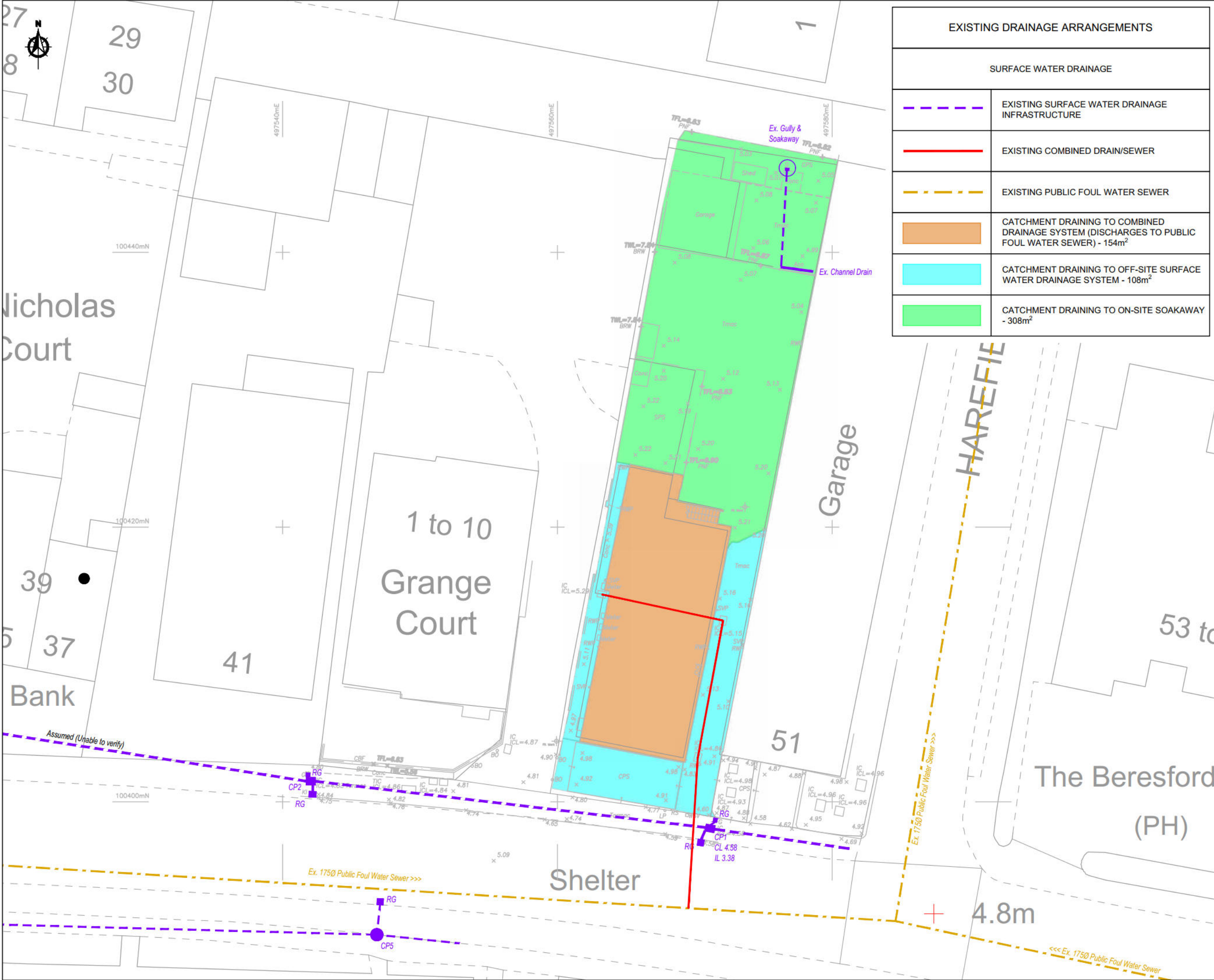
Project

47 Elmer Road,
Bognor Regis PO22 6LB

Drawing Title

Site Location Plan

Scale at A3	Date	Drawn By	Checked By	Project No.
1:250	Nov. '24	SPB	MJA	D2317
Drawing Code		Drawing No.	Rev.	
000-BPC-WD-ZZ-D-C		PL001	P1	



