	Strategic Flood Risk Assessment **Detailed Site Summary Tables** **Brighton City Airport (Formerly Shoreham Airport)**	

Site details	
Site Code	-
Address	Brighton City Airport (Formerly Shoreham Airport),
Area	92.0ha
Current land use	Brownfield (Commercial)
Proposed land use	Commercial
Flood Risk Vulnerability	Less Vulnerable
Sources of flood risk	
Location of the site within the administrative area	The site is situated within central areas of the Adur District, between Lancing and Shoreham-by-Sea. The site extends north to Old Shoreham Road (A27) and south to the West Coastway Railway Line and is located between the development at New Monks Farm and the River Adur. The site comprises of an airfield (Brighton City Airport), with commercial buildings located within both northeastern and southern areas of the site. Access is via Almond Avenue/Cecil Pashley Way from Old Shoreham Road.
Topography	The Environment Agency's 1m resolution 2022 Composite LiDAR indicates that the existing airfield is relatively flat and lower than surrounding areas, with elevations from 0.60–4.90m AOD. The lowest point is an attenuation feature near the western boundary; the highest elevations are in the southwest. *Shoreham Airport – Topography*
Existing drainage features	The River Adur is located approximately 15m east of the site, flowing in a southerly direction. There are three culverted watercourses that flow in a southerly direction through the centre of the site. These become open channel at the railway line before joining the River Adur. As part of the New Monks Farm development, changes were made to existing watercourses in the area. A watercourse flows across the northern boundary of the site, joining the River Adur at the surface water pumping station located on the eastern site boundary on Cecil Pashley Way. The Archimedes screw pumping station moves water from the watercourses into the River Adur. Two watercourses also converge on the western boundary before flowing across the south east of the site and under the railway line. All of these watercourses were developed and widened as part of the New Monks Farm development. An attenuation feature is located on the west boundary of the site.
Flood Map for Planning (Rivers and Sea)	**Available data and mapping:** Environment Agency Flood Map for Planning for Rivers and Sea. *Shoreham Airport - FMfP*

Data analysis: Details of the sites location within each Flood Zone are provided within the SFRA Site Screening Appendix.

Flood characteristics: The site is predominantly in Flood Zone 3 (94%), with smaller areas of Flood Zone 2 (4%) and Flood Zone 1 (2%), located within the southwest and northwest of the site. The primary flood risk is from the sea.

- Flood Zone 1 represents areas which have less than a 1 in 1000 (0.1%) chance of river or tidal flooding in a given year.
- Flood Zone 2 represents areas which have less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of river flooding or less than 1 in 200 (0.5%) but greater than 1 in 1000 (0.1%) chance of tidal flooding in a given year.
- Flood Zone 3 representing an area greater than 1 in 100 (1%) chance of river flooding in a given year or greater than 1 in 200 (0.5%) chance of tidal flooding.

Surface Water flooding should be considered. It is understood that additional Surface Water datasets will be published in 2025.

Tidal

Available data and mapping: Arun-Adur modelling – defended. The Environment Agency guidance recommends that the Higher Central (55%) and Upper End (107%) allowance is considered.

Depth
Shoreham Airport – Tidal – Present Day – 3.3%
Shoreham Airport – Tidal – Present Day – 0.5%
Shoreham Airport – Tidal – Present Day – 0.1%
Hazard
Shoreham Airport – Tidal – Present Day – 3.3%
Shoreham Airport – Tidal – Present Day – 0.5%
Shoreham Airport – Tidal – Present Day – 0.1%
Velocity
Shoreham Airport – Tidal – Present Day – 3.3%
Shoreham Airport – Tidal – Present Day – 0.5%
Shoreham Airport – Tidal – Present Day – 0.1%

Data analysis: Details of the site's location within the 2025 Arun-Adur modelling are provided within the Level 2 SFRA Site Screening Appendix.

3.3% AEP (1 in 30 year) event:

Proportion – 2%

Max Depth – 1.84m	Mean Depth – 0.98m
Max Velocity – 0.59m/s	Mean Velocity – 0.08m/s
Max Hazard – 1.90 – Danger to most	Mean Hazard – 1.50 – Danger to most

0.5% AEP (1 in 200 year) event:

Proportion – 2%

Max Depth – 2.02m	Mean Depth – 1.14m
Max Velocity – 0.59m/s	Mean Velocity – 0.08m/s
Max Hazard –1.99 – Danger to most	Mean Hazard – 1.58 – Danger to most

0.1% AEP (1 in 1000 year) event:

Proportion – 70%

Max Depth – 2.36m	Mean Depth – 0.26m
Max Velocity – 2.23m/s	Mean Velocity – 0.12m/s
Max Hazard – 3.15 – Danger to all	Mean Hazard – 0.84 – Danger to some

Flood characteristics: Tidal modelling indicates that the site is impacted during the 3.3% AEP (1 in 30 year), 0.5% AEP (1 in 200 year) and the 0.1% AEP (1 in 1000 year) events. In the 3.3% AEP (1 in 30 year) event, flooding extends 30m into the site from the east with a maximum depth of 1.84m. Mean depth and mean velocity during this event are 0.98m and 0.08m/s respectively. This equates to a mean hazard rating of 1.5 (Danger to most).

