

Project:	AEG6673_RG2_Wokingham		
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		DMC/ NDD	
Revision:	Draft	Date:	27 January 2025

Flood Risk Statement

Aegaea were commissioned by Dalcour Maclaren to undertake a Flood Risk Statement (FRS) to facilitate a planning application at the site.

Site Overview

The site is Land North of Church Lane, Shinfield, Wokingham, RG2 8PY (Figure 1).

It is understood that the client is seeking permission to further extend the use of the site (which is a compound) to support provision of essential utility infrastructure that is supplied to the region. The existing site is used to house temporary office space / welfare units and for the storage of non-hazardous materials for distribution to construction sites in the surrounding area. Permission is sought to further extend the existing use of the site for the next eight years.

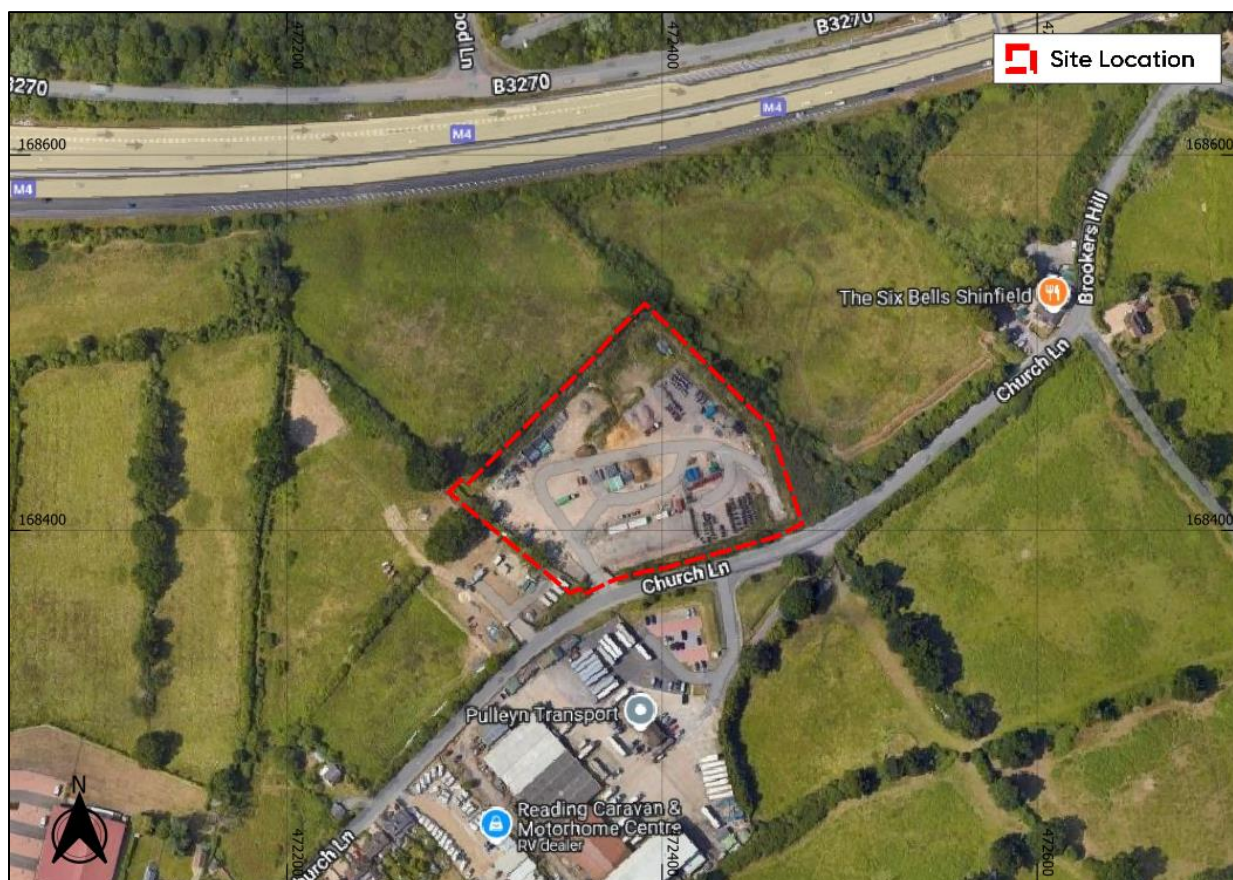


Figure 1: Site Location (Base map and data from Google Satellite Imagery (CC-BY-SA))

In the absence of a topographical survey, Environmental Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model has been used to review the topography of the site and the surroundings (Figure 2). The LiDAR data shows the ground elevations of the site varies between approximately 44.4m AOD and 46.2m AOD with the site shown to slope downward towards the northwest of the site.

