

Fortitudo Limited

Bartons Road, Havant

Flood Risk Assessment

195104

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1 INTRODUCTION

Authorisation

- 1.1 Following instruction from Fortitudo Limited, a Flood Risk Assessment (FRA) has been undertaken by Vectos to support the full planning application for the proposed mixed-use redevelopment of the allocated site at the former Scottish and Southern Energy Plc office, Bartons Road, Havant.

Background

- 1.2 According to the Environment Agency (EA) Flood Map for Planning, the site is located in Flood Zone 1 (i.e. at low risk of fluvial and tidal flooding). However, given the site is in excess of 1 hectare (ha), in accordance with the National Planning Policy Framework (NPPF), an FRA is required to support the planning application. This FRA has been undertaken in accordance with the guidelines set out in the NPPF.

Aims and Objectives

- 1.3 The aim of this FRA is to demonstrate that the site can be developed safely, without exposing it to an unacceptable degree of flood risk or increasing the flood risk to third parties. The objectives of this FRA are to:
- Undertake a desk-based review of the available flood risk data for the site to assess flood risk.
 - Review the relevant planning policy and guidance documents to ensure that the development proposals are in accordance with these requirements.
 - Identify the key sources of flood risk to the site and surrounding area.
 - Identify flood mitigation requirements, if any, to demonstrate how the development can be made safe from flooding without a detrimental impact to third parties.
 - Assess whether the development will result in an increase of surface water runoff and how this can be mitigated through the application of Sustainable Drainage Systems (SuDS).

Development Proposals

- 1.4 The proposed redevelopment consists of three residential blocks with a total of 191 apartments. It also includes two drive through restaurants in the north part of the site. There is a site access to the north and south, with large areas of car parking and landscaping. The proposed site layout plan is enclosed in Appendix A.

Limitations

- 1.5 The general limitations of this assessment are that:
- A number of sources have been used to compile this document, whilst Vectos believe them to be trustworthy; Vectos is unable to guarantee the accuracy of the information that has been provided by others.
 - This report is based on information available at the time of preparation. Consequently, there is potential for further information to become available. These changes may lead to future alteration to the conclusions drawn in this report for which Vectos cannot be held responsible.

2 SITE DESCRIPTION

- 2.1 The site was formally occupied by a Scottish and Southern Energy Plc office, which has been demolished. A large stockpile of hardcore remains within the centre of the site.
- 2.2 The site is located on Bartons Road in the north-east of Havant, Hampshire. The site has an approximate area of 1.69 ha and is centred at an approximate Ordnance Survey (OS) grid reference of SU721080. A site location plan is presented in Figure 1. Note the Google satellite image has not been updated since demolition, and the former Scottish and Southern Energy Plc office site is still shown in Figure 1.



Figure 1: Site Location Plan

Site Topography

- 2.3 A topographical survey is enclosed in Appendix B. It shows a general fall in ground levels from north to the south, but also a centrally located hardcore stockpile, which is approximately 3 m above surrounding ground levels.

- 2.4 The stockpile is around 23 m above ordinance datum (AOD) at its highest point. At the bottom of the stockpile, ground levels are around 20 m AOD. These levels fall to the south of the site, to a minimum level of approximately 18.5 m AOD.

Geology and Hydrogeology

- 2.5 The 1 in 50,000 scale British Geological Survey (BGS) online mapping shows that the solid geology beneath the site consists mainly of Bognor Sand Member – Sand with a small region consisting of London Clay Formation – Clay, Silt and Sand. The online mapping indicates that there are superficial deposits present, which consist of Head-Clay, Silt, Sand and Gravel.
- 2.6 The Cranfield University Soilscales website indicates slowly permeable, seasonally wet, slightly acid, but base-rich loamy and clayey soils with impeded drainage occupy the site and surrounds.
- 2.7 A ground investigation has been undertaken for the site by Forge Environmental Management Ltd. in March 2020 (Appendix C). This included infiltration testing and revealed that in all four trial pits, the water level failed to drop by 50% as per the BRE 365 requirements, thus infiltration rates were unable to be obtained. The ground investigation also revealed that groundwater strikes were encountered within some of the trial pits between 1.1 – 2.3 m below ground level. It was concluded that infiltration is not considered a viable option for surface water disposal.
- 2.8 According to the MAGIC maps, the site is located within a groundwater source protection zone (SPZ) with subdivision of zone 1c (sub-surface activity) for the Havant and Bedhampton springs (which is an essential public water supply source). The ground investigation report also confirms that there is a potable water abstraction located 1,897 m to the south west of the site. According to the EA, the purpose of SPZs is to 'provide additional protection to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction'. The site is not located within a drinking water protection area or safeguard zone. Due to the location of the site within an SPZ, consultation was sought with Portsmouth Water and the EA as per the Havant Local Plan guidelines (see Section 3). Portsmouth Water and the EA's response is included within Appendix D and Appendix E, respectively, and is discussed in Section 4.

