

Groundwater Flood Risk Assessment for Planning

March 2026

Prepared for:

Premier Properties
(Brighton) Ltd

Location:

Plot Adjacent to 28a St.
Richards Road

Our reference:

97136-Rogers-StRchrdsRd

Portslade

Brighton

BN41 1PA



Document Issue Record

Project Details	
Project:	Groundwater Flood Risk Assessment for Planning
Prepared for:	Premier Properties (Brighton) Ltd
Application:	Erection of a new dwelling
Location:	Plot Adjacent to 28a St. Richards Road, Portslade, Brighton, BN41 1PA
Our reference:	97136-Rogers-StRchrdsRd
Issue no.:	v1.0
Issue date:	19 th March 2026

Project Consultants	
Lead Consultant:	Mrs Emma Jeffery, MSci (Hons)
Document Check:	Ms Jackie Stone BSc (Hons), MSc, DIC
Authorisation:	Mrs Emma Jeffery, MSci (Hons)

This report (including any enclosures and attachments) has been prepared for the exclusive use and benefit of the commissioning party and solely for the purpose for which it is provided. Unless we provide express prior written consent, no part of this report should be reproduced, distributed or communicated to any third party. We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report. Any data and information provided by third parties and referred to herein has not been checked or verified by us unless otherwise expressly stated within this report. This report was checked and approved on the date it was issued and is therefore valid on this date. Understanding, circumstances, regulations and professional standards do change, which could subsequently affect the validity of this report. This report is not to be used for detailed design of drainage systems. It is recommended that every drainage scheme uses hydraulic modelling software to finalise volume requirements and design details before drawings are produced.

Contents

1. Introduction	4
2. Existing Site.....	5
Site Topography:.....	6
Existing Ground Conditions:	7
3. Development Proposal.....	9
4. Groundwater Flood Risk Assessment	10
Hydrogeology:.....	10
Source Protection Zones:.....	12
Groundwater Flooding:.....	13
Historical Flooding:.....	13
Groundwater Emergence (JBA):	14
Groundwater Emergence – Climate Change (JBA):.....	16
Groundwater Flood Risk Map (GeoSmart):.....	17
BGS Borehole Records.....	21
5. Discussion and Conclusion.....	23

1. Introduction

- 1.1. Unda Consulting Limited have been appointed by Premier Properties (Brighton) Ltd (hereinafter referred to as “the applicant”) to undertake a Groundwater Flood Risk Assessment for the proposed development at Plot Adjacent to 28a St. Richards Road, Portslade, Brighton, BN41 1PA (hereinafter referred to as “the site”). The purpose of the study is to support a planning application for the proposed development.
- 1.2. This report presents our findings based on the readily available information and data relating to the site and surrounding drainage area.
- 1.3. The site appears to be located within Flood Zone 1 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required for all development or changes of use proposed:
 - In Flood Zones 2 or 3 or see flood map for planning;
 - Within Flood Zone 3b;
 - Within Flood Zone 1 with a site area of 1 hectare or more;
 - Within ‘Flood Zones plus Climate Change’, showing it is at increased risk of flooding from rivers or sea in future - see flood map for planning;
 - With Flood Zone 1 and the flood map for planning shows it is at risk of flooding from surface water;
 - In areas with critical drainage problems;
 - Within Flood Zone 1 where the LPA’s strategic flood risk assessment (SFRA) shows it will be at increased risk of flooding during its lifetime;
 - That increases the vulnerability classification and may be subject to sources of flooding other than rivers or sea.
- 1.4. Given that the proposed development is located within Flood Zone 1 (Low Risk of flooding from rivers or the sea) and the site is under 1ha in area, a FRA would not normally be required under the NPPF. However, it is understood that Adur and Worthing Council’s have requested a Flood Risk Assessment for Groundwater Vulnerability.
- 1.5. The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development’s lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.
 - Whether the proposed development is likely to be affected by current or future flooding from any source;
 - Whether it will increase flood risk elsewhere;
 - Whether the measures proposed to deal with these effects and risks are appropriate.

2. Existing Site

- 2.1. The site comprises of an existing dwelling with an outbuilding / garage adjacent.
- 2.2. The site is understood to have lawful planning permission for residential use.

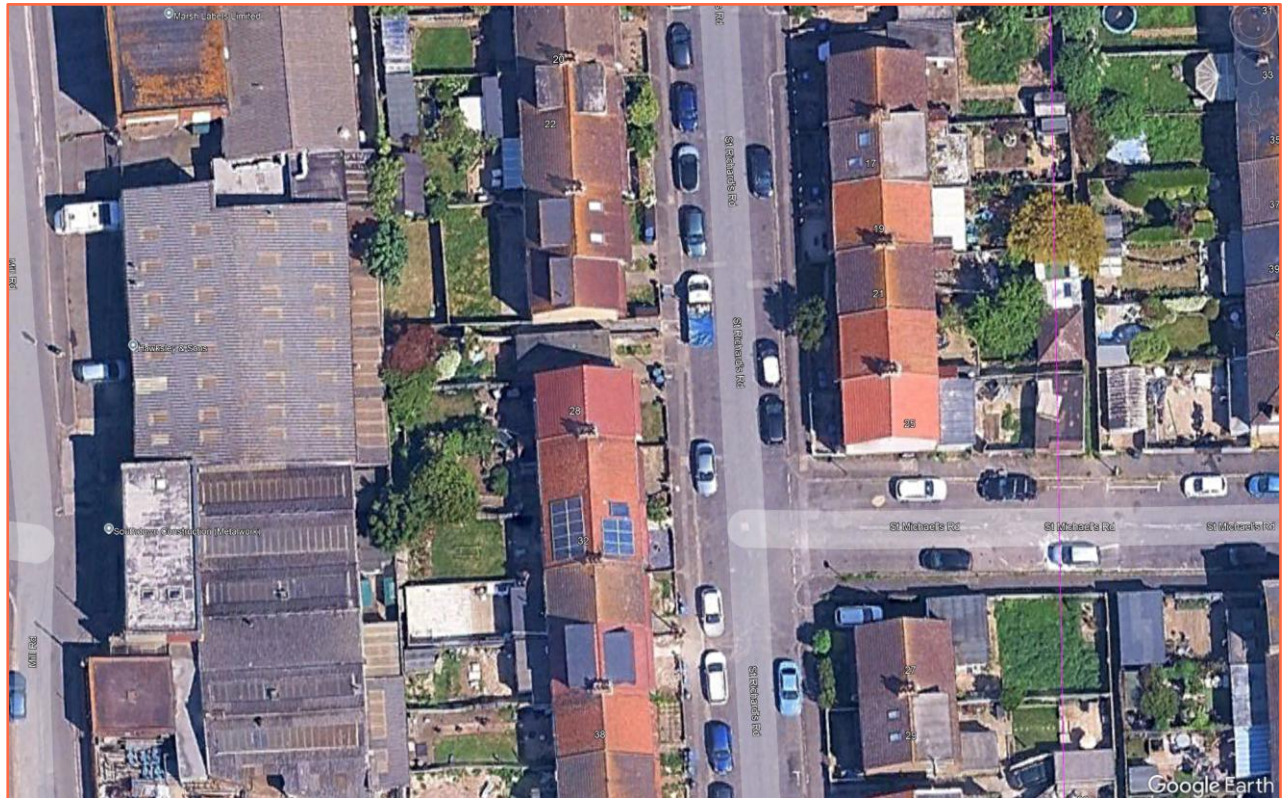


Figure 1: Aerial imagery of site and surrounding area (Source: Google Earth)