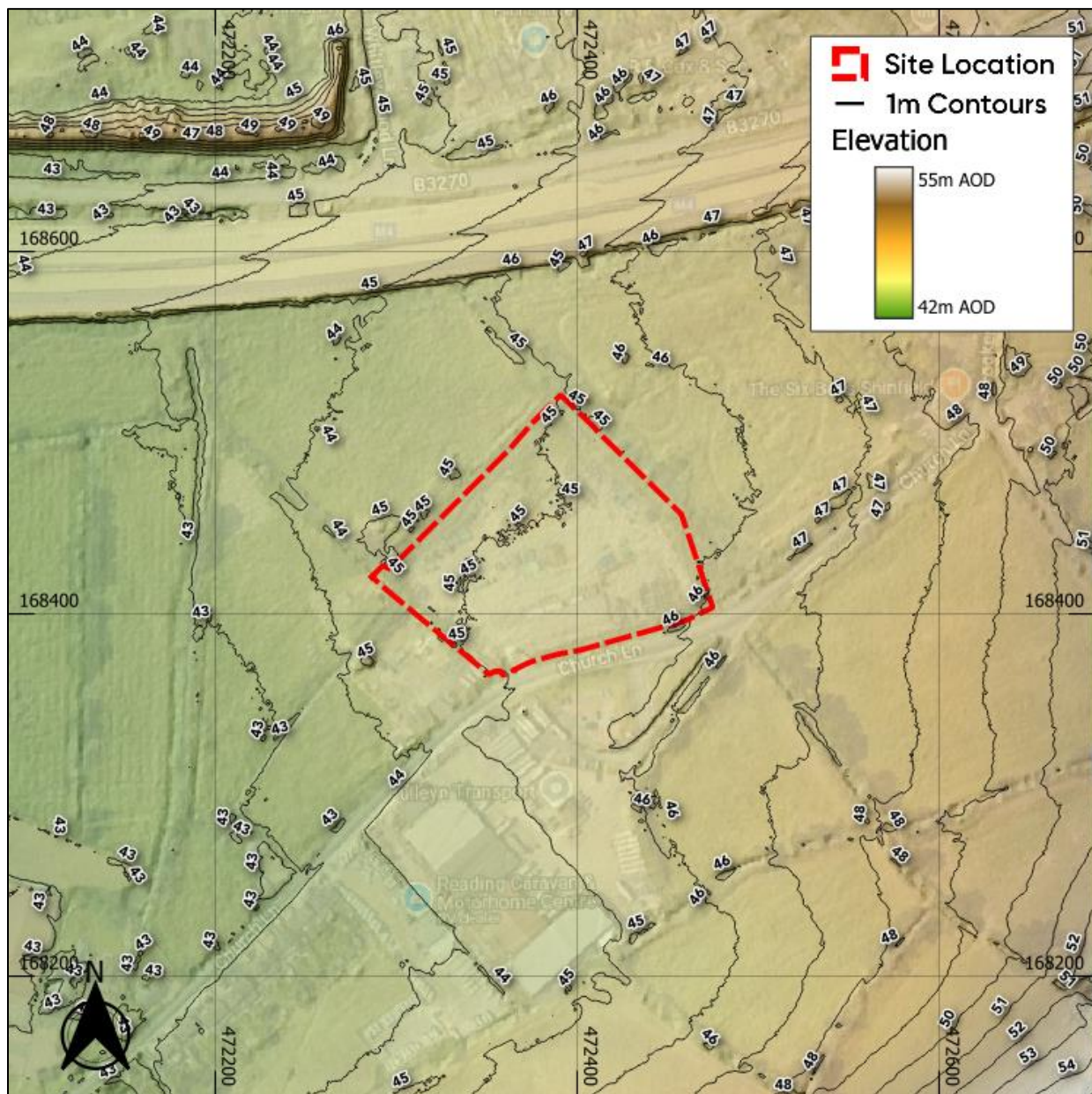


Figure 2: Site Topography (Base map and data from Google Satellite Imagery (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

Pre-Application Advice

A pre-application enquiry was submitted to the LPA (Application: 241953, response dated 17/10/2024).