- 2.9 The EA Aquifer Designation Map (bedrock) shows that the site is located within a Secondary A aquifer which is defined as ‘permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers’. The site lies just within a superficial drift secondary undifferentiated aquifer in the north-east of the site.

Hydrology

- 2.10 There are no watercourses present on site or in the immediately vicinity of the site (see
- 2.11 Figure 2). Riders Lane Stream (a tributary of Hermitage Stream) is located approximately 0.6 km to the north-west and the Lavant Stream is located approximately 0.5 km to the east. There is also believed to be a small ditch located approximately 300 m to the east of the site, which is not identified in Figure 2.

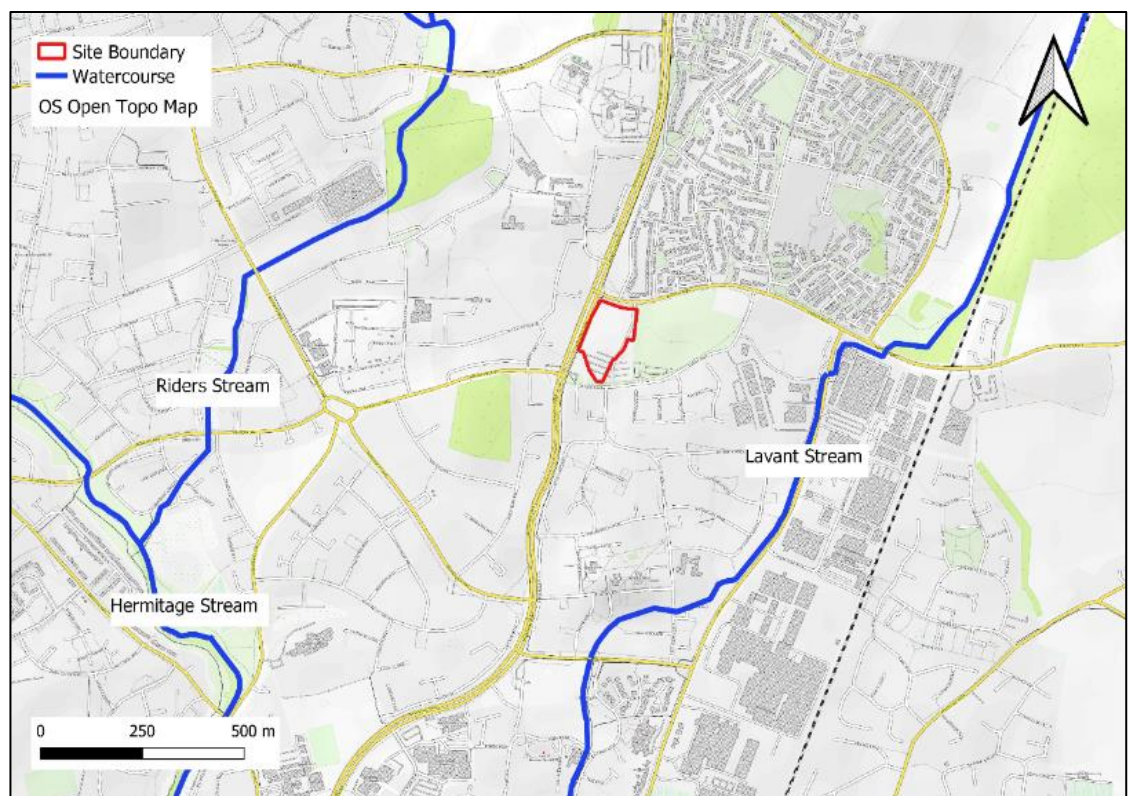


Figure 2: Watercourse Locations

Existing Drainage

- 2.12 Sewer asset plans were obtained from Southern Water and are enclosed in Appendix F. The plans show that both a public surface and foul water sewer pass through the west part of the site. This includes a 750 mm diameter surface water sewer and a 300 mm diameter foul sewer.
- 2.13 The topographic survey enclosed in Appendix B shows a series of private drains that served the site prior to demolition. The private drains are directed towards the public sewers. It is therefore assumed that surface water runoff was previously managed on site via discharge into the public sewerage network. No evidence of surface water attenuation is available and given the age of the former building on site, it is anticipated that runoff would have been released at an unrestricted rate into the 750 mm diameter surface water sewer.