EXISTING DRAINAGE ARRANGEMENTS	
SURFACE WATER DRAINAGE	
	EXISTING SURFACE WATER DRAINAGE INFRASTRUCTURE
	EXISTING COMBINED DRAIN/SEWER
	EXISTING PUBLIC FOUL WATER SEWER
	CATCHMENT DRAINING TO COMBINED DRAINAGE SYSTEM (DISCHARGES TO PUBLIC FOUL WATER SEWER) - 154m ²
	CATCHMENT DRAINING TO OFF-SITE SURFACE WATER DRAINAGE SYSTEM - 108m ²
	CATCHMENT DRAINING TO ON-SITE SOAKAWAY - 308m ²

NOTES

A3

1. This drawing is to be read in conjunction with all other BP Civils drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.

2. BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.

3. Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.

4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.

5. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.

6. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BP Civils logos and company information must be removed from copies if information is re-used.

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8. The client shall ensure all licences, consents and approvals required to implement the works are in place prior to commencing construction.

Rev.

Date

Amendments

BP CIVILS

CONSULTING

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www.bpcivils.co.uk enquiries@bpcivils.co.uk

Drawing Status

FOR INFORMATION

NOT FOR CONSTRUCTION

Client

Sussex Develop & Build Ltd.

Project

47 Elmer Road,

Bognor Regis PO22 6LB

Drawing Title

Existing Drainage Arrangements

Scale at A3

Date

Drawn By

Checked By

Project No.

1:250

Jun. '26

SPB

MJA

D2317

Drawing Code

Drawing No.

Rev.

000-BPC-WD-ZZ-D-C

PL003

P1

- | Rev. | Date | Amendments |
|------|------|------------|
|------|------|------------|

Drawing Status
FOR INFORMATION
NOT FOR CONSTRUCTION

Client
Sussex Develop & Build Ltd.

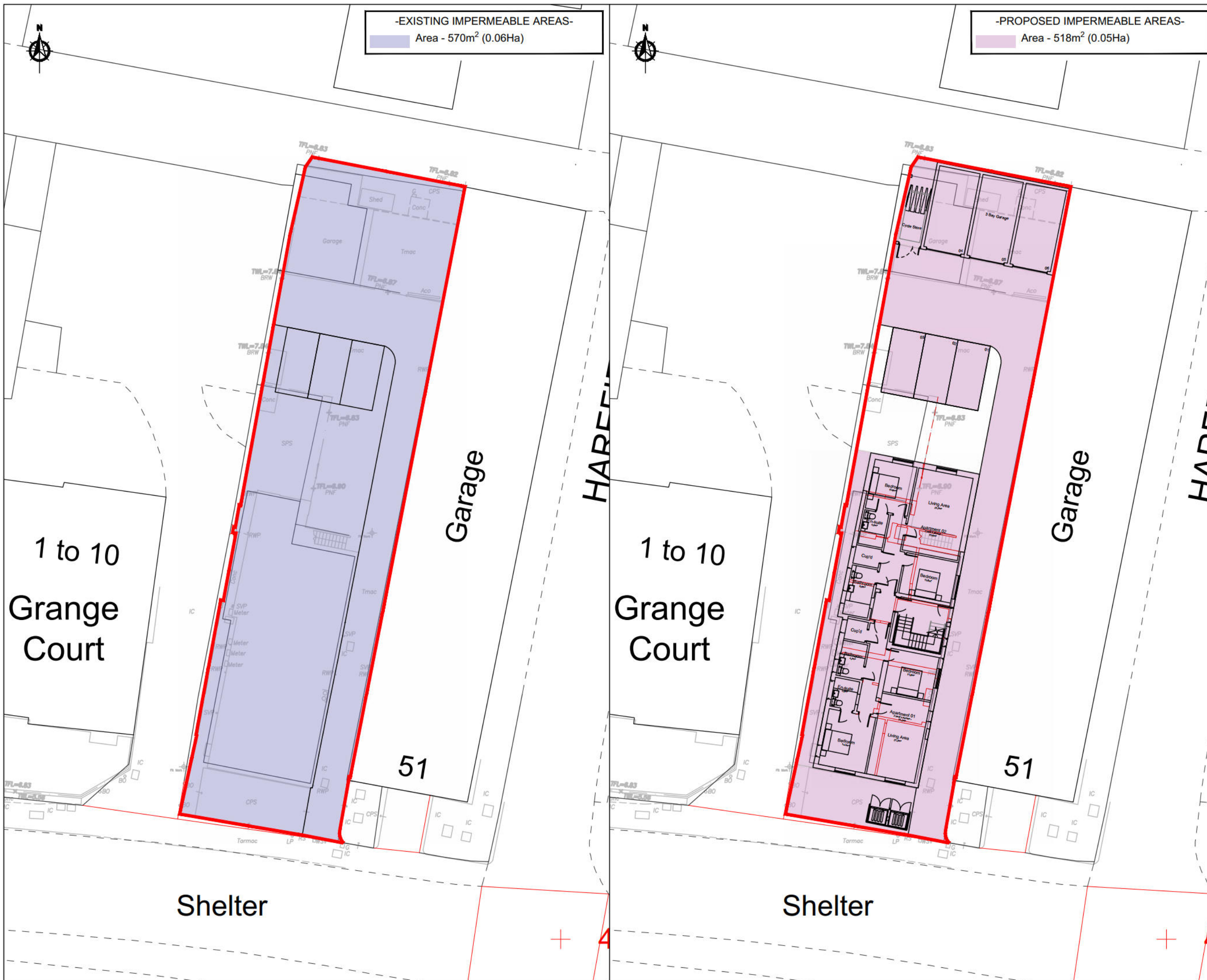
Project 47 Elmer Road,
Bognor Regis PO22 6LB