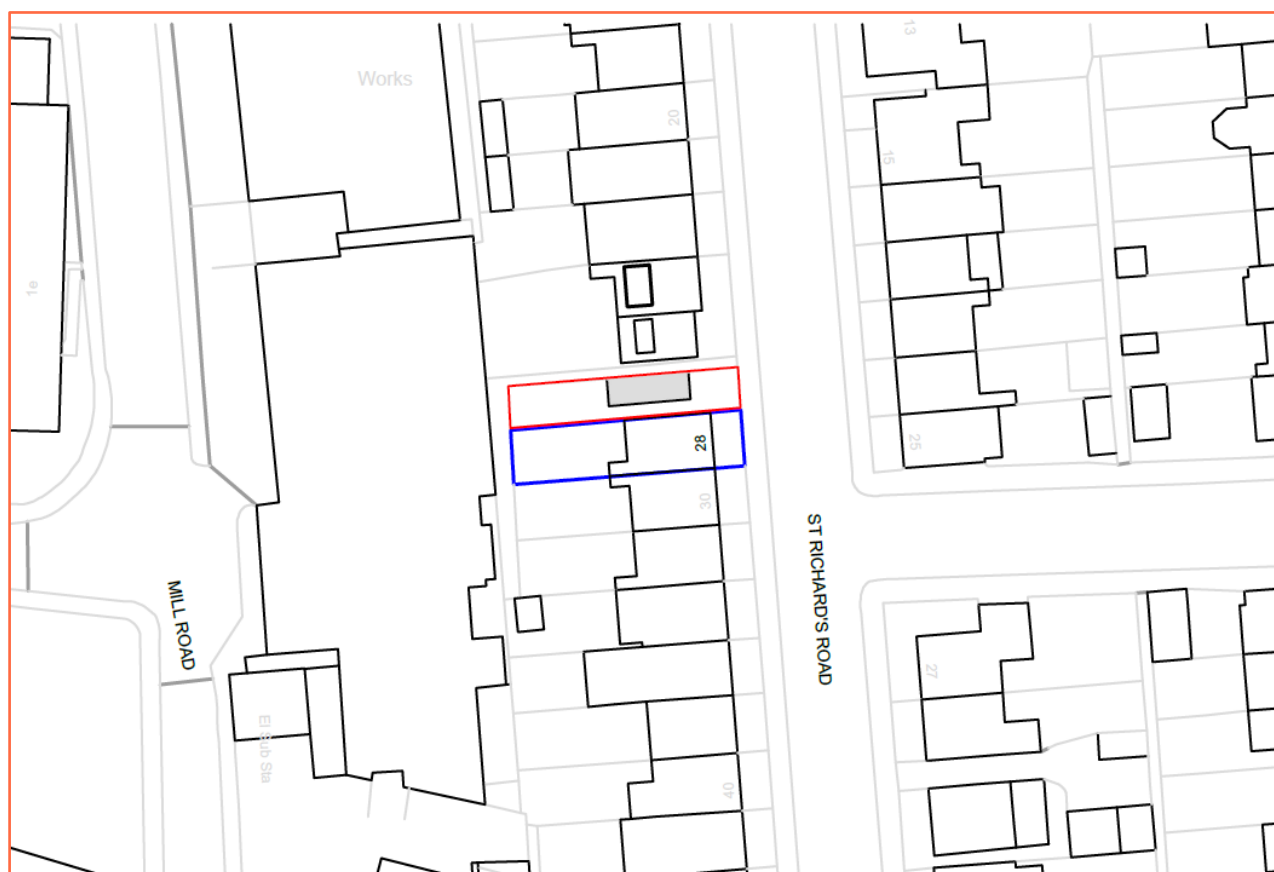


Figure 2: Site location plan (Source: Applicant)

Site Topography:

- 2.3. Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LiDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to +/-5cm to 15cm with spatial resolutions ranging from 25cm to 2 metres. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LiDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.
- 2.4. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately 13.50mAOD to 14.50mAOD. The site slopes generally down from west to east.

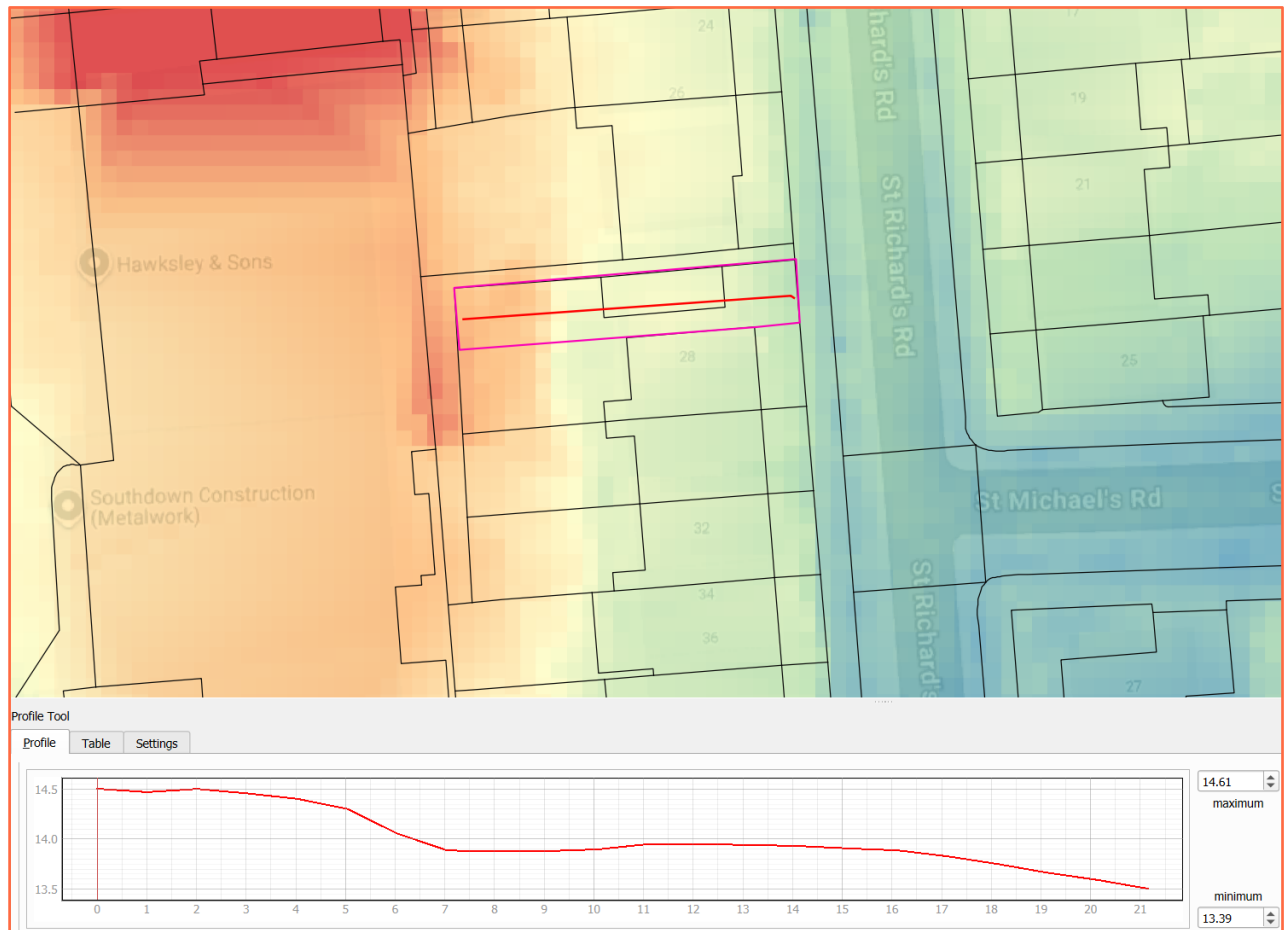


Figure 3: EA 1m LiDAR DTM. Transect (shown by red line) runs from northwest to southeast (Source: EA, Google)

Existing Ground Conditions:

- 2.5. The 1:50,000 BGS map shows that the bedrock underlying the site is Tarrant Chalk Member - Chalk.
- 2.6. The BGS mapping shows superficial deposits of River Terrace Deposits (Undifferentiated) - Sand, silt and clay underlying the site.