3 PLANNING POLICY AND TECHNICAL GUIDANCE

National Planning Policy Framework (NPPF)

- 3.1 The NPPF sets out the Government's national policies for flood risk management in a land use planning context within England and how these are expected to be applied. This revised Framework replaces the previous NPPF that was published in July 2018.
- 3.2 The NPPF states that developers and local authorities should try to locate development to land in zones with the lowest probability of flooding.
- 3.3 This should be achieved by application of the Sequential Test, which aims to steer new development into Flood Zone 1 (areas with a low probability of river or sea flooding). Where there are no reasonably available sites in Flood Zone 1, it is necessary to take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2 (areas with a medium probability of river or sea flooding), applying the Exception Test if required. Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 (areas with a high probability of river or sea flooding) be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.
- 3.4 The Planning Practice Guidance (PPG) provides guidance and outlines the approaches that should be taken to meet with the NPPF. In accordance with Table 2 of the PPG, the proposed development (i.e. residential) is classified as 'More Vulnerable', whilst the drive through units are classified a 'Less Vulnerable'.
- 3.5 Table 3 of the PPG sets out the 'compatibility' of the vulnerability classification of development with the identified flood zones. The site has been designated by the EA Flood Map for Planning as Flood Zone 1 and therefore is deemed to be appropriate for the proposed land uses. An extract from the PPG is given in Table 1.

Table 1: Extract from Planning Policy Guidance - Table 3

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Local Plan Policy

- 3.6 The Havant Borough Council (HBC) Local Plan: Core Strategy was adopted in 2011 and sets out the planning strategy for the borough up to 2026. HBC is currently in the process of updating the plan to cover the borough up to 2036. The Local Plan 2036 is currently in pre-submission stage, which is likely to be adopted late 2020. Until the new plan is adopted, the 2011 Local Plan Core Strategy (alongside the Site Allocations Plan 2014) will remain the adopted local plan. This report will make reference to both local plans.
- 3.7 Core strategy 6 of the 2011 Local Plan makes reference to the importance of flood risk and adaption to climate change.
- 3.8 Policy CS13 of the 2011 Local Plan highlights the need to incorporate and protect green spaces/infrastructure within new developments.
- 3.9 Policy CS15 of the 2011 Local Plan sets out the borough's stance on flood risk, and states that development in any areas at risk of flooding must apply and meet the sequential and exception tests (as per the NPPF). Wherever possible, development must be located away from areas of high flood risk, stating that Havant Borough Local Development Framework (HBLDF) will not propose development in areas that flood now or in the future. It also highlights that SuDS should be incorporated wherever possible to help manage surface water runoff.

- 3.10 Section 2.25 of the draft 2036 Local Plan makes reference to the requirement that all new homes must be suitably located in order to minimise flood risk, ensure flood risk is not increased to third parties, mitigate against climate change and must utilise SuDS.
- 3.11 E19 of the 2036 Local Plan discusses flood risk, with emphasis on the NPPF principles of ensuring development is steered to areas of lowest floods risk, that flooding is not increased elsewhere as a result of the development, and that the development is safe from flood risk over its lifetime. Developments should look to reduce flood risk overall, rather than just the site in question. E20 of the 2036 Local Plan outlines the requirements for drainage of new developments and reiterates the requirement of SuDS to be incorporated unless clear evidence is given to justify why SuDS cannot be used.
- 3.12 E21 of the 2036 Local Plan discusses SPZs. The borough is situated underneath a principle chalk aquifer and as such must be protected from sources of pollutions (e.g. from infiltration systems infiltrating into the aquifer) as it feeds into several springs across Havant which are used as drinking water resources. The EA and Portsmouth Water must be consulted with any planning application for new development within SPZs 1 and 1c. Although E20 states that propriety should be given to SuDS, it is noted that it would not be appropriate to provide infiltration-based SuDS which would drain into the aquifer without adequate pollution prevention measures.
- 3.13 The proposed redevelopment is considered compliant with these requirements. This is because the brownfield site is located in Flood Zone 1 (lowest flood risk area) and surface water runoff will be managed using SuDS, which have been designed to manage the anticipated impacts of climate change. Consultation has been made between the Lead Local Flood Authority (LLFA), EA and Portsmouth Water regarding the site since it lies in an SPZ zone. This report and associated surface water drainage strategy is compliant with their stipulations because infiltration is not proposed as a means of surface water management (see Section 7), which will help to ensure there is no pathway of contamination to the groundwater resource.

Sustainable Drainage Systems Guidance

- 3.14 The Hampshire County Council Surface Water and Sustainable Drainage Guidance for Developers, Designers and Planners (HCC SWSDG), alongside guidance for SuDS in the NPPF and the SuDS Manual (CIRIA), informs the approach that has been taken with the surface water

drainage strategy to ensure that it meets with the requirements of national regional and local planning policy.