The flood extent remains similar for the 0.5% AEP (1 in 200 year) event. Although the mean depth increases to 1.14m, the hazard rating remains classified as 'Danger to most'.

In the 0.1% AEP (1 in 1000 year) event, the flood coverage increases to 70% of the site, with a maximum depth of 2.36m. The mean depth reduces as a result of the increased flood extent. The mean hazard rating is 0.84 (Danger to some).

Tidal with Climate Change

Available data and mapping: 2025 Arun-Adur modelling.

Depth – 70th percentile (higher central)
Shoreham Airport – Tidal – Future – 3.3%
Shoreham Airport – Tidal – Future – 0.5%
Hazard - 70th percentile (higher central)
Shoreham Airport – Tidal – Future – 3.3%
Shoreham Airport – Tidal – Future – 0.5%
Velocity -70th percentile (higher central)
Shoreham Airport – Tidal – Future – 3.3%
Shoreham Airport – Tidal – Future – 0.5%
Depth – 95th percentile (upper end)
Shoreham Airport – Tidal – Future – 3.3%
Shoreham Airport – Tidal – Future – 0.5%
Hazard - 95th percentile (upper end)
Shoreham Airport – Tidal – Future – 3.3%
Shoreham Airport – Tidal – Future – 0.5%
Velocity -95th percentile (upper end)
Shoreham Airport – Tidal – Future – 3.3%
Shoreham Airport – Tidal – Future – 0.5%

Data analysis: Details of the site's location within the 2025 Arun-Adur modelling are provided within the SFRA Site Screening Appendix.

3.3% AEP (1 in 30 year) + Higher Central Climate Change event:

Proportion – 65%

Max Depth – 3.71m	Mean Depth – 0.24m
Max Velocity – 3.64m/s	Mean Velocity – 0.1m/s
Max Hazard – 5.10 – Danger to all	Mean Hazard – 0.78 – Danger to some

3.3% AEP (1 in 30 year) + Upper End Climate Change event:

Proportion – 83%

Max Depth – 3.89m	Mean Depth – 0.54m

	Max Velocity – 3.75m/s Max Hazard – 5.26 – Danger to all Mean Velocity – 0.13m/s Mean Hazard – 1.26 – Danger to most **0.5% AEP (1 in 200 year) + Higher Central Climate Change event:** Proportion – 88% Max Depth – 3.51m Max Velocity – 2.82m/s Max Hazard – 3.53 – Danger to all Mean Depth – 1.43m Mean Velocity – 0.21m/s Mean Hazard – 1.85 – Danger to most **0.5% AEP (1 in 200 year) + Upper End Climate Change event:** Proportion – 91% Max Depth – 4.17m Max Velocity – 2.9m/s Max Hazard – 3.81 – Danger to all Mean Depth – 2.06m Mean Velocity – 0.25m/s Mean Hazard – 2.17 – Danger to all **Flood characteristics:** The site is shown to flood in all climate change events. During the 3.3% AEP (1 in 30 year) climate change events, up to 83% of the site is predicted to flood with maximum depths ranging between 3.71m (higher central) to 3.89m (upper end). The greatest of depths during these events are located within the northwestern areas of the site. For the higher central and upper end, mean depths range between 0.24-0.54m, with mean velocities ranging between 0.1-0.13m/s. As a result, the mean hazard rating for the Higher central is 0.78 (Danger to some), whilst the upper end is 1.26 (Danger to most). For the 0.5% AEP (1 in 200-year) climate change events, up to 91% of the site is predicted to flood with maximum depths ranging between 3.51m (higher central) and 4.17m (upper end). The greatest of depths remain within northwestern area of the site and now along the western boundary of the site. Between the higher central and upper end, mean depths range between 1.43-2.06m, with mean velocities of 0.21-0.25m/s. This results in a mean hazard rating of 1.85 (Danger to most) for the higher central event and 2.14 (Danger to all) for the upper end event.
Surface Water	**Available data and mapping:** Environment Agency Risk of Surface Water flooding for the 3.3%, 1% and 0.1% AEP events. It should be noted that the data discussed below relates to the available surface water data prior to March 2025, as the newly released data does not include depth, hazard and velocity information. Details on the coverage of the two surface water flooding datasets are discussed below and are detailed within the Site Screening document undertaken as part of the Level 2 SFRA. *Shoreham Airport – Surface Water Depth – Present Day – 3.3%* *Shoreham Airport – Surface Water Depth – Present Day – 1%* *Shoreham Airport – Surface Water Depth – Present Day – 0.1%* *Shoreham Airport – Surface Water Hazard – Present Day – 3.3%* *Shoreham Airport – Surface Water Hazard – Present Day – 1%* *Shoreham Airport – Surface Water Hazard – Present Day – 0.1%* *Shoreham Airport – Surface Water Velocity – Present Day – 3.3%* *Shoreham Airport – Surface Water Velocity – Present Day – 1%* *Shoreham Airport – Surface Water Velocity – Present Day – 0.1%*