Drawing Title

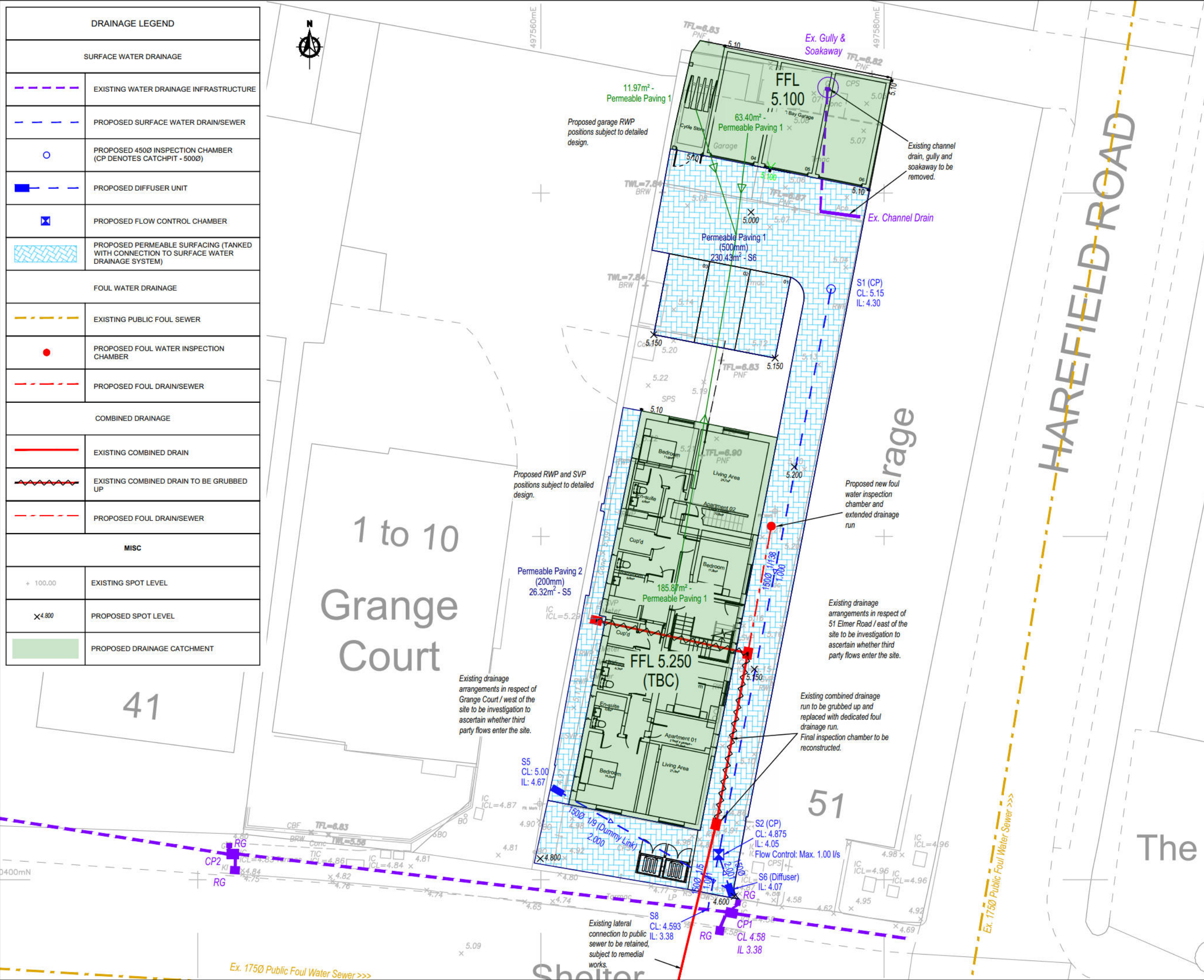
Impermeable Areas

Scale at A3 1:250	Date Nov. '24	Drawn By SPB	Checked By MJA	Project No. D2317
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Drawing Code	Drawing No.	Rev.
000-BPC-WD-ZZ-D-C	PL004	P1



DRAINAGE LEGEND	
SURFACE WATER DRAINAGE	
	EXISTING WATER DRAINAGE INFRASTRUCTURE
	PROPOSED SURFACE WATER DRAIN/SEWER
	PROPOSED 450Ø INSPECTION CHAMBER (CP DENOTES CATCHPIT - 500Ø)
	PROPOSED DIFFUSER UNIT
	PROPOSED FLOW CONTROL CHAMBER
	PROPOSED PERMEABLE SURFACING (TANKED WITH CONNECTION TO SURFACE WATER DRAINAGE SYSTEM)
FOUL WATER DRAINAGE	
	EXISTING PUBLIC FOUL SEWER
	PROPOSED FOUL WATER INSPECTION CHAMBER
	PROPOSED FOUL DRAIN/SEWER
COMBINED DRAINAGE	
	EXISTING COMBINED DRAIN
	EXISTING COMBINED DRAIN TO BE GRUBBED UP
	PROPOSED FOUL DRAIN/SEWER
MISC	
	EXISTING SPOT LEVEL
	PROPOSED SPOT LEVEL
	PROPOSED DRAINAGE CATCHMENT



NOTES

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RESIDUAL HAZARDS

In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following:

1. Buried services. Contractor to refer to record drawings and use CAT to locate existing services and undertake necessary precautions and investigation prior to excavating.

2. Working in live traffic. Contractor to ensure traffic management is designed, erected and maintained to protect the workforce and the public. Contractor to undertake necessary precautions and ensure suitable traffic management is in place prior to commencement.

3. Working in live sewers. Contractor to ensure operatives are familiar and competent with the dangers of working in live sewers.

4. Excavations close to existing structures. Contractor to prepare method statement to ensure stability of existing structure.

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved risk assessment and method statement.

Rev.	Date	Amendments

BP CIVILS

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Drawing Status

PLANNING

NOT FOR CONSTRUCTION

Client

Sussex Develop & Build Ltd.

Project

47 Elmer Road,
Bognor Regis PO22 6LB

Drawing Title

Proposed Drainage Strategy

Scale at A3	Date	Drawn By	Checked By	Project No.
1:250	Jun. '26	SPB	MJA	D2317

Drawing Code	Drawing No.	Rev.
000-BPC-WD-ZZ-D-C	PL005	P1