With regards to flood risk and drainage, the pre-app states:

Flooding and Drainage:

Policy CC09 of the MDD Local Plan requires consideration of flood risk from historic flooding. The site and access thereto is located within Flood Zone 1 and the proposal represents no additional flood risk or vulnerability. It is therefore acceptable in terms of Policy CC09.

The WBC Drainage officer has no objection to the extension of the use of land for a works compound. They do however caveat that there should be no stockpiling of material or obstruction along the surface water flow path. This is to ensure that displacement does not take place that will lead to flooding elsewhere. Runoff from any impermeable areas created need to be managed to ensure that flood risk is not increased elsewhere. The Drainage officer requests that the above should be covered in a drainage strategy report for the proposed land use. Full comments from the Drainage offer are attached to this response

As such, this Statement has been produced to demonstrate compliance with these requests.

Local Planning Policy

The Wokingham Borough Core Strategy (2010) prepared by the Local Planning Authority, Wokingham Borough Council, sets out the policies for development in the local area.

Policy FD1 Development and flood risk (from all sources) outlines the requirements for new development within the area. It states:

- 1. Development proposals must take into account at all stages of development, and at the appropriate stage of the planning application process, all sources of flood risk, including historic flooding, current and future impacts of climate change, and cumulative impacts. Development proposals must be consistent with national policy and guidance and demonstrate how they have used, and where relevant*

comply with the site specific recommendations of, the Strategic Flood Risk Assessment (SFRA) to help determine the suitability of the proposal.

2. Development proposals in Flood Zones 2 or 3 must take into account the vulnerability of proposed development.

Sequential Test

3. Development must be guided to areas of lowest flood risk, in the first instance, by applying the sequential approach, taking into account the effects of climate change and flooding from all sources. Development proposals should ensure flood risk is not worsened for the application site and elsewhere, and ideally that betterment of existing conditions is achieved. Storm water attenuation areas should be located outside of Flood Zones 2 and 3.

4. The sequential test will not be required if one or more of the following applies:

- a) Minor non-residential extensions: industrial/commercial/leisure etc. extensions with a footprint of less than 250m²;
- b) Alterations: development that does not increase the size of buildings e.g. alterations to external appearance;
- c) Householder development: for example, sheds, garages, games rooms etc. within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats; or
- d) Changes of use, except where the change of use is to a caravan, camping or chalet site, or to a mobile home or park home site.

Exception Test

5. In exceptional circumstances, development proposals in areas of flood risk will be supported where all of the following can be demonstrated:

- a) The development proposal provides wider sustainability benefits to the community that outweigh flood risk;
- b) The development proposal will:

- i. *Be safe for its lifetime, taking account of the vulnerability of its users*
 - ii. *Not increase flood risk in any form elsewhere and, where possible, will reduce flood risk overall*
 - iii. *Incorporate flood resilient and resistant measures into the design; and*
- c) *Appropriate evacuation and flood response procedures are in place to manage the residual risk associated with an extreme flood event.*

Flood Risk Assessment

6. *An appropriately detailed, site-specific Flood Risk Assessment (FRA) is required:*

- a) *For all development proposals in areas of known historic flooding from any sources;*
- b) *Where there is evidence of a risk from any sources of flooding;*
- c) *For all development proposals in Flood Zones 2 and 3;*
- d) *For development proposals in Flood Zone 1, an assessment should accompany all proposals involving:*
 - i. *Sites of 1 hectare or more;*
 - ii. *Land which has been identified by the Environment Agency as having critical drainage problems;*
 - iii. *Land identified in a strategic flood risk assessment as being at increased flood risk in future; or*
 - iv. *Land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.*