4 CONSULTATION

Lead Local Flood Authority

4.1 Hampshire County Council are the LLFA for the area. The LLFA were contacted with regards to the redevelopment proposals. Their advice is based on relevant policy documents and the key points are summarised below:

- Brownfield (previously developed) sites should achieve a 30% reduction in runoff rates.
- Exceedance flow routes within the development must be assessed to ensure property and infrastructure is not adversely affected based on proposed levels.
- Blocking of surface water flow routes is not allowed, requiring that existing ground levels along boundaries where the 1 in 1,000 flow path enters the site should be as close to existing site levels as possible, with overland flow paths through the site retained as much as possible to avoid flood water displacement.
- Ground floor levels for residential development must ensure that surface water does not pose a flood risk by raising finished ground floor levels to be 150 mm above surrounding ground level.

4.2 Full consultation details are enclosed in Appendix G.

Portsmouth Water

4.3 Consultation with Portsmouth Water has been undertaken since the site lies within an SPZ, and correspondence is enclosed in Appendix D.

4.4 Portsmouth Water have indicated that the use of shallow infiltration drainage (i.e. within the sand geology) will be permitted, but deep pit-based systems would have a presumption against them since there is a risk groundwater contamination. However, as discussed in Section 2, infiltration is not feasible at the site, and no infiltration systems are proposed.

Environment Agency

- 4.5 Although the Flood Map for Planning indicates that the site is located in Flood Zone 1, consultation with the EA was required since the site is located within a SPZ, and correspondence is enclosed in Appendix E.

5 ASSESSMENT OF FLOOD RISK

Historic Flooding

- 5.1 The Partnership for Urban South Hampshire (PUSH) Level 1 Strategic Flood Risk Assessment (SFRA, 2016) is the current SFRA covering Havant and surrounding area. The SFRA provides a high-level summary of sources of flood risk and effects of climate change.
- 5.2 The SFRA cites flood risks for the PUSH area as tidal sources (predominantly from the Solent) alongside significant fluvial flooding risks from rivers (including Hermitage and Lavant Streams). It also cites groundwater flooding as significant, referencing the winter of 2013/14 as the cause of major ground water flood issues.
- 5.3 Geographical Information System (GIS) maps of the data collected for the SFRA report are available online at:

<https://www.portsmouth.gov.uk/SiteElements/Html/PUSHLive-Server.html>
- 5.4 The online map indicates that the site is susceptible to surface water flooding and that there was one reported incident of sewer flooding, located south of Martin Road, caused by hydraulic overload. The online mapping shows no groundwater flood incidents within the site or surrounding area.
- 5.5 The EA Historic Flood Map and Recorded Flood Outline data were also obtained for the site. This data provides no evidence of historic flood events within the site or surrounding areas.

Fluvial and Tidal Flood Risk

- 5.6 The EA Flood Map for Planning shows the risk from both fluvial (i.e. river) and tidal sources. It locates the site entirely within Flood Zone 1 as shown in Figure 3. Land and property in this flood zone are classified as having a low probability of flooding or more specifically, having a less than 1 in 1, 000 annual probability of flooding.