	Strategic Flood Risk Assessment **Detailed Site Summary Tables** **Brighton City Airport (Formerly Shoreham Airport)**	
	Shoreham Airport – Surface Water – Present Day – NAFRA2 **Data analysis:** **1% AEP (1 in 100 year) event:** Proportion – <1% Max Depth – 0.53m Max Velocity – 0.69m/s Max Hazard – 1.26 – Danger to some Mean Depth – 0.23m Mean Velocity – 0.08m/s Mean Hazard – 0.77 – Danger to some **0.1% AEP (1 in 1000 year) event:** Proportion – 5% Max Depth – 0.89m Max Velocity – 0.97m/s Max Hazard – 1.45 – Danger to most Mean Depth – 0.24m Mean Velocity – 0.08m/s Mean Hazard – 0.80 – Danger to some **NAFRA2 - 3% AEP (1 in 30 year) event:** Proportion – 2% **NAFRA2 - 1% AEP (1 in 100 year) event:** Proportion – 4% **NAFRA2 - 0.1% AEP (1 in 1000 year) event:** Proportion – 14% **Description of surface water flow paths:** The site is shown to be at risk during the 1%AEP and the 0.1%AEP. In both scenarios isolated areas of surface water pools throughout the site. In the 1%AEP scenario, less than 1% of the site is impacted, with maximum depths of 0.53m and a hazard rating of 1.26, 'Danger to some'. The extent increases to 5% in the 0.1% scenario; surface water pools around the attenuation feature. In the 0.1% scenario the maximum depth and hazard is 0.89m and 1.45, 'Danger to some', respectively. The NAFRA2 dataset shows a greater proportion of surface water flood risk. Isolated areas of surface water are located across the whole site.	
Surface Water with Climate Change	**Available data and mapping:** Surface Water flooding for the 3.3%, 1% and 0.1% AEP events with climate change, using data available prior to March 2025. The Environment Agency guidance recommends that the Upper End allowance is considered for both the 3.3% and 1% AEPs for the 2070's epoch, unless the allowance for the 2050's epoch is higher, in which case this should be used. The recommended uplift on peak rainfall intensity for the 3.3% AEP is 40% and for the 1% AEP is 45%. <u>*Depth*</u> *Shoreham Airport – Surface Water – Future – 3.3%+20CC* *Shoreham Airport – Surface Water – Future – 3.3%+40CC* *Shoreham Airport – Surface Water – Future – 1%+25CC* *Shoreham Airport – Surface Water – Future – 1%+45CC* *Shoreham Airport – Surface Water – Future – 0.1%+25CC* *Shoreham Airport – Surface Water – Future – 0.1%+45CC* <u>*Hazard*</u> *Shoreham Airport – Surface Water – Future – 3.3%+20CC*	

Shoreham Airport – Surface Water – Future – 3.3%+40CC
Shoreham Airport – Surface Water – Future – 1%+25CC
Shoreham Airport – Surface Water – Future – 1%+45CC
Shoreham Airport – Surface Water – Future – 0.1%+25CC
Shoreham Airport – Surface Water – Future – 0.1%+45CC
Velocity
Shoreham Airport – Surface Water – Future – 3.3%+20CC
Shoreham Airport – Surface Water – Future – 3.3%+40CC
Shoreham Airport – Surface Water – Future – 1%+25CC
Shoreham Airport – Surface Water – Future – 1%+45CC
Shoreham Airport – Surface Water – Future – 0.1%+25CC
Shoreham Airport – Surface Water – Future – 0.1%+45CC

Data analysis:

3.3% AEP (1 in 30 year) + 20% Climate Change event:

Proportion – <1%
Max Depth – 0.46m
Mean Depth – 0.19m
Max Velocity – 0.30m/s
Mean Velocity – 0.05m/s
Max Hazard – 1.23 – Danger to some
Mean Hazard – 0.65 – Caution