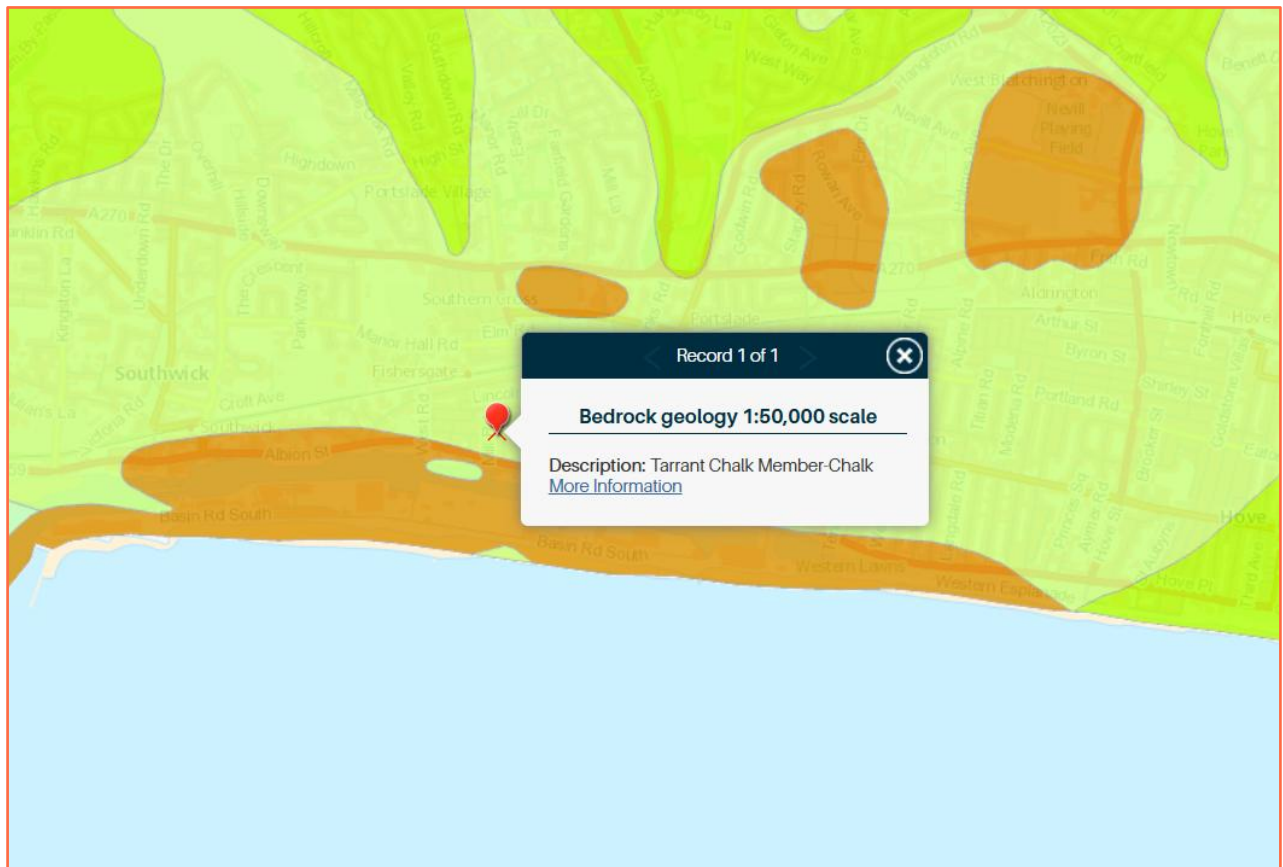


Figure 4: BGS Bedrock Geology (Source: BGS)

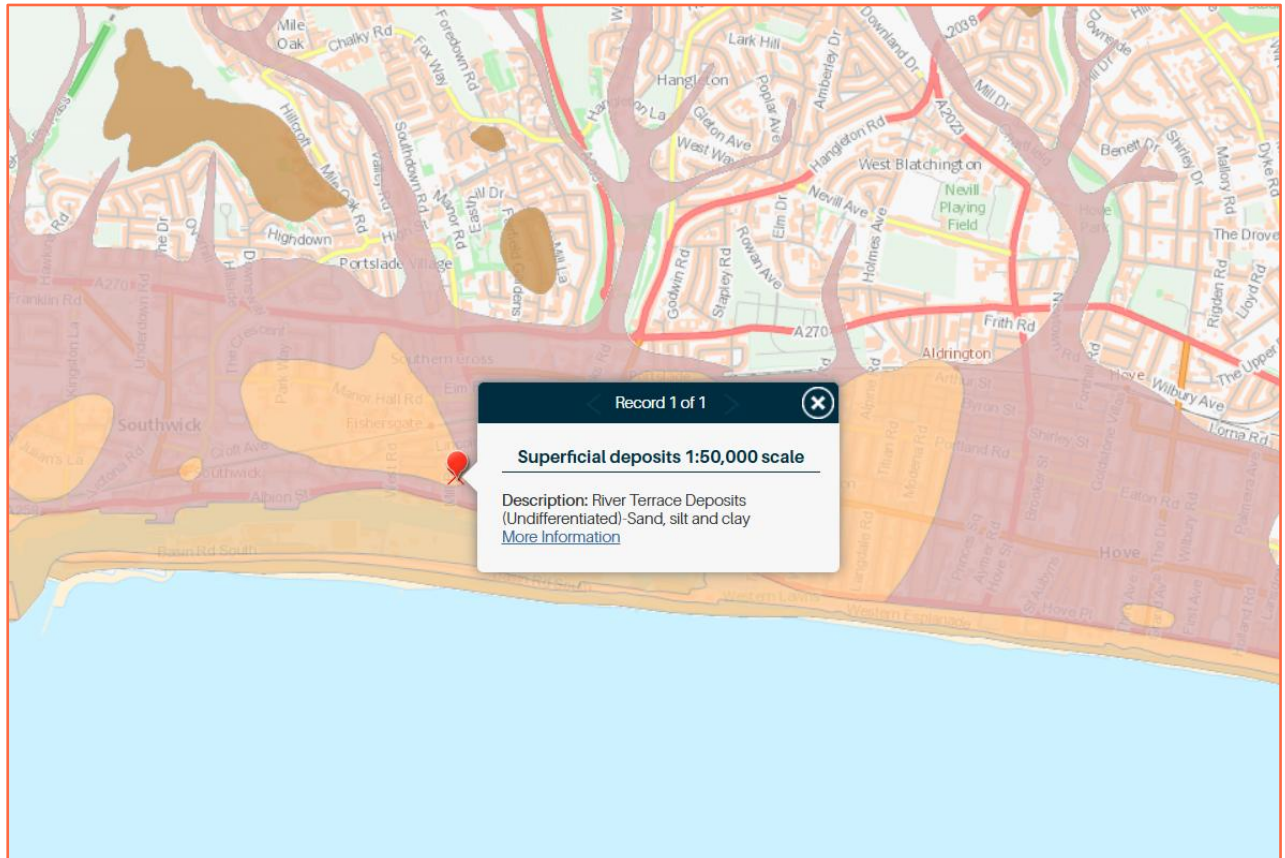


Figure 5: BGS superficial deposits (Source: BGS)

3. Development Proposal

3.1. The proposed application is for the Erection of a new dwelling.

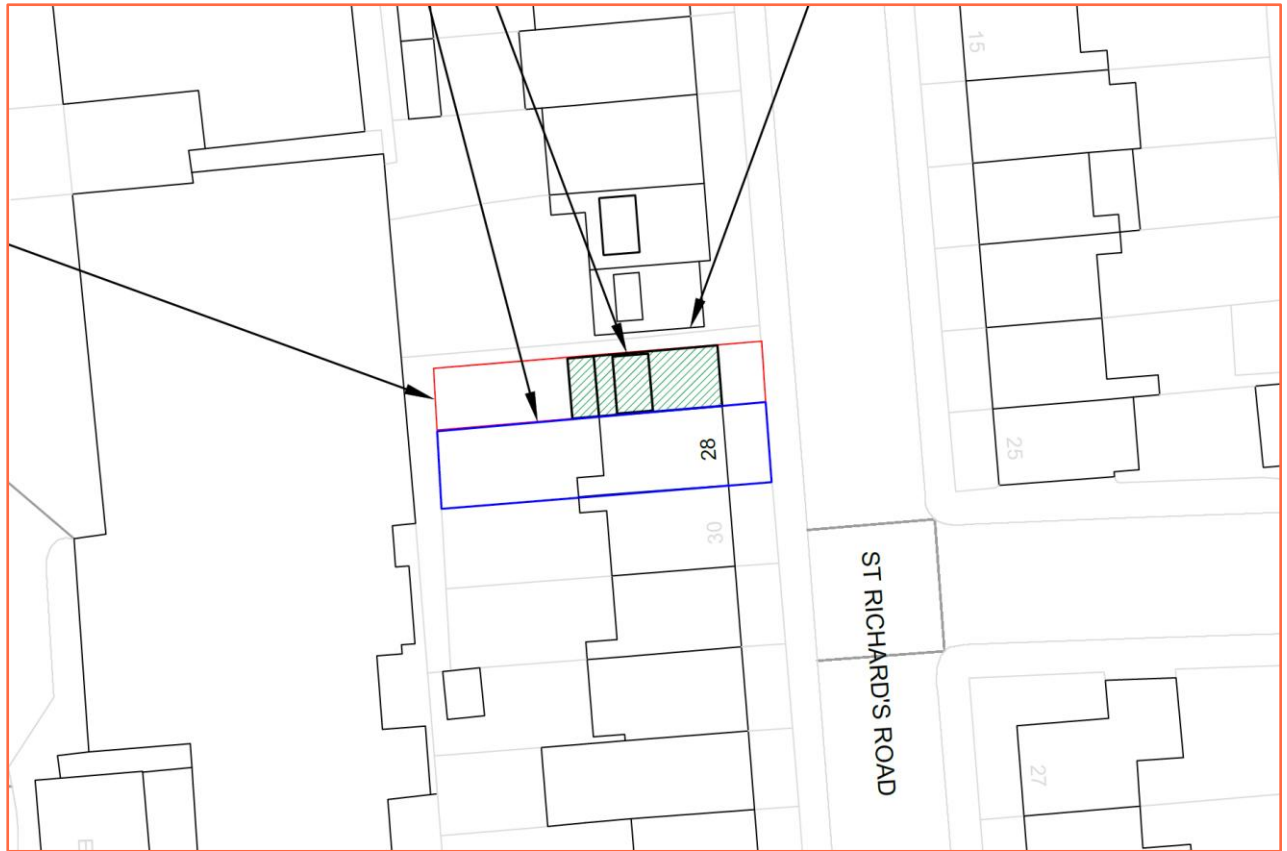


Figure 6: Proposed site plan (Source: Applicant)

4. Groundwater Flood Risk Assessment

- 4.1. This report presents a groundwater flood risk assessment that considers the risk of groundwater flooding in and around the development.