Policy FD2 Sustainable drainage outlines the requirements for new development within the area. It states:

- 1. *Development proposals must ensure surface water arising, including the impact of climate change, is managed in a sustainable manner. This must be demonstrated through either a:*
 - a) *Site-specific Flood Risk Assessment; or*

- b) *Surface Water Drainage Strategy.*
- c) *Development proposals will only be supported where the proposal would reproduce greenfield runoff characteristics and return run-off rates and volumes back to the original greenfield levels for greenfield sites; and for brownfield sites both run-off rates and volumes be reduced to as near greenfield as practicably possible, or 40% betterment of existing, whichever is achievable;*

2. The provision of SuDS should:

- a) *Be of an appropriate design (in line with the principles and local standards set out in the council's latest SuDS strategy and technical guide and any current national technical standards) to meet the long term needs over the lifetime of the development and which achieve wider social, ecological and environmental benefits;*
- b) *Include a clear strategy for adoption and maintenance to the satisfaction of the council, as the Lead Local Flood Authority (LLFA);*
- c) *Do not cause adverse impacts on the public sewerage network serving the development where discharging surface water to a public sewer. Any discharges should be agreed in writing by the local sewerage undertaker;*
- d) *Effectively manage flood risk, improve the water environment, enhance biodiversity and mitigate and adapt to the effects of climate change;*
- e) *Contribute towards water quality treatment and biodiversity enhancements in line with the Water Framework Directive (WFD) and the Thames River Basin Management Plan; and*
- f) *Avoid the use of underground tanks and conveyance, except when all other reasonable alternatives to provide a sustainable drainage solution have been exhausted.*

3. In addition, residential development proposals of 10 dwellings or more, or non-residential development proposals of 1,000 m2 or greater gross internal area, and developments in areas at risk of flooding from all sources, must incorporate SuDS

as an intrinsic part of the design and layout of the proposal, unless it can be effectively demonstrated that it is not feasible within the constraints of the site.

Flood Risk Review

Fluvial Flood Risk

Flooding from watercourses arises when flows exceed the capacity of the channel, or where a restrictive structure is encountered, resulting in water overtopping the banks into the floodplain.

Main Rivers and Ordinary Watercourses

The nearest EA Main River is the River Loddon, which is approximately 1.7km southeast of the site. There are no other mapped watercourses according to OS Mapping.

EA Flood Map for Planning

The site is shown to lie wholly within Flood Zone 1 based on the EA Flood Map for Planning (Figure 3). Flood Zone 1 denotes land having less than 1 in 1000 (0.1%) annual probability of river or sea flooding (all land outside Flood Zones 2 and 3).

The nearest Flood Zone 2 extent to the site is approximately 1.4km southeast of the site which is associated with the River Loddon.