3.3% AEP (1 in 30 year) + 40% Climate Change event:

Proportion – <1%
Max Depth – 0.55m
Mean Depth – 0.24m
Max Velocity – 0.40m/s
Mean Velocity – 0.06m/s
Max Hazard – 1.29 - Danger to most
Mean Hazard – 0.78 – Danger to some

1% AEP (1 in 100 year) + 25% Climate Change event:

Proportion – 7%
Max Depth – 0.88m
Mean Depth – 0.24m
Max Velocity – 0.95m/s
Mean Velocity – 0.08m/s
Max Hazard – 1.45 – Danger to most
Mean Hazard – 0.77 – Danger to some

1% AEP (1 in 100 year) + 45% Climate Change event:

Proportion – 13%
Max Depth – 0.95m
Mean Depth – 0.24m
Max Velocity – 0.96m/s
Mean Velocity – 0.08m/s
Max Hazard – 1.52 – Danger to most
Mean Hazard – 0.79 – Danger to some

0.1% AEP (1 in 1000 year) + 25% Climate Change event:

Proportion – 29%
Max Depth – 1.57m
Mean Depth – 0.28m
Max Velocity – 1.57m/s
Mean Velocity – 0.11m/s
Max Hazard – 2.02 – Danger to all
Mean Hazard – 0.91 – Danger to some

0.1% AEP (1 in 1000 year) + 45% Climate Change event:

Proportion – 34%
Max Depth – 1.68m
Mean Depth – 0.29m

	Max Velocity – 1.95m/s Max Hazard – 2.24 – Danger to all Mean Velocity – 0.12m/s Mean Hazard – 0.93 – Danger to some **Description of surface water flow paths:** The site is shown to flood during all climate change events. The surface water mapping shows that during the 3.3% AEP climate change events, less than 1% of the site is impacted by flooding. Surface water pools in isolated areas along the southern boundary of the site adjacent to the existing buildings. For the 1% AEP climate change events, surface water flooding covers up to 13% of the site. Water pools in isolated areas predominantly in the west of the site and around the attenuation feature. In the 0.1% climate change events, coverage increases to 34%, large areas of pooling water with depths up to 1.68m occur across the site. A surface water flow path runs across the centre of the site, flowing in a southerly direction. The mapping indicates that the surface water flood extents follow the existing water courses in the site for both the 1%AEP and 0.1% AEP climate change scenarios.
Tidally influenced Surface Water Risk Zone	**Available data and mapping:** JBA's Tidally influenced Surface Water Risk Zones derived using the RoFSW data, the Present day 1% AEP extreme tidal level, LiDAR data and the Environment Agency's climate change sea level uplift allowance for South East England. *Shoreham Airport – Tidal Drainage Risk Zones* **Flood characteristics:** The majority of the site is located within SW2 of the Surface Water Risk Zone Mapping. Within the northwestern and southwestern areas of the site, there are large patches of SW1, where elevations are higher than other areas of the site. Within the central western areas there is large patch of the site, which is in SW3 and there are very small, isolated areas within the site which are in SW4.
Groundwater	**Available data and mapping:** The JBA Groundwater Flood Data Map (GW5) is provided as a 5m resolution grid. *Shoreham Airport – Groundwater Flood Risk* **Flood characteristics:** During the 1% AEP groundwater flood event, the majority of the site is shown to be 'low risk', with no risk to groundwater flooding. A small area located along the northern boundary of the site is predicted to have a 'high risk' of groundwater flooding, where groundwater are either at or very near (within 0.025m of) the ground surface.
Tidally influenced Groundwater Risk Zone	**Available data and mapping:** JBA's Tidally influenced Groundwater Risk Zones derived using the JBA Groundwater data, the British Geological Society 50k bedrock mapping, the Present day 1% AEP extreme tidal level, LiDAR data and the Environment Agency's climate change sea level uplift allowance for South East England. *Shoreham Airport – Groundwater Risk Zones* **Flood characteristics:** The majority of the site is located within GW2 of the Groundwater Risk Zone mapping. Within the northwestern and