Hydrogeology:

- 4.2. The site lies over the white chalk subgroup, which is characterised as a highly productive aquifer. Flow in the chalk is virtually all through fractures and other discontinuities.
- 4.3. The white chalk subgroup is a principal aquifer in the UK, and is up to 450m thick and yielding 50 to 100 l/s from large diameter boreholes and up to 300 l/s from adited systems.



Figure 7: Hydrogeology (Source: BGS)

- 4.4. The Bedrock Aquifer Designation Map shows the site to be located over a Principal Bedrock Aquifer.
- 4.5. The Superficial Drift Aquifer Designation Map shows the site to be located over a Secondary Superficial Drift Aquifer.

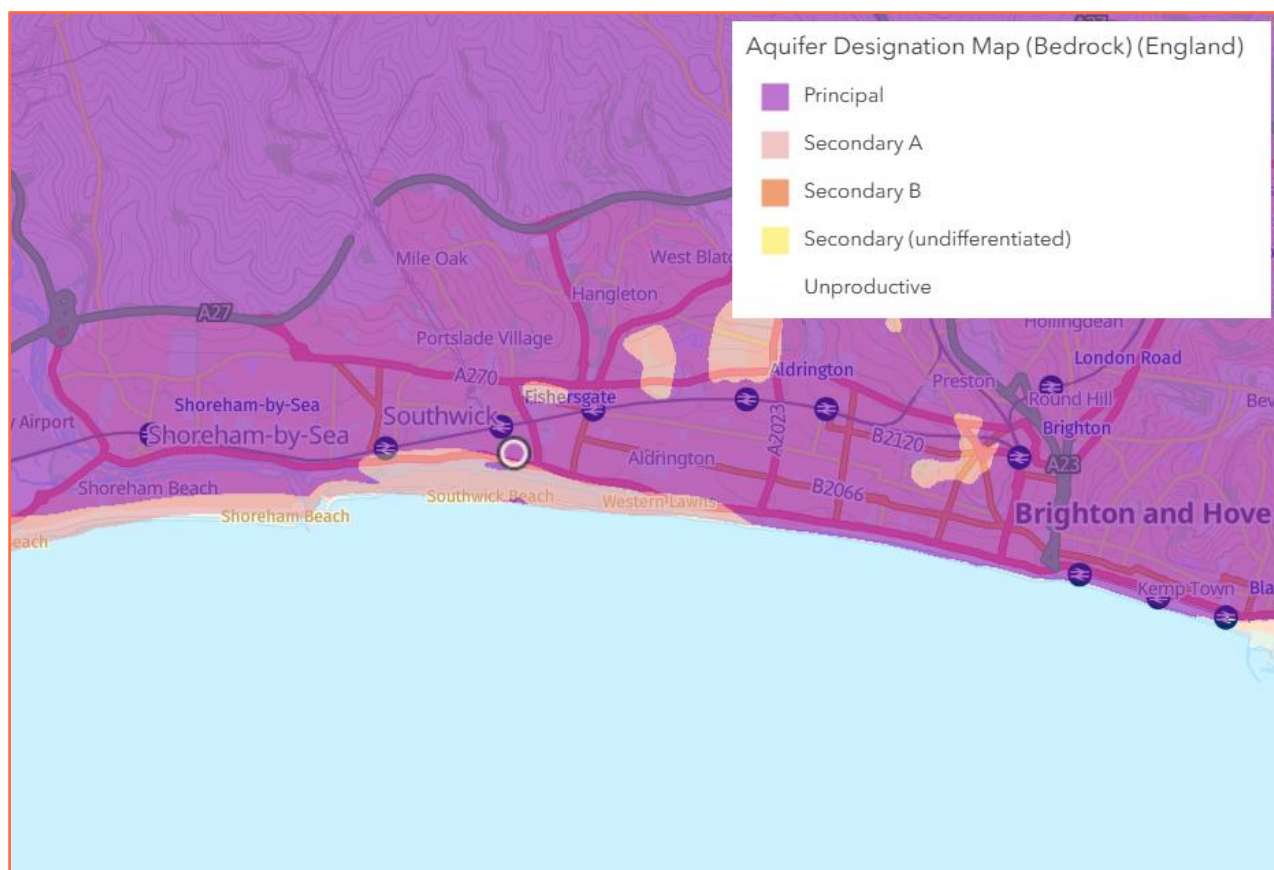


Figure 8: Bedrock Aquifer Designation Map (Source: BGS, Magic)



Figure 9: Superficial Drift Aquifer Designation Map (Source: BGS, Magic)

Source Protection Zones:

- 4.6. The Environment Agency also defines Groundwater Source Protection Zones in the vicinity of groundwater abstraction points, as shown on Defra's MAGIC map portal. These areas are defined to protect areas of groundwater that are used for potable supply, including public/private potable supply, (including mineral and bottled water) or for use in the production of commercial food and drinks, from any activity that may cause pollution. The Groundwater SPZ requires attenuated storage of runoff to prevent infiltration and contamination.
- 4.7. The definition of each zone is shown below:
- **Zone 1 (Inner Protection Zone)** – Most sensitive zone: defined as the 50-day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres.
 - **Zone 1c (Inner Protection Zone – subsurface activity only)** – Extends Zone 1 where the aquifer is combined and may be impacted by deep drilling activities.
 - **Zone 2 (Outer Protection Zone)** – Also sensitive to contamination: defined by a 400-day travel time from a point below the water table. This zone has a 250 or 500 meter minimum radius around the source, depending on the size of the abstraction.
 - **Zone 2c (Outer Protection Zone – subsurface activity only)** – Extends Zone 2 where the aquifer is confined and may be impacted by deep drilling activities.
 - **Zone 3 (Total Catchment)** -Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source. In confined aquifers, the source catchment may be displaced some distance from the source. For heavily exploited aquifers, the final Source Catchment Protection Zone can be defined as the whole aquifer recharge area where the ratio of groundwater abstraction to aquifer recharge (average recharge multiplied by outcrop area) is >0.75 . Individual source protection areas will still be assigned to assist operators in catchment management.
 - **Zone 4 (Zone of special interest)** – A fourth zone; SPZ4 or 'Zone of Special Interest' usually represents a surface water catchment which drains into the aquifer feeding the groundwater supply (i.e. catchment draining to a disappearing stream). In the future this zone will be incorporated into one of the other zones, SPZ 1, 2 or 3, whichever is appropriate in the particular case, or become a safeguard zone.
- 4.8. The locations of Groundwater SPZs are shown in the 2024 Adur and Worthing Strategic Flood Risk Assessment (SFRA), covering parts of the areas around Shoreham, Broadwater and Salvington to the south of the South Downs National Park.
- 4.9. The site is shown to be outside of a Source Protection Zone.