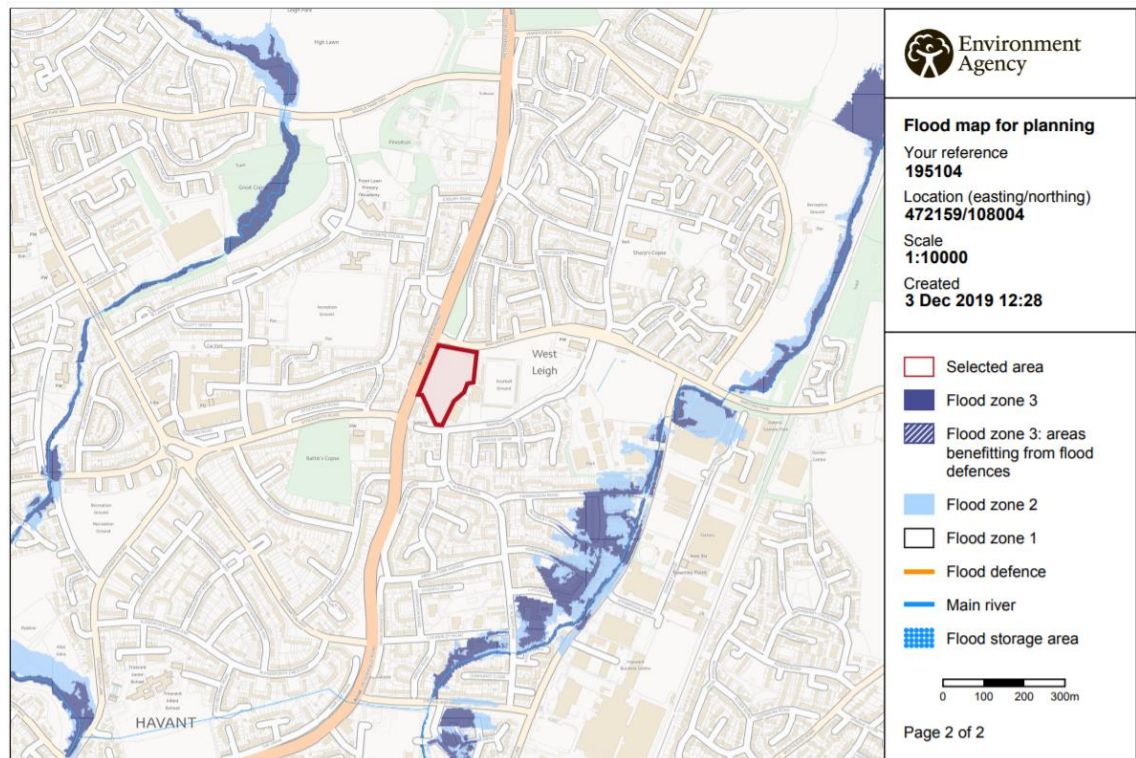


Figure 3: EA Flood Map for Planning

- 5.7 It should be noted that the EA Flood Map for Planning only considers river catchments greater than 3 km². However, this does not infer that there is no flood risk from smaller watercourses or ditches, but it tends to be considered a more local flood risk, which is often defined on the Risk of Flooding from Surface Water (RoFSW), see Figure 4.
- 5.8 The SFRA shows the effects of climate change on Flood Zones 2 and 3 up to 2115. The associated fluvial and tidal flood zones do not impact site. Fluvial and tidal flood risk is therefore considered to be low.

Surface Water Flood Risk

- 5.9 Surface water flooding is a result of overland flow that can follow a rainfall event, before the runoff enters a watercourse or sewer. This form of flooding is usually associated with high intensity rainfall events but can also occur with lower intensity rainfall or melting snow where the ground is saturated, frozen, developed or otherwise has a low permeability.

- 5.10 The flood risk relates to both the conveyance of waters to the site by overland flow from areas outside the site and also areas within the site itself, and the ponding of these waters in depressions in the topography.
- 5.11 The EA RoFSW map is available online. The methodology used to derive this map is based on the application of rainfall to the entire catchment upstream (i.e. a direct rainfall approach). An extract of this map is shown in Figure 4. It shows the majority of the site is unaffected by this source of flooding, which is defined as a very low risk and means that each year, this area has an annual chance of flooding of less than 1 in 1,000 .

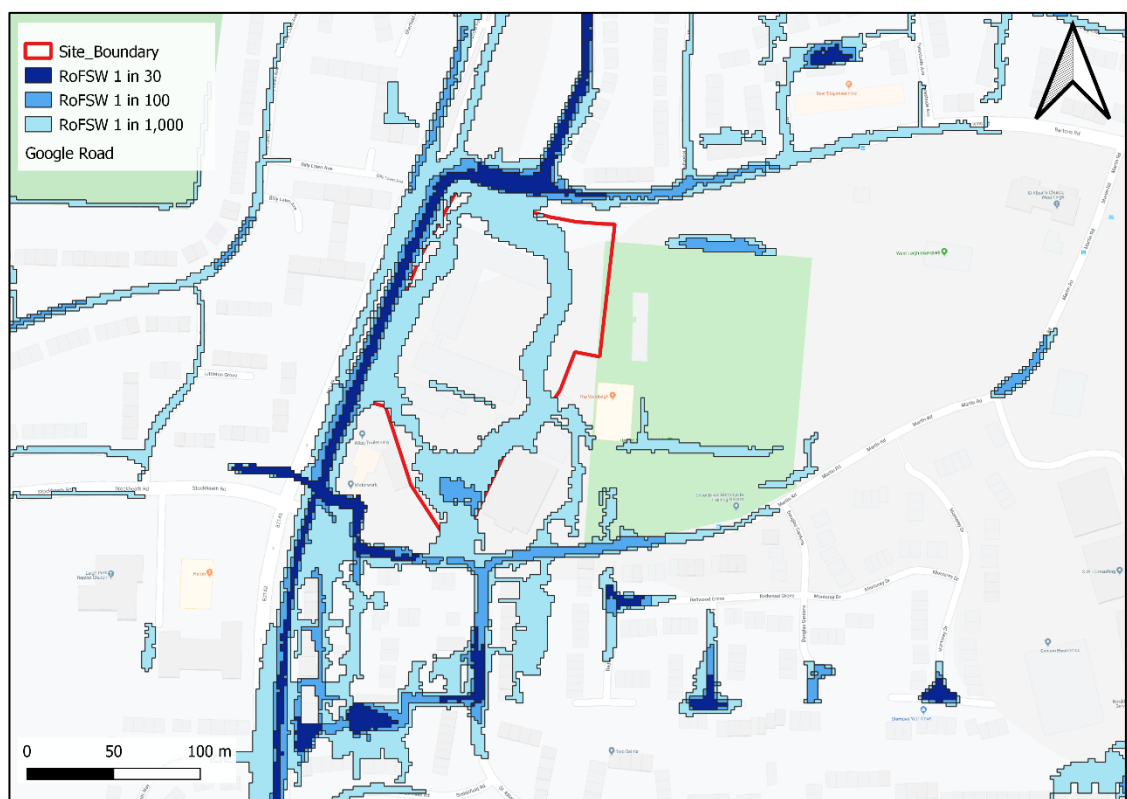


Figure 4: EA Risk of Flooding from Surface Water Map

- 5.12 However, the RoFSW map identifies a flow path through the site. This is shown to occur in an extreme event only, which is attributed to an annual probability 1 in 1000 and is classified low risk. This flood flow path was discussed with the LLFA and agreed flood mitigation has been identified in Section 6, which will help to ensure that the proposed redevelopment is safe from the this source of flooding.