	southwestern areas of the site, there are large areas of GW1 and along the northern boundary there is an area classified as GW4. • GW0 - Above the future tidal level. • GW1 - Groundwater level more than 0.5m below the surface and region is above the current tidal level but below the future tidal level. • GW2 - Groundwater level more than 0.5m below the surface and region is below the present-day tidal level OR groundwater level between 0.025m and 0.5m below the surface and region is above the current tidal level but below the future tidal level. • GW3 - Groundwater level between 0.025m and 0.5m below the surface and region is below the present-day tidal level OR Groundwater level within 0.025m of the surface and region is above the current tidal level but below the future tidal level. • GW4 Groundwater level within 0.025m of the surface and region is below the present day tidal level.
Sewers	**Available data and mapping:** Drainage and Wastewater Management Plan (DWMP) Overview of the Adur and Ouse River Basin Catchment and Southern Water's Sewer Incident Report Form data (SIRF) at a five digit post code level. **Flood characteristics:** 39 reportable sewer incidents have occurred since 1990 within the five-digit postcode area of the proposed development site. Thes incidents have been attributed to hydraulic overload following rainfall.
Flood history	**Available data and mapping:** The Environment Agency's Recorded Flood Outlines dataset and WSCC recorded flood incidents. *Shoreham Airport – Historic Flooding* **Flood characteristics:** The site has been impacted by a number of flood incidents in the past. The Environment Agency's Recorded Flood Outlines dataset shows that flooding caused by local drainage/surface water in November 1960 occurred across the southern boundary of the site. According to data from WSCC, two flood incidents have been documented within the site, and a third flood incident occurred within a 50m radius of the site. One recorded flood event within the site occurred in November 1974, affecting the area now occupied by commercial and industrial units in the northeastern part of the site. This incident was attributed to inadequate drainage, which was significant enough to disrupt aircraft operations. The second on-site incident was attributed occurred in the southeast corner of the site, though the specific cause and date of this flooding remain unknown. The incident within 50m to the southeast of the site again.
Flood risk management infrastructure	
Existing Defences	The Environment Agency's AIMS dataset identifies a series of formal flood defences within the vicinity of the site. The industrial areas to the north of the site are defended by the asset 'Ricardo Wall A-E'. This wall

	is a privately owned asset with a Design Standard of Protection (SoP) of 0.5% AEP (1 in 200-year) flood event. Near to Old Shoreham Road and Shoreham Tollbridge, natural high ground with a design SOP of 1 in 25-year is maintained by private individual. Where the bridge starts, there is a slight gap between the natural high ground and wall which travels along the north eastern boundary of the site. This wall has a design SOP of 1 in 25-year and is maintained by a private individual. This wall then connects to Shoreham Airport Tidal Wall which cuts through the northeastern area of the site. This wall has a design SOP of 1 in 200 year and is privately maintained. The defence continues southwards as the Shoreham Airport Tidal Embankment located approximately 30m inside of the eastern site boundary. This embankment offers coastal protection and has a design SOP of 1 in 200-year and is privately maintained.
Residual risk	**Available data and mapping:** 2025 Arun-Adur modelling – breach scenario. Breach scenario 'a', 'c' and 'e'. *Depth* *Shoreham Airport – Breach A–3.3%* *Shoreham Airport – Breach A – 0.5%* *Shoreham Airport – Breach A – 0.1%* *Shoreham Airport – Breach B–3.3%* *Shoreham Airport – Breach B – 0.5%* *Shoreham Airport – Breach B – 0.1%* *Shoreham Airport – Breach C–3.3%* *Shoreham Airport – Breach C – 0.5%* *Shoreham Airport – Breach C – 0.1%* *Shoreham Airport – Breach D –3.3%* *Shoreham Airport – Breach D – 0.5%* *Shoreham Airport – Breach D – 0.1%* *Shoreham Airport – Breach E–3.3%* *Shoreham Airport – Breach E – 0.5%* *Shoreham Airport – Breach E – 0.1%* *Hazard* *Shoreham Airport – Breach A–3.3%* *Shoreham Airport – Breach A – 0.5%* *Shoreham Airport – Breach A – 0.1%* *Shoreham Airport – Breach B–3.3%* *Shoreham Airport – Breach B – 0.5%* *Shoreham Airport – Breach B – 0.1%* *Shoreham Airport – Breach C–3.3%* *Shoreham Airport – Breach C – 0.5%* *Shoreham Airport – Breach C – 0.1%* *Shoreham Airport – Breach D –3.3%* *Shoreham Airport – Breach D – 0.5%* *Shoreham Airport – Breach D – 0.1%* *Shoreham Airport – Breach E–3.3%* *Shoreham Airport – Breach E – 0.5%* *Shoreham Airport – Breach E – 0.1%* *Velocity* *Shoreham Airport – Breach A–3.3%* *Shoreham Airport – Breach A – 0.5%*