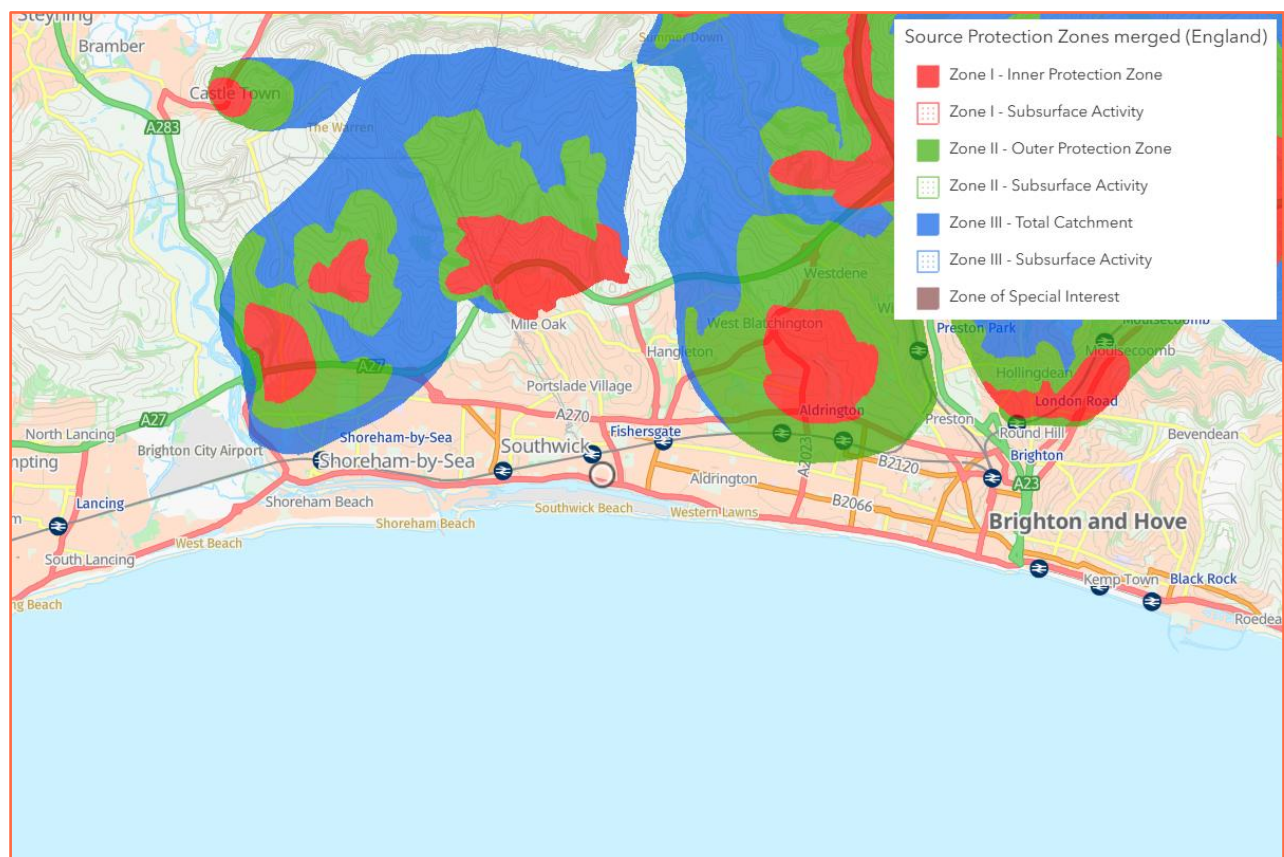


Figure 10: Source Protection Zones (Source: BGS, Magic)

Groundwater Flooding:

- 4.10. Groundwater flooding is the term used to describe flooding caused by unusually high groundwater levels. It occurs as excess water emerges at the ground surface or within manmade underground structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, in some cases lasting for weeks or months, and it can result in significant damage to property.
- 4.11. The 2024 Adur and Worthing SFRA states that a large proportion of Worthing Borough is predicted to be at risk of groundwater flooding emergence, with some of the highest risk areas around Durrington, Goring and East Worthing. In Adur District the areas predicted to be at the highest risk of groundwater flooding emergence are Sompting and Lancing, as well as areas of Shoreham. The majority of the study area is underlain by chalk bedrock, including the elevated land in the north of Adur and Worthing that forms the South Downs. Rain can infiltrate the chalk through large fissures into the underlying aquifers and is released slowly through springs further downslope. As such, many of the areas identified as being at the highest risk of groundwater flooding emergence are at the base of the South Downs.

Historical Flooding:

- 4.12. The 2024 Adur and Worthing SFRA states that groundwater flooding has been recorded in Sompting, North Lancing and Durrington. There have been several recorded incidents of sewer flooding across the Local Plan areas, with Durrington, Salvington and Lancing some of the most frequently affected areas.
- 4.13. No records of historic flooding in the vicinity of the site have been provided.

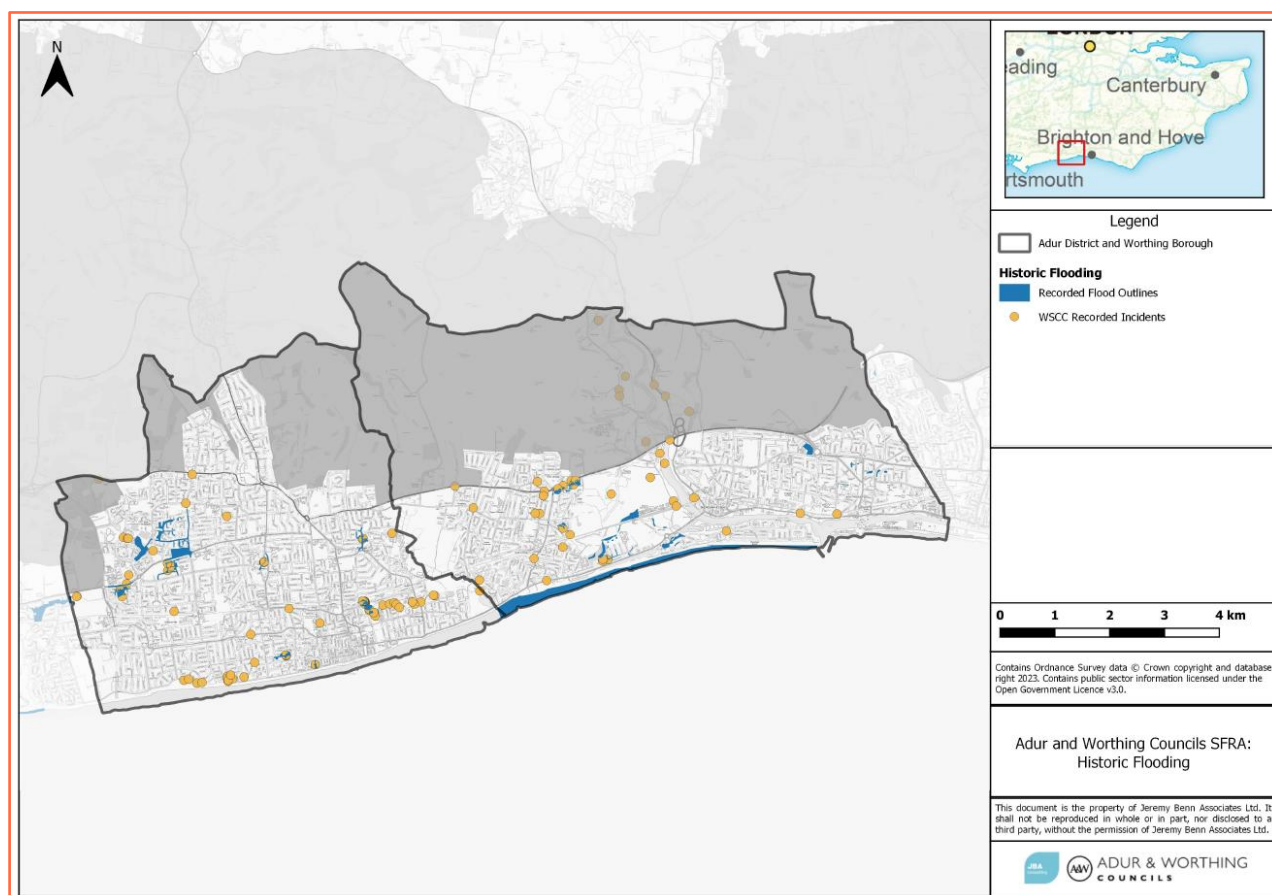


Figure 11: Historic Flooding (Source: 2024 Adur and Worthing SFRA)

Groundwater Emergence (JBA):

- 4.14. The 2024 Adur and Worthing SFRA uses the JBA Groundwater Map to identify areas at risk of groundwater emergence.
- 4.15. JBA has developed a Groundwater Flood Map product at the national scale. The 5m resolution JBA Groundwater map has been used within the SFRA. The modelling involves simulating groundwater levels for a range of return periods (including 75, 100 and 200-years). Groundwater levels are then compared to ground surface levels to determine the head difference in metres. The JBA Groundwater Map categorises the head difference (m) into five feature classes based on the 100-year model outputs.
- 4.16. It should be noted that the JBA Groundwater Flood Emergence Map is suitable for general broad-scale assessment of the groundwater flood hazard in an area but is not explicitly designed for the assessment of flood hazard at the scale of a single property. The dataset also shows the risk of emergence of groundwater rather than the actual flood risk from groundwater flooding. As a result, in high risk areas a site-specific risk assessment for groundwater flooding is recommended to fully inform the likelihood of flooding.
- 4.17. The JBA mapping divides groundwater emergence into five categories:
- Groundwater levels are either at or very near (within 0.025m of) the ground surface. Within this zone there is a risk of groundwater flooding to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots.
 - Groundwater levels are between 0.025m and 0.5m below the ground surface. Within this zone there is a risk of groundwater flooding to both surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.