Drainage and Infrastructure Flood Risk

- 5.13 Drainage and infrastructure flooding occur when sewerage systems are overwhelmed and result in flooding, which may occur alone or be combined with other flood sources (e.g. fluvial or surface water).
- 5.14 A 750 mm diameter public surface water sewer passes through the west part of site, as discussed in Section 2. According to the Land Searches report (see Appendix F), the site is not recorded as being at risk of internal flooding from sewer flooding (as a result of overloading).
- 5.15 As described previously, the SFRA mapping identifies one reported incident of sewer flooding in the proximity of the site, which is located south of Martin Road. This is located at a lower elevation than that of the site and represents no flood risk to the proposed redevelopment.
- 5.16 The risk of flooding from the public sewer network is considered to be low, however the flood mitigation outlined in Section 6 will offer further protection to the site in the unlikely event of flooding from this source.

Groundwater Flood Risk

- 5.17 Groundwater flooding occurs when the top of a water tables rises above the surface of local ground levels. This is generally associated with durations of sustained heavy rainfall (typically in the winter months).
- 5.18 In Havant (and Hampshire in general) groundwater flooding is significant as Havant lies beneath a principal chalk aquifer. According to the Hampshire Local Flood Risk Management Strategy (HLFRMS), groundwater flooding has occurred due to a combination of water levels rising above ground levels and from high groundwater levels causing increased water flows into rivers via the aquifers, causing rivers to spill their banks.
- 5.19 The HLFRMS ranks Havant as the 4th most at risk ward from groundwater flooding.
- 5.20 The 2016 SFRA online maps show that the site is located within an area of moderate bedrock permeability, which indicates the susceptibility/risk of the area to groundwater flooding based upon local geology. However, no groundwater flood events are reported on the SFRA maps within the site's boundary or surrounding area.

- 5.21 The ground investigation concluded that 'based upon the geology [of the site] it is considered that there is potential for groundwater flooding [to occur] from the underlying aquifer, although there is no evidence of such flooding [occurring on site]'. The ground investigation was undertaken in early spring (March 2020), which is the time of the year when groundwater tends to be at its highest. This followed an incredibly prolonged wet period and groundwater strikes were encountered in some trial pits but between 1.1 – 2.3 m below ground level.
- 5.22 Given the information above, groundwater flood risk is therefore considered to be low.

Artificial Sources of Flood Risk

- 5.23 Non-natural or artificial sources of flooding can include canals, reservoirs, sewers, etc.

Canals

- 5.24 There are no canals located within the site. The nearest major canal is the Chichester Canal which is approximately 18 km to the south-east. Therefore, flood risk associated with this source is considered to be negligible.

Reservoirs

- 5.25 The site and surroundings lie outside of the EA's flood risk from reservoirs map. Therefore, flood risk associated with this source is considered to be negligible.

6 FLOOD MITIGATION

- 6.1 The majority of the potential sources of flooding at the site have been identified to represent little or no flood risk to the redevelopment and mitigation measures are not required. However, a surface water flow path passes through the site and therefore flood mitigation is required.
- 6.2 Whilst there is no evidence that flooding from sewers or groundwater has impacted the site in the past, flooding from these sources cannot be completely ruled out. The flood mitigation outlined below will also help to project the site from this low risk of flooding.

Proposed Site Levels

- 6.3 At this stage external ground levels have not been designed. However, as agreed with the LLFA existing levels where surface water flooding enters and leaves the site will be retained. This will ensure that the flow path is still able to enter the site and is not displaced elsewhere. The layout of the site has been derived in a way that will allow the flow path through it and leave at the same location as per existing conditions. At a more detailed stage of design, the external levels will also be prepared to facilitate this. Figure 5 illustrates the likely direction that of surface water flooding through the site.