	Shoreham Airport – Breach A – 0.1% *Shoreham Airport – Breach B–3.3%* *Shoreham Airport – Breach B – 0.5%* *Shoreham Airport – Breach B – 0.1%* *Shoreham Airport – Breach C–3.3%* *Shoreham Airport – Breach C – 0.5%* *Shoreham Airport – Breach C – 0.1%* *Shoreham Airport – Breach D –3.3%* *Shoreham Airport – Breach D – 0.5%* *Shoreham Airport – Breach D – 0.1%* *Shoreham Airport – Breach E–3.3%* *Shoreham Airport – Breach E – 0.5%* *Shoreham Airport – Breach E – 0.1%* **Flood characteristics:** The site is impacted by flooding following breaches at locations 'a', 'c' and 'd'. In breach scenario 'a', where the defence failure occurs on the Shoreham Airport Tidal Embankment, adjacent to the site. The majority of the site is impacted in the 1%AEP event, with onset occurring immediately following the breach at location 'a' due to the site's proximity to the River Adur. Maximum depths are 2.49m. The site also floods in the 'd' breach scenario, with a similar flood extent to breach 'a'. The maximum depth in this scenario is 2.77m. The site is flooded immediately after the breach occurs. During a breach 'c' scenario the impact on the site is smaller. The southern site boundary is impacted 2 hours after the breach has occurred. Maximum depths during the 1%AEP for this breach are 2.29m. These greater depths are limited to the existing channels within the site. The mean depth is 0.27m. Due to the tidal nature of the River Adur, the extent of the breach impact is dependent on the tide height.
Emergency planning	
Flood warning	The site has been identified to be located within the Inland areas of Shoreham, Lancing and Southwick (065WAC409) Flood Alert Area and the Shoreham Town and Lancing (065FWC3002) Flood Warning Area. *Shoreham Airport – Flood Warning* Future residents should be encouraged to sign up to Environment Agency flood alerts and warnings.
Access and egress	**Tidal 0.5% AEP plus 55% climate change (higher central allowance)** Access and egress across the site are unavailable during the 0.5% AEP plus climate change tidal events as depths are greater than 1.6m on Cecil Pashley Road and greater than 0.5m on Old Shoreham Road. These areas have been classified as 'Danger to All' and 'Danger to most'. **Surface Water 1% AEP plus 45% climate change (upper end allowance)**

	Old Shoreham Road to the north of the site is not impacted during the surface water plus climate change event, however access is limited at Goshawk Rd and across the Shoreham Toll Bridge, with a hazard rating of 'Danger to most'. This limits movement away from the site.
Requirements for drainage control and impact mitigation	
Broad-scale assessment of possible SuDS	**Geology & Soils** The geology consists of the Newhaven Chalk Formation comprised of Chalk. The site is largely underlain by superficial deposits of Alluvium (clay, silt, sand and peat). The soils are shown to be loamy and clayey soils of coastal flats with naturally high groundwater. These soils are naturally wet and drain to local groundwater. The geology of the Adur District is complex; areas of chalk are often capped with small sections of clay. This can result in groundwater being trapped beneath the clay layer and surface water pooling at the surface unable to infiltrate. Groundwater may find a fissure in the clay and rise to the surface resulting in flooding that is difficult to predict in terms of location and scale. **SuDS** Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity and biodiversity. Evidence should be given where multiple benefits are not provided to show that this is not possible. Preference should be given to multi-functional sustainable drainage systems, and to solutions that allow surface water to be discharged according to the hierarchy of drainage options listed in the PPG Flood Risk and Coastal Change paragraph 056. The layout and function of drainage systems needs to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land. **Suitability and considerations for sustainable drainage** In line with Defra's National Standards for Sustainable Drainage Systems, runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy: • Priority 1: collected for non-potable use • Priority 2: infiltrated to ground • Priority 3: discharged to an above ground surface water body • Priority 4: discharged to a surface water sewer, or another piped surface water drainage system • Priority 5: discharged to a combined sewer