- Groundwater levels are between 0.5m and 5m below the ground surface. There is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely.
- Groundwater levels are at least 5m below the ground surface. Flooding from groundwater is not likely.
- No risk. This zone is deemed as having a negligible risk from groundwater flooding due to the nature of the local geological deposits.

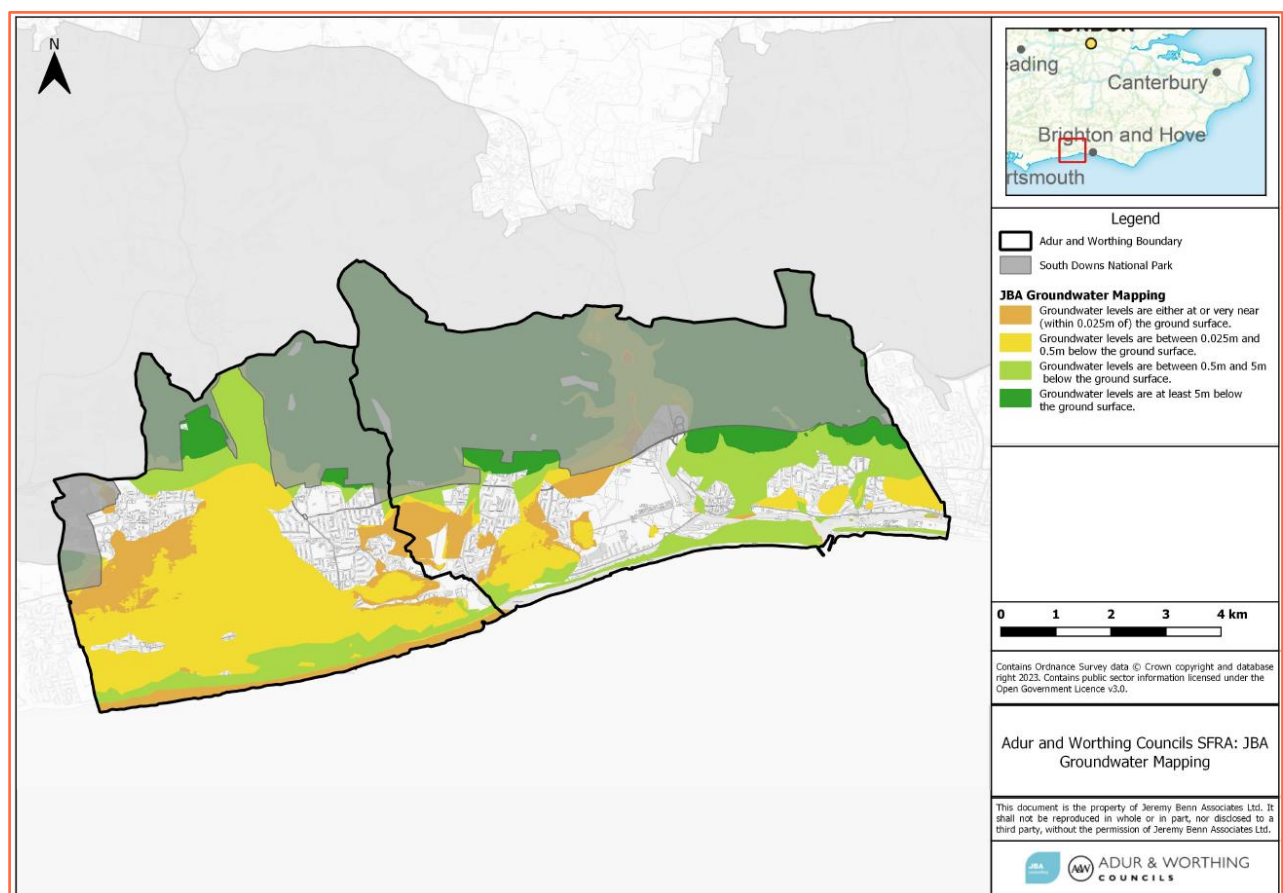


Figure 12: JBA Groundwater Mapping (Source: 2024 Adur and Worthing SFRA)

- 4.18. The JBA Groundwater Flood Map identifies a large proportion of the Worthing Borough to be at risk of groundwater emergence flooding with areas of the highest risk within Durrington, Goring and East Worthing. In the Adur District, areas at the highest risk are within Sompting and Lancing, as well as areas of Shoreham. High risk within the study area is as a result of the underlain chalk bedrock and elevated land in the form of the South Downs. Rain can infiltrate the chalk through large fissures into the underlying aquifers and is released slowly through springs further downslope. As such, many of the areas identified as being at the highest risk of groundwater emergence are at the base of the South Downs.

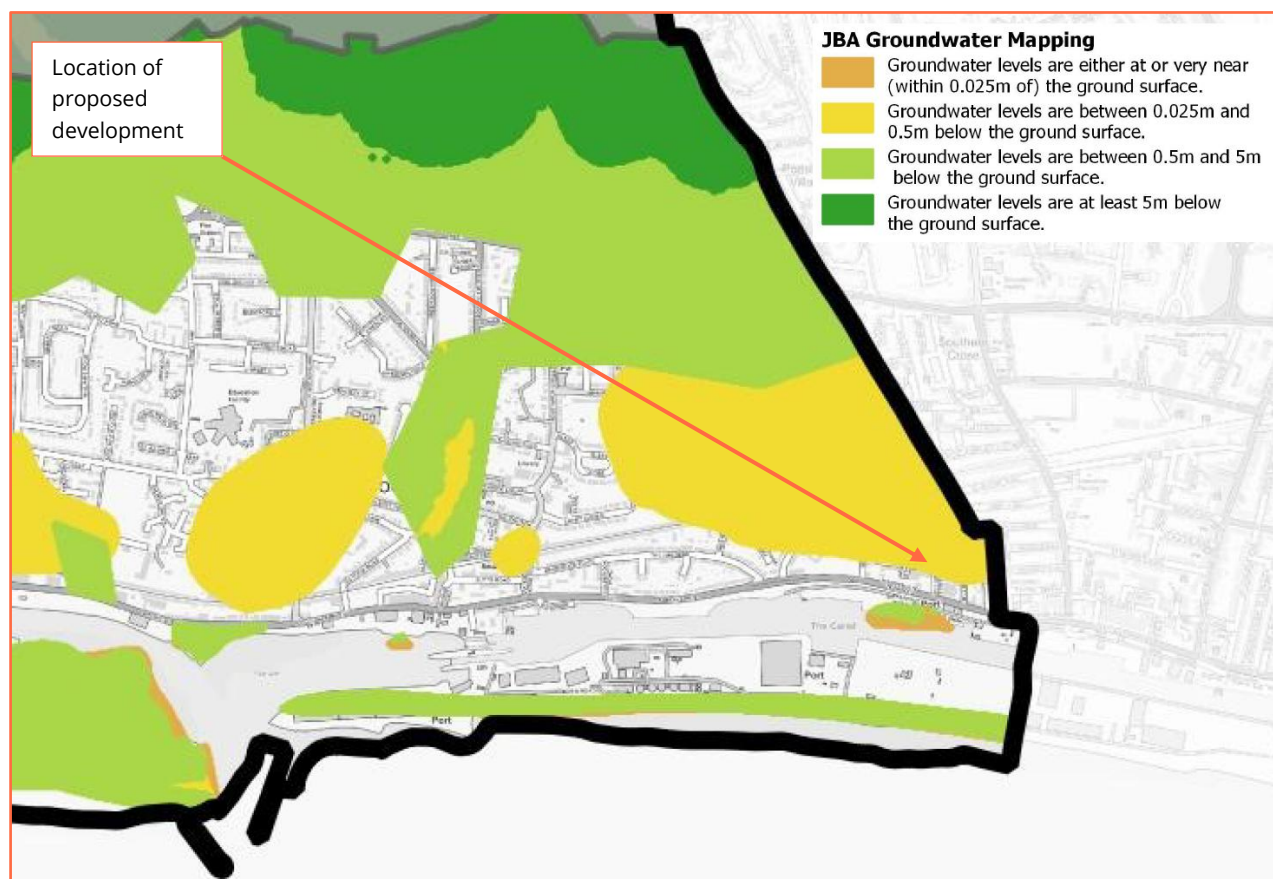


Figure 13: Zoomed in view of JBA Groundwater Mapping (Source: 2024 Adur and Worthing SFRA)

4.19. The JBA Groundwater Flood Map shows the site to fall within an area where Groundwater Levels are predicted to be between 0.025m and 0.5m below the ground surface.