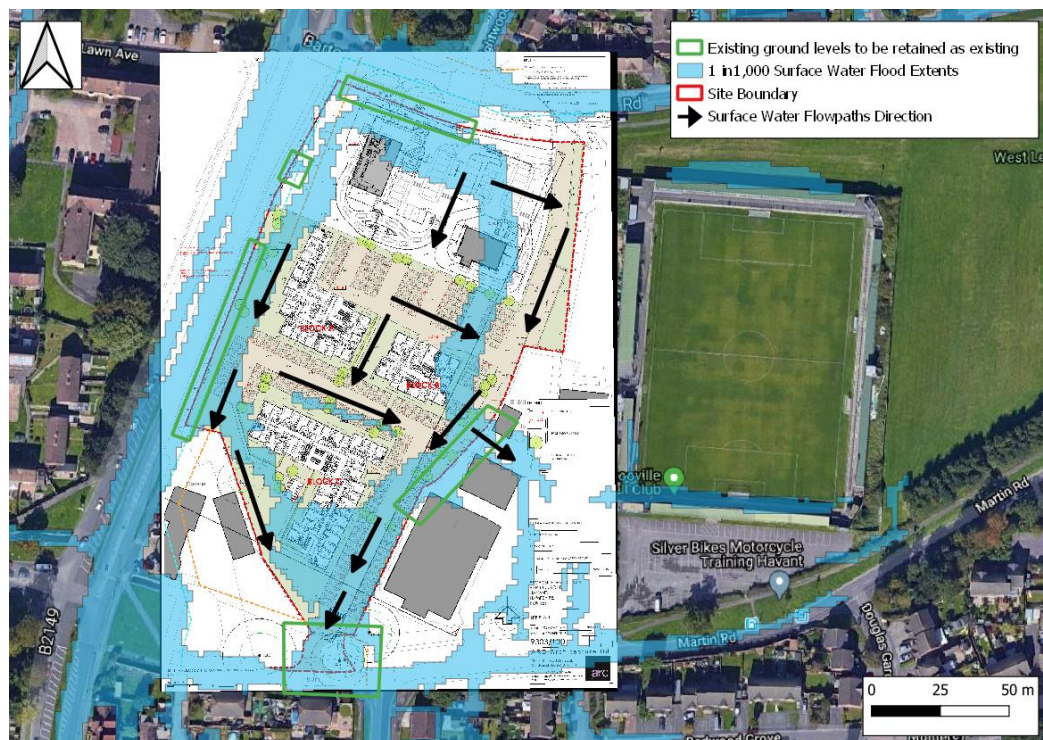


Figure 5: Likely Surface Water Flow Path through Site

Finished Floor Levels

- 6.4 To reduce the likelihood of surface water flooding from entering properties in the event of an extreme rainfall event, finished floor levels (FFL) will be raised 150 mm above surrounding ground levels as agreed with the LLFA.

Flood Resistance

- 6.5 Whilst the elevated FFL will protect the buildings from flooding, flood resistant construction techniques on the ground floor can offer further protection in the unlikely event that the flooding exceed the floor levels. These measures are appropriate where shallow flooding is possible and is intended to keep the water out of the buildings.
- 6.6 This will be undertaken in accordance with the recommendations outlined in Improving the Flood Performance of New Buildings (2007).

7 SURFACE WATER DRAINAGE STRATEGY

Overview

- 7.1 It is well understood that one of the effects of development is typically to reduce the permeability of the site and consequently to change its response to rainfall. Therefore, a suitable surface water drainage strategy is required to ensure that the surface water runoff regime is managed appropriately so that there will be no increase flood risk to third parties.
- 7.2 The NPPF states that flood risk to land and property must not be increased as a result of development. The associated PPG states that flood risk should not increase for events up to and including a 1 in 100 year return period, with appropriate allowance for climate change.
- 7.3 A fundamental principle of sustainable development in terms of flood defence is the reduction of surface water run-off from new developments. Surface water drainage arrangements for any development site must ensure that volumes and peak discharge rates leaving the site are no greater than those for the site prior to development. Any increase in surface water run-off above the pre-development volumes must also be controlled on site.
- 7.4 The proposed surface water management strategy has been derived based upon the principles of SuDS, in accordance with the NPPF.
- 7.5 SuDS will be utilised to manage surface water runoff from the entire site. The concept of sustainable drainage is that environmental and social factors such as the quantity and quality of runoff and amenity value of surface water in the developed site are considered when making decisions about drainage. SuDS can be used to compliment or replace conventional piped urban drainage to recreate the natural water cycle.

Proposed Receptor of Site Runoff

- 7.6 The drainage hierarchy presented in the Hampshire County Council Surface Water and Sustainable Drainage Guidance for Developers, Designers and Planners states that, as per the PPG, the aim should be that surface water runoff is discharged from the site by the following methods, listed in order of preference/priority:
 - 1. into the ground (infiltration)
 - 2. to a surface water body;

3. to a surface water sewer, highway drain, or another drainage system;
 4. to a combined sewer.
- 7.7 Given the underlying geology and the results of the ground investigation, infiltration as a means of surface water management is not possible.
- 7.8 There are no surface water bodies within or adjacent to the site that could be used as a discharge receptor and therefore a connection to these cannot be viably made.
- 7.9 An existing surface water sewer (750 mm diameter) is present and runs along the western boundary of the site. It is therefore proposed that runoff from the site will be discharged to this public surface water sewer. This will retain the connectivity of the former use of the site.