	SuDS measures should also follow West Sussex County Council's discharge hierarchy, and if it is proposed to discharge runoff to a watercourse or sewer system, the condition and capacity of the receiving watercourse or asset should be confirmed through surveys and the discharge rate agreed with the asset owner based on the National Standards for SuDS. Surface water discharge rates should not exceed pre-development discharge rates and aim to be restricted to Greenfield Qbar. If that is not possible; flow should be restricted to as close to Qbar as is achievable. A relaxation factor shall be applied to the target 50% and 1% AEP greenfield runoff rates, this relaxation factor should be no greater than five times the greenfield runoff rate. This should be done in consultation with the LLFA. The majority of the site is not considered to be susceptible to groundwater flooding. This should be confirmed through additional site investigation work. The infiltration potential of the site should be confirmed through infiltration testing, in line with BRE 365 or similar. Groundwater levels are shown to be influenced by tide levels. The capacity for infiltration needs to take into account the impact of future sea levels. The influence of tide levels on groundwater levels should be investigated through groundwater monitoring. The entire site is located within a Nitrate Vulnerable Zone. Therefore, early engagement with the LLFA and the EA is recommended to determine requirements for the site to manage the impact to surrounding watercourses. Consideration of water quality is likely to be of high importance and demonstrated through the use of the Simple Index Approach. It is recommended that the design of detention and attenuation features could be placed away from high risk areas, however if not possible, these SuDS features should be designed to prevent groundwater ingress from impacting hydraulic capacity and structural integrity. Additional site investigation work may be required to support the detailed design of the drainage system. This may include groundwater monitoring to demonstrate that a sufficient unsaturated zone has been provided above the highest occurring groundwater level. Below ground development such as basements are not appropriate at this location. The site is not located within a Groundwater Source Protection Zone and there are no restrictions over the use of infiltration techniques with regard to groundwater quality. The site is not located within a historic landfill site. Due to the site topography, any surface water not intercepted via infiltration will likely drain via gravity into the River Adur (Statutory Main River). It is therefore recommended that the LLFA and the EA are consulted about viable discharge locations for surface water from the site and their attenuation potential.
Opportunities for wider sustainability benefits and integrated flood risk management	• Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity and biodiversity. This could also provide wider sustainability benefits to the site and surrounding area. Proposals to use SuDS techniques should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

	• The design of the surface water management proposals should take into account the impacts of future climate change over the projected lifetime of the development. • Opportunities to incorporate source control techniques such as green roofs, permeable surfaces and rainwater harvesting must be considered in the design of the site. • SuDS are to be designed so that they are easy to maintain, and it should be set out who will maintain the system, how the maintenance will be funded and should be supported by an appropriately detailed maintenance and operation manual. • SuDS should be designed with a holistic approach, combining ecology, landscape and drainage requirements specific to the site, and incorporating Biodiversity Net Gain requirements. • Opportunities to incorporate filtration techniques such as filter strips, filter drains and bioretention areas must be considered. Consideration should be made to the existing condition of receiving waterbodies and their Water Framework Directive objectives for water quality. The use of multistage SuDS treatment will improve water quality of surface water runoff discharged from the site and reduce the impact on receiving water bodies. • The potential to utilise conveyance features such as swales to intercept and convey surface water runoff should be considered. Conveyance features should be located on common land or public open space to facilitate ease of access. • SuDS should be designed in line with the National Standards for Sustainable Drainage Systems.
NPPF and planning implications	
Exception Test requirements **(Local Authority considerations)**	The Local Authority will need to confirm that the Sequential Test has been carried out in line with national guidelines. In addition, once the sequential test has been passed, a sequential approach to development should still be undertaken. The NPPF classifies the usage as "Less Vulnerable", as a result the exception test is not required for this development. Development is not permitted in Flood Zone 3b.
Requirements and guidance for site-specific Flood Risk Assessment **(Developer considerations)**	**Flood Risk Assessment:** • All sources of flooding should be included as part of the site specific FRA. • The most recent risk of Flooding from Surface Water dataset should be used. • Consultation with Adur and Worthing Councils, West Sussex County Council, and where relevant the Environment Agency and Southern Water should be undertaken at an early stage. • Development within 16m of a tidal main river, a tidal river flood defence or culvert or a sea defence is likely to require a flood risk activities permit: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits. If development is within 20m of a main river, flood defence or flow control structure the developer will need to check with the Environment Agency if a separate permit or consent is needed.

- Development plans should consider the Level 1 and 2 SFRA for Adur, as well as the Local Flood Risk Management Strategies to identify cumulative flood risk issues. The Cumulative Impact Assessment (CIA) completed as part of the Level 1 SFRA, highlights that the West Adur catchment, is at a high risk of cumulative impacts. The risk of cumulative impacts of this development and others in the local area on flood risk should be considered within the site-specific flood risk assessment. It should also promote an integrated approach to water management.
- Applicants are expected to provide fully detailed plans of the site's existing surface water drainage arrangements, including impermeable areas, gullies, outfalls, pipes & diameters, manholes, etc., to prove the extent of the existing positively drained areas and their associated points of discharge.
- Developers should consult with Adur and Worthing Council to ensure that the development aims to help achieve the targets of the Drainage and Wastewater Management Plan. Drainage should be designed and implemented in ways that promote multiple benefits.