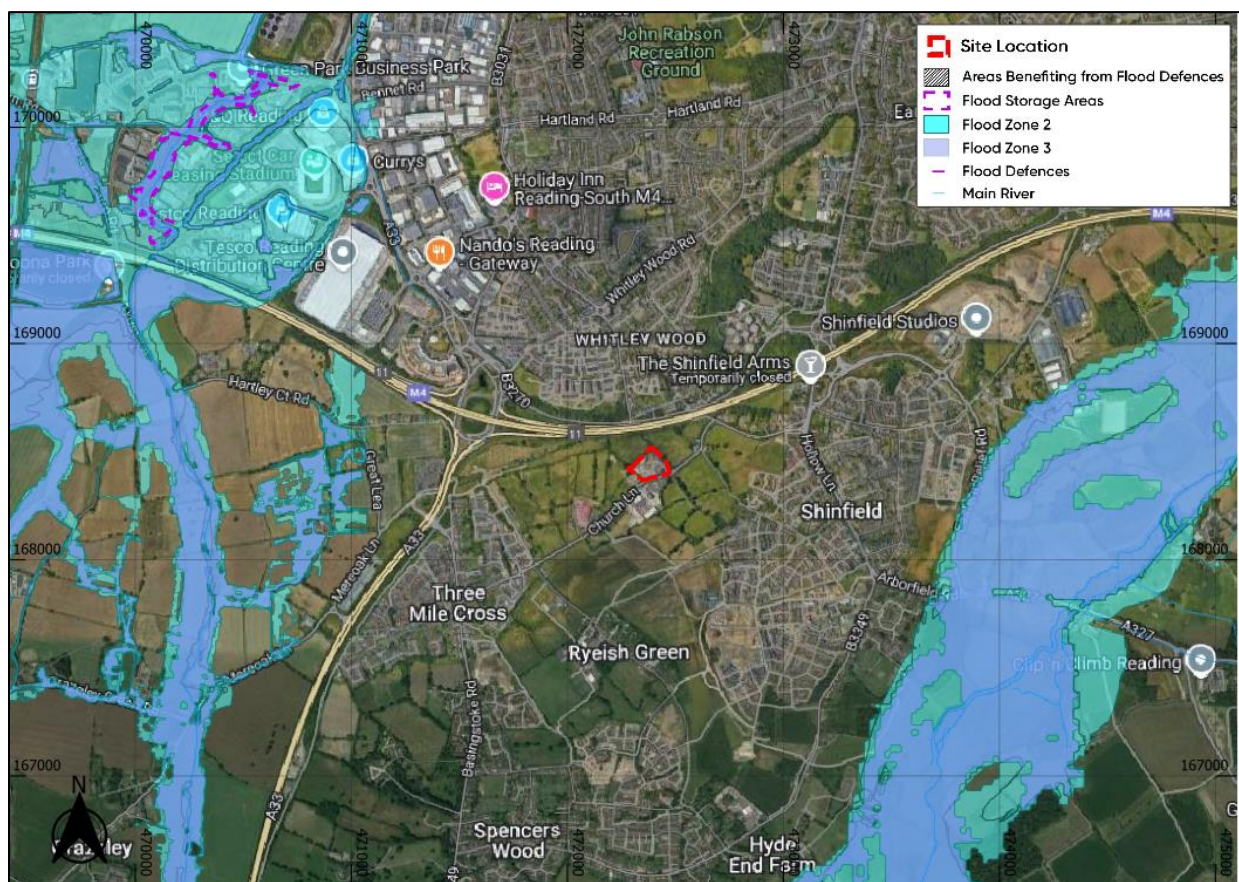


Figure 3: EA Flood Map for Planning (Base map and data from Google Satellite Imagery (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

Surface Water (Pluvial) Flood Risk

Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

Annual surface water flood risk is labelled by the EA as:

- 'High Risk'; >3.3% AEP (annual probability greater than 1 in 30).
- 'Medium Risk'; 1.1% to 3.3% AEP (annual probability between 1 in 100 and 1 in 30).
- 'Low Risk'; 0.1% to 1% AEP (annual probability between 1 in 1000 and 1 in 100).
- 'Very Low Risk'; <0.1% AEP (annual probability less than 1 in 1000).

Examination of the EA's Flood Risk from Surface Water mapping shows that a small portion (approximately 10% of the site) to the north is shown to be at 'medium' risk. Approximately 40% of the

site to the north is also shown to be in a 'low' risk of surface water flooding. Therefore approximately 50% of the site is at a 'very low' risk of surface water flooding (Figure 4).