Groundwater Emergence – Climate Change (JBA):

- 4.20. JBA has carried out a technical assessment of the future impact of sea level rise upon groundwater emergence risk within Adur and Worthing, to understand how increases in tidal levels associated with climate change may impact groundwater.
- 4.21. The site is shown to be within an area which is above the future tidal level. The site is not shown to be with an area which is at tidally influenced groundwater flood risk.

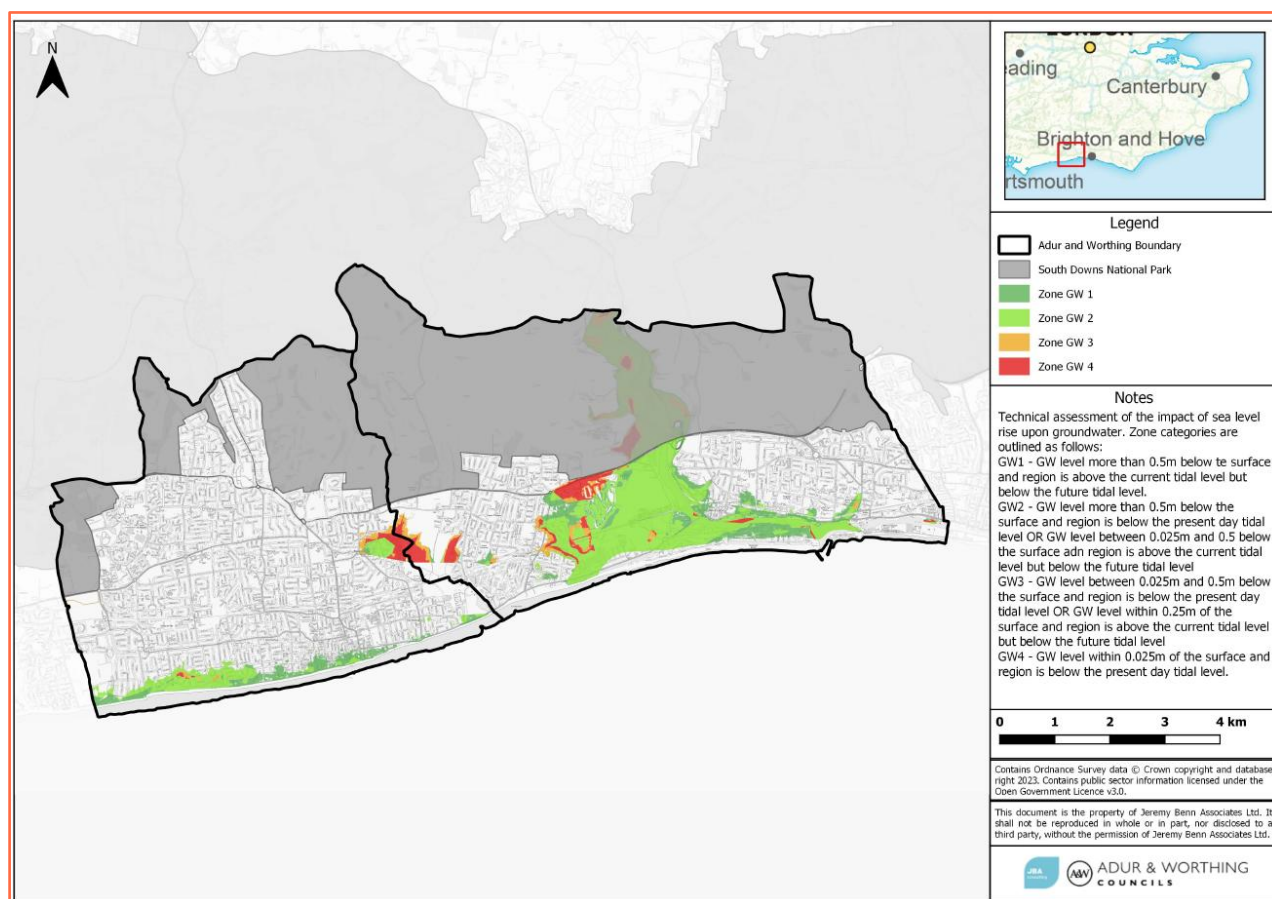


Figure 14: JBA Groundwater Flood Risk – Climate Change (Source: 2024 Adur and Worthing SFRA)

Groundwater Flood Risk Map (GeoSmart):

- 4.22. GeoSmart offer groundwater flood risk maps at a range of scales and risk resolutions.
- 4.23. GeoSmart's national groundwater flood risk model takes advantage of all the available data and provides a preliminary indication of groundwater flood risk on a 5m grid for the selected area of coverage on the GW5 map. The approach is consistent with latest best practice for such assessments and based on authoritative science and quality assured methods.
- 4.24. Mapped classes combine the understanding of likelihood, model and data uncertainty and possible severity. Likelihood is ranked according to whether a chance of groundwater flooding greater than 1% annual probability of occurrence at a site is expected due to extreme elevated groundwater levels. Severity relates to the expectations of the amount of property damage or other harm that groundwater flooding at that location might cause. Uncertainty relates to the confidence that the map accurately represents locations where groundwater may emerge and cause flooding.
- 4.25. The map classification shows on a national mapping scale the areas within which property may be at risk, but this should not be mistaken to mean that groundwater floods will occur across the whole of the High Risk area. Mapping limitations and a number of local factors may reduce groundwater flood risk to land and property even where it lies within mapped groundwater flood risk zones. Overall risk is presented on the map showing areas with a >1% annual probability of groundwater flooding within the following classes:
- **CLASS 4: NEGLIGIBLE RISK:** There is a negligible risk of groundwater flooding in this area and any groundwater flooding incidence has a chance of less than 1% annual probability of occurrence.

Comments: No further investigation of risk is deemed necessary unless proposed site use is unusually sensitive. However, data may be lacking in some areas, so assessment as 'negligible risk' on the basis of the map does not rule out local flooding due to features not currently represented in the national datasets used to generate this version of the map.

- CLASS 3: LOW RISK: There is a low risk of groundwater flooding in this area with a chance of greater than 1% annual probability of occurrence.

Comments: There will be a remote possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location. For sensitive land uses further consideration of site topography, drainage, and historical information on flooding in the local area should be undertaken by a suitably qualified professional. Should there be any flooding it is likely to be limited to seepages and waterlogged ground, damage to basements and subsurface infrastructure, and should pose no significant risk to life. Surface water flooding, however, may be exacerbated when groundwater levels are high.

- CLASS 2: MODERATE: There is a moderate risk of groundwater flooding in this area with a chance of greater than 1% annual probability of occurrence.

Comments: There will be a significant possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location. Where flooding occurs it is likely to be in the form of shallow pools or streams. There may be basement flooding, but road or rail closures should not be needed and flooding should pose no significant risk to life. Surface water flooding and failure of drainage systems may be exacerbated when groundwater levels are high. Further consideration of the local level of risk and mitigation, by a suitably qualified professional, is recommended.

- CLASS 1: HIGH: There is a high risk of groundwater flooding in this area with a chance of greater than 1% annual probability of occurrence or more frequent.

Comments: It is likely that incidence of groundwater flooding will occur, which could lead to damage to property or harm to other sensitive receptors at, or near, this location. Flooding may result in damage to property, road or rail closures and, in exceptional cases, may pose a risk to life. Surface water flooding and failure of drainage systems will be exacerbated when groundwater levels are high. Further consideration of the local level of risk and mitigation, by a suitably qualified professional, is recommended.