Guidance for site design and making development safe:

- The developer will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime. It is for the applicant to show that the development meets the objectives of the NPPF's policy on flood risk. For example, how the operation of any mitigation measures can be safeguarded and maintained effectively through the lifetime of the development. (Para 048 Flood Risk and Coastal Change PPG).
- The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, so runoff magnitudes from the development are not increased by development across any ephemeral surface water flow routes (temporary/seasonal surface water flow paths). A drainage strategy should help inform site layout and design to ensure runoff rates do not exceed greenfield rates.
- Development design should prioritise avoiding development within surface water flow paths, including off-site flow paths. Any loss in surface water flood storage will require on-site level for level compensatory storage, so that any displaced volumes of water do not increase surface water flood risk within the site or elsewhere.
- A drainage strategy should be prepared to understand infiltration capacity at the site given the underlying chalk geology and risk of groundwater emergence.
- Following groundwater monitoring, development should be directed away from areas of high groundwater risk.
- Arrangements for safe access and egress are unlikely to be possible due to the severity of flooding and will need to be considered further within a site-specific FRA for the tidal, surface water and fluvial events with an appropriate allowance for climate change, using the depth, velocity, and hazard outputs. This will need to accompany a Flood Response Plan for the site and its users.

- The Flood Response Plan should consider arrangements for safe use, access and egress of the site in a breach event due to the speed of onset and maximum flood depths recorded.
- The design and layout of development at the site will need to consider the impact of tidal and surface water flow paths. A sequential approach o development should be undertaken with development located in the areas of lowest risk within the site boundary. The site layout should make space for water and seek to avoid obstructing offsite flow paths and avoid off site detriment.
- To allow for maintenance, 3m easements will be required from the top of both banks along the ordinary watercourses.
- As outlined in the PPG, the Finished Floor Levels of the development should be raised to a minimum of whichever is higher of 600mm above the:
    - Average ground level of the site
    - Adjacent road level to the building
    - Estimated river or sea flood level
- It is suggested that flood resilient design is adopted in the construction of development. The PPG sets out that flood resistant material that have low permeability should be used to at least 600mm above the estimated flood level; flood resilient materials to at least 600mm above the estimated flood level and raising of electrical equipment at least 600mm above the estimated design flood level.

Key messages

The site is identified to be at high risk of flooding. According to the 2025 Arun-Adur modelling, the site is situated 2% in Flood Zone 3b, and 69% in Flood Zone 2. 88% of the site is shown to flood during the tidal design event (0.5% AEP plus 55% climate change allowance)

There is a low risk of surface water flooding at the site. 13% of the site is shown to flood during the surface water design event (1% AEP plus 45% climate change allowance).

The key access route to the site is via Old Shoreham Road, Cecil Pashley Road and Almond Avenue. During tidal flood design events, flooding is predicted along the access route, with depths exceeding 1.6m. In the surface water plus climate change scenario, roads in close proximity to the site are not impacted by flooding however adjacent roads access is limited. Detailed consideration into site access and egress will be required.

Given the high flood risk posed to the site. Development will only be able to progress if:

- A sequential approach to development is undertaken. Layout and design should aim to avoid developing in the areas of greatest flood risk. Development in Flood Zone 3b is not permitted and is considered to be functional floodplain.
- Mitigation measures are incorporated to reduce the risk of flooding to the development. Early consultation should be held with the Environment Agency to discuss this.
- A site-specific Flood Risk Assessment, including detailed modelling, is undertaken to assess the risk of tidal and surface water flooding in relation to the proposed development, and the access and egress arrangements.
- Infiltration rates and groundwater levels are assessed on site as part of a drainage strategy.

- Consideration is given to the safe access and egress to the site during the design flood event. A Flood Response Plan should be prepared in line with ADEPT guidance.
- The site-specific Flood Risk Assessment assesses the risk of breach and incorporates this risk into an emergency response plan for the site development.
- Finished floor levels are raised to a minimum of whichever is higher of 600mm above the average ground level of the site, the adjacent road level to the building or the estimated river or sea flood level. The flood level is for the design event (tidal flood level plus higher central climate change allowance, surface water flood level plus upper end)

Sources of information

National Planning Policy Framework (NPPF)

https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

Planning Practice Guidance (PPG), Flood Risk and Coastal Change

https://www.gov.uk/guidance/flood-risk-and-coastal-change

Flood Map for Planning (NaFRA2 2025)

https://www.data.gov.uk/dataset/104434b0-5263-4c90-9b1e-e43b1d57c750/flood-map-for-planning-flood-zones1

Long Term Flood Risk

Where do you want to check? - Check your long term flood risk - GOV.UK

British Geological Survey (BGS) Geology Viewer

https://geologyviewer.bgs.ac.uk/

Southern Water's Drainage and Wastewater Management Plan

https://www.southernwater.co.uk/about-us/our-plans/drainage-and-wastewater-management-plans/

National standards for sustainable drainage systems (SuDS)

https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds

Flood Warning sign up

https://www.gov.uk/sign-up-for-flood-warnings