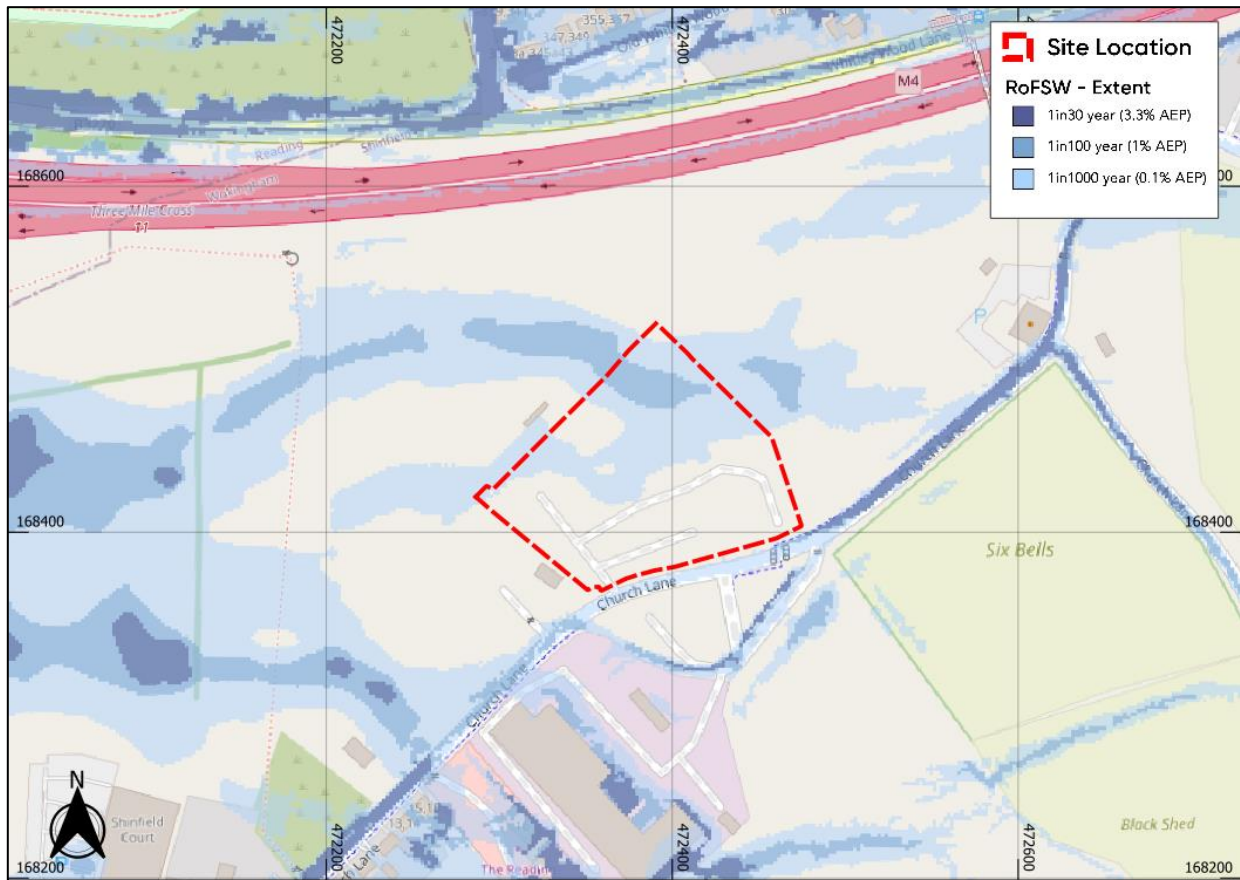


Figure 4: EA Surface Water Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

Given that the site is not located within an area of 'high' surface water flood risk, no flood depths have been recorded on site during the modelled 1 in 30 year (3.3% AEP) scenario. Therefore, the 1 in 100 year (1% AEP) and 1 in 1000 year (0.1% AEP) scenarios have been analysed below.

RoFSW Flood Depths

In the modelled 1% AEP event, approximately 90% of the site is shown to be unaffected by surface water flooding (Figure 5). The small area that is affected during this scenario recorded flood depths of up to 300mm.



Figure 5: RoFSW 1 in 100 year ('medium' risk) scenario (Base map and data from Google Satellite Imagery (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

In the modelled 0.1% AEP event, the majority of the north half of the site is shown to be affected by surface water flooding with depths ranging up to 300mm. However, the south half of the site still remains unaffected in this modelled event.



Figure 6: RoFSW 1 in 1000 year ('low' risk) scenario (Base map and data from Google Satellite Imagery (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

It is important to note that the access/egress to the site will remain as per existing.

As per the pre-app response from the LPA, there should be no stockpiling of material or obstruction along the surface water flow path noted in the above Figures.

Groundwater Flood Risk

Groundwater flooding occurs where underlying geology is permeable, and water can rise within the strata sufficiently to breach the surface.