4.26. The GeoSmart map shows areas of potential groundwater emergence. Additionally, it is important to understand that the actual extent of above-ground flooding will be less than is indicated because of two mitigating factors:

- National groundwater flooding models do not take into account the magnitude of flows emerging from the ground. Therefore, while groundwater heads might be indicative of groundwater emergence, the actual amount of flow might not be sufficient to cause flooding at that location (although the accumulated flows downstream might be).
- Even if emergent groundwater was at a rate sufficient to cause local flooding, the nature of the urban man-made subsurface tends to drain water away before it reaches the surface. Sewers, granular fill around utilities and road sub-grade are all highly permeable formations that would be able to drain quite high groundwater flows away. This tends to move the groundwater flooding problem down the catchment.



Figure 15: GeoSmart GW5 Groundwater Flood Risk Map (Source: Geosmart)



Figure 16: Zoomed-in view of GeoSmart GW5 Groundwater Flood Risk Map (Source: Geosmart)

- 4.27. The GeoSmart GW5 Groundwater Flood Risk Map shows the majority of the site to be at Negligible risk of groundwater flooding.
- 4.28. A small part at the front of the site (the east) is shown to be at Low risk of groundwater flooding.

- 4.29. It is considered a reasonable assessment that GeoSmart's GW5 (Groundwater Flood Risk) map shows predominantly negligible groundwater risk at the site, even though the site is on chalk bedrock with River Terrace superficial deposits, for the following reasons:
- Although chalk is a highly permeable aquifer, it has a very high storage capacity, and a tendency for infiltration to percolate downward rather than cause near-surface emergence. This means many chalk areas rarely experience groundwater emergence at the surface, even if groundwater levels fluctuate significantly. Recharge tends to percolate downwards and move laterally within the chalk in this area.
 - The Portslade and Fishersgate area lies on the coastal plain at the southern margin of the South Downs, where chalk bedrock forms a regionally important aquifer that drains southwards towards the coast. At the site, River Terrace Deposits overlie chalk bedrock, forming a permeable and hydraulically connected system that facilitates groundwater movement. In such settings, groundwater is typically regionally controlled and freely draining towards coastal discharge zones, rather than ponding locally at the surface.
 - The GeoSmart GW5 Groundwater Flood Risk Map classifies the site as being predominantly at negligible risk of groundwater flooding, defined as less than a 1% annual probability of occurrence. This dataset incorporates consideration of groundwater flow behaviour, the magnitude of groundwater emergence, and the influence of urban drainage systems, rather than solely groundwater depth. The GeoSmart user guidance confirms that areas identified as having shallow groundwater may not experience flooding where flow volumes are insufficient or where drainage pathways are present.
 - Accordingly, whilst the SFRA mapping identifies the potential for shallow groundwater at a strategic level, this does not translate to a material risk of groundwater flooding at the site. Taking into account the local hydrogeological setting of the Portslade–Fishersgate coastal plain, the permeable geology, and the GeoSmart assessment, the risk of groundwater flooding is considered to be negligible.
 - There is limited evidence of historic groundwater flooding. GW5 incorporates historic incident data and calibration against known problem areas. No recorded groundwater flooding incident records have been provided around the site.
- 4.30. As such, there is no evidence that suggests that the site might be at risk of groundwater flooding.

BGS Borehole Records

- 4.31. In order to refine the understanding of groundwater conditions at the site, British Geological Survey (BGS) borehole records in the vicinity have been reviewed.
- 4.32. The BGS Borehole records in closest proximity to the site can be seen in the figure below.



Figure 17: BGS Borehole records in close proximity to the site (Source: BGS)

- 4.33. The closest available boreholes indicate groundwater rest levels of 40 feet to 45 feet (approximately 12m to 14m) below ground level, which is substantially deeper than the shallow groundwater depths indicated by the SFRA screening dataset.
- 4.34. Whilst it is recognised that borehole data represents point-specific measurements and that groundwater levels may vary seasonally and during periods of prolonged rainfall, these observations provide evidence that groundwater levels in the local area are typically maintained at depth within the chalk aquifer. This is consistent with the hydrogeological behaviour of chalk, where groundwater is regionally controlled and flows through fractures towards coastal discharge zones.

5. Discussion and Conclusion

- 5.1. Unda Consulting Limited have been appointed by Premier Properties (Brighton) Ltd to undertake a Groundwater Flood Risk Assessment for the proposed development at Plot Adjacent to 28a St. Richards Road, Portslade, Brighton, BN41 1PA. The purpose of the study is to support a planning application for the proposed development.
- 5.2. The site comprises of an existing dwelling with an outbuilding / garage adjacent.
- 5.3. The proposed application is for the Erection of a new dwelling.
- 5.4. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately 13.50m AOD to 14.50m AOD. The site slopes generally down from west to east.
- 5.5. The 1:50,000 BGS map shows that the bedrock underlying the site is Tarrant Chalk Member - Chalk.
- 5.6. The BGS mapping shows superficial deposits of River Terrace Deposits (Undifferentiated) - Sand, silt and clay underlying the site.
- 5.7. The site lies over the white chalk subgroup, which is characterised as a highly productive aquifer. Flow in the chalk is virtually all through fractures and other discontinuities.
- 5.8. The Bedrock Aquifer Designation Map shows the site to be located over a Principal Bedrock Aquifer.
- 5.9. The Superficial Drift Aquifer Designation Map shows the site to be located over a Secondary Superficial Drift Aquifer.
- 5.10. The site is shown to be outside of a Source Protection Zone.
- 5.11. No records of historic flooding in the vicinity of the site.
- 5.12. The JBA Groundwater Flood Map shows the site to fall within an area where Groundwater Levels are predicted to be between 0.025m and 0.5m below the ground surface.
- 5.13. The GeoSmart GW5 Groundwater Flood Risk Map shows the majority of the site to be at Negligible risk of groundwater flooding. A small part at the front of the site (the east) is shown to be at Low risk of groundwater flooding.
- 5.14. It is considered a reasonable assessment that GeoSmart's GW5 (Groundwater Flood Risk) map shows predominantly negligible groundwater risk at the site, even though the site is on chalk bedrock with River Terrace superficial deposits, for the following reasons:
 - Although chalk is a highly permeable aquifer, it has a very high storage capacity, and a tendency for infiltration to percolate downward rather than cause near-surface emergence. This means many chalk areas rarely experience groundwater emergence at the surface, even if groundwater levels fluctuate significantly. Recharge tends to percolate downwards and move laterally within the chalk in this area.
 - The Portslade and Fishersgate area lies on the coastal plain at the southern margin of the South Downs, where chalk bedrock forms a regionally important aquifer that drains southwards towards the coast. At the site, River Terrace Deposits overlie chalk bedrock, forming a permeable and hydraulically connected system that facilitates groundwater movement. In such settings, groundwater is typically regionally controlled and freely draining towards coastal discharge zones, rather than ponding locally at the surface.
 - The GeoSmart GW5 Groundwater Flood Risk Map classifies the site as being predominantly at negligible risk of groundwater flooding, defined as less than a 1% annual probability of occurrence. This dataset incorporates consideration of groundwater flow behaviour, the magnitude of groundwater emergence, and the influence of urban drainage systems, rather than solely groundwater depth. The GeoSmart user

guidance confirms that areas identified as having shallow groundwater may not experience flooding where flow volumes are insufficient or where drainage pathways are present.

- Accordingly, whilst the SFRA mapping identifies the potential for shallow groundwater at a strategic level, this does not translate to a material risk of groundwater flooding at the site. Taking into account the local hydrogeological setting of the Portslade-Fishersgate coastal plain, the permeable geology, and the GeoSmart assessment, the risk of groundwater flooding is considered to be negligible.
- There is limited evidence of historic groundwater flooding. GW5 incorporates historic incident data and calibration against known problem areas. No recorded groundwater flooding incident records have been provided around the site.

- 5.15. In order to refine the understanding of groundwater conditions at the site, British Geological Survey (BGS) borehole records in the vicinity have been reviewed.
- 5.16. The closest available boreholes indicate groundwater rest levels of approximately 40 to 45 feet (12m to 14m) below ground level, which is substantially deeper than the shallow groundwater depths indicated by the SFRA screening dataset.
- 5.17. Whilst it is recognised that borehole data represents point-specific measurements and that groundwater levels may vary seasonally and during periods of prolonged rainfall, these observations provide evidence that groundwater levels in the local area are typically maintained at depth within the chalk aquifer. This is consistent with the hydrogeological behaviour of chalk, where groundwater is regionally controlled and flows through fractures towards coastal discharge zones.
- 5.18. As such, there is no evidence that suggests that the site might be at risk of groundwater flooding.

Unda Consulting Limited
March 2026