The British Geological Survey's (BGS) mapping shows no superficial deposits underlying the site. The bedrock geology underlying the site is mapped as London Clay Formation comprised of clay, silt and sand.

Historical BGS borehole (ref: SU76NW112) was located approximately 120m north of the site. This borehole was bored to a depth of 10m and groundwater was not identified at any depth.

Wokingham Borough Council SFRA (2023) provides mapping identifying areas that are susceptible to groundwater flooding (using EA data) and areas that are at risk of groundwater emergence according to JBA.

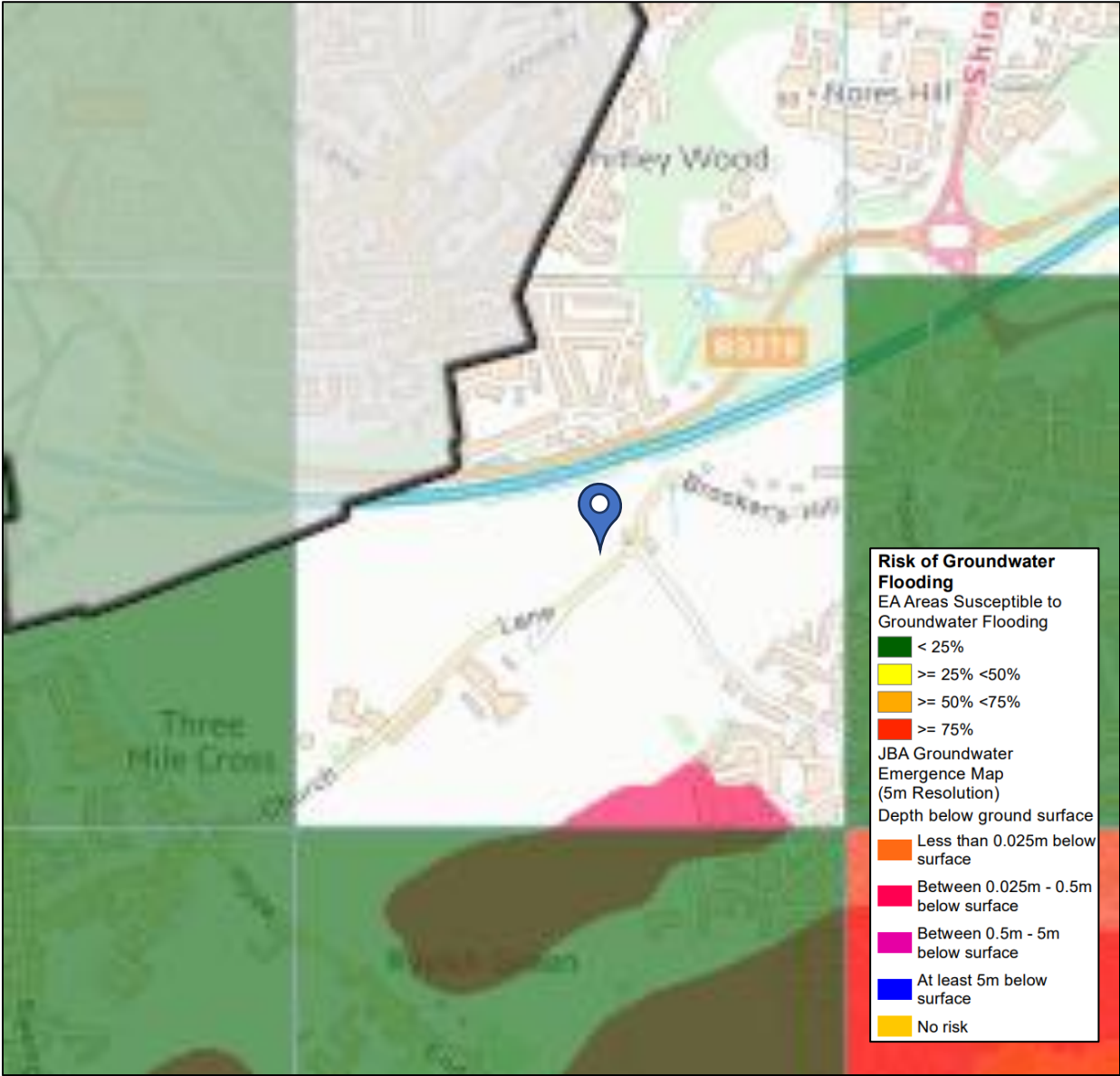


Figure 7: Groundwater Flood Risk Mapping (Source: Wokingham Borough Council SFRA, 2023). Site location is represented by the blue marker

The SFRA (2023) provides a Table (Table 5-1: Historic Flooding Incidents provided by WBC) which shows the number of recorded historic flooding incidents that have occurred with the Wokingham Borough. No recorded flood events were attributed to groundwater flooding, therefore Wokingham SFRA (2023) does not identify any recorded historical groundwater flooding in the Borough.

Given that the borough has not identified any recorded historic groundwater incidents and the site has not been identified as an area that is impacted from groundwater flooding, the risk to the site is considered to be low.

Flood Risk Summary Table

The table below summarises the existing flood risk to the site based on the information available at the time of writing analysed above:

Flood Source	Risk	Risk Summary	Constraint on Development (Yes/No)
Fluvial		The site lies wholly within Flood Zone 1.	No
Surface Water (Pluvial)		The site is at a low to moderate risk of surface water flooding to the north of the site.	No – the proposals include the permission to further extend the use of the site and there is no development included in the proposals. No stockpiling should take place in the mapped overland flow paths.
Groundwater		Based on the information available at the time of writing the site is considered to be at a low risk of groundwater flooding.	No – the site has not been identified as being susceptible to groundwater flooding according to the EA dataset.

Sequential and Exception Test

As the proposal is to further extend the use of the site a compound to support provision of essential utility infrastructure to the region, the site use will remain as per existing and therefore there is no additional built footprint proposed.

Also, the site is wholly located within Flood Zone 1 and the majority of the site is at a 'very low' risk of surface water flooding.

As such, a Sequential and Exception Test is not required for this proposal.

Mitigation Considerations

Fluvial and Groundwater

Based on the analysis above and information extracted from the Wokingham Borough Council SFRA (2023), the fluvial and groundwater flood risk to the site is considered to be low.

Pluvial

Surface water flooding is observed on site during the modelled 1 in 100 year scenario, however, it is noted that surface water flood depths are low (below 300mm).

Therefore, as a precautionary approach, it is recommended is that there is no stockpiling at the location of surface water flow path to the north of the site (areas of surface water flooding), as per the WBC LPA pre-app response request.

The LPA pre-app also states:

Runoff from any impermeable areas created need to be managed to ensure that flood risk is not increased elsewhere.

As no additional footprint or surface alterations is proposed, there should be no change in runoff from the proposal, therefore runoff can be discharged via existing drainage system on site as per existing scenario.

Conclusion

The client is seeking permission to further extend the use of the site (which is a compound) to support provision of essential utility infrastructure that is supplied to the region. Therefore, no permanent structures are being built.

Based on the analysis above, the site is considered to be at a low risk from fluvial and groundwater flooding. The majority of the site is also at low risk of pluvial flooding as low depths were modelled.

At the north of the site where depths were modelled during the 1 in 100 year pluvial event, no stockpiling should be present in the flow path.

It is important to note that the extension of use of the site to support provision of essential utility infrastructure to the region should not impact or change the flood risk at the site or offsite compared to the existing scenario.

Appendix A - Site Plan

Key:

- Application Site Boundary
- Storage of top soil
- Type 1 MOT hardstanding
- Asphalt
- Heras Fencing
- Timber Close Boarded Fencing

Notes:

Applicant:
Southern Electric Power Distribution PLC

Signed:

Date:

Location:
Land to the north west of Church Lane,
Shinfield, Reading, RG2 8PY

Coorids: 472396, 168461

Scheme Name:
Reading Main to Reading Town 132KV

Drawing Name:
Proposed Site Layout

Drawing No: 172447_PLN_SI_20.1_A

Rev	Date	Description
-	29.11.2019	First Issue
A	13.01.2020	Layout amended

Drawn:	NB	
Approved:	KD	
Sheet No:	1 of 1	
Sheet Size:	A1	