Existing Discharge Rates

- 7.10 The Wallingford Procedure Modified Rational Method has been used to estimate the brownfield runoff rate from the impermeable areas of the site. This was undertaken based on the Scottish and Southern Energy Plc office, as shown in Figure 1. This was considered appropriate given that the existing drainage on site was constructed to serve this building. The calculation is outlined below:

$$Q = C \times I \times A$$

Where:

$$C = 2.78 \times C_v \times C_r;$$

2.78 is a dimensionless scaling factor to convert units of Q to l/s;

C_v is the volumetric runoff coefficient, which is set at 0.75 as per the Wallingford Procedure;

C_r is the routing coefficient, which is set at 1.3 as per the Wallingford Procedure;

I is the average rainfall intensity in mm/hr (taken from the MicroDrainage rainfall profile tool, provided as Appendix H, using an FSR 10 year return period, which is likely to be the minimum return period that the existing site drainage was designed to accommodate, a

winter profile, and a 60 minute storm duration¹). The average intensity has been calculated as 23.519 mm/hr;

7.11 A is the impermeable area in ha, which is 1.14 ha².

Therefore:

$$Q = 2.78 \times 0.75 \times 1.3 \times 23.519 \text{ mm/hr} \times 1.14 \text{ ha}$$

$$Q = 72.67 \text{ l/s}$$

Proposed Discharge Rates

7.12 In accordance with the LLFA requirements, a 30% betterment for discharge rates is proposed. Thus, the proposed discharge rates for the whole site will be restricted to 50.9 l/s for all events up to and including the 1 in 100 year plus 40% climate change event.

7.13 The proposed redevelopment has been split into two separate drainage catchments, with each catchment having its own outfall as shown in the Preliminary Surface Water Drainage Strategy enclosed in Appendix I. The 50.9 l/s discharge rate will therefore be applied pro-rata across the two catchments, as illustrated in Table 1.

Table 1: Proposed Discharge Rates

Catchment	Proposed Use	Overall Size (ha)	Proposed Discharge Rate (ls)
1 (north)	Drive through	0.49	14.8
2 (south)	Residential	1.20	36.1

Proposed Surface Water Drainage Strategy

Catchment 1

7.14 Attenuation of surface water will be required to restrict runoff rates to 14.8 l/s. This will be achieved using cellular storage crates and a hydrobrake (or similar approved) as shown in the Preliminary Surface Water Drainage Strategy enclosed in Appendix I. The attenuation will be supplemented with areas of permeable paving and filter drains, which will provide water

¹ Whilst a shorter storm duration was considered to be critical, a 60 minute storm duration was adopted as a conservative approach.

² This is the estimated impermeable area of the former Scottish and Southern Energy site.

quality benefits. Ultimately, surface water will be discharged into the public surface water sewer.

- 7.15 Given the limited drainage network and the use of filter drains to convey runoff from large parts catchment, MicroDrainage Source Control calculation was sufficient to inform the surface water drainage strategy. This has been undertaken to estimate the design of attenuation storage requirements. These calculations are enclosed in Appendix J and the parameters are outlined in Table 2.

Table 2: Source Control Parameters for the Catchment 1

Parameter	Values	Units
Impermeable Area	0.33	ha
Discharge Rate	14.8	l/s
Infiltration Rate	0	m/hr
Porosity	95	%
Climate Change Allowance	40	%

- 7.16 The MicroDrainage calculations show for a 100 year plus 40% climate change event, the total volume of attenuation storage required is 120 m³. As part of the detailed design stage, it may be desirable to utilise the permeable paving to contribute towards the attenuation storage volume. This could help to reduce the size of the cellular storage.

Catchment 2

- 7.17 For the southern catchment, surface water attenuation storage will be provided within a substructure (i.e. gravel sub-base) located beneath permeable paving in two car parks, as shown in the Preliminary Surface Water Drainage Strategy in Appendix I. The paving will allow rainwater to infiltrate through the surface and into the gravel sub-base, where it will be stored before discharge to the public surface water sewer at 36.1 l/s.
- 7.18 Given the more complex nature of the drainage arrangement, a MicroDrainage network model has been undertaken to estimate the depth of the gravel sub-base required to provide a sufficient attenuation storage and to inform the design pipe network. These calculations are enclosed in Appendix K and some of the key parameters used are outlined in Table 3.

Table 3: Parameters for the Permeable Paving in Catchment 2

Parameter	Values	Units
Impermeable Area	0.33	ha
Discharge Rate	36.1	l/s
Infiltration Rate	0	m/hr
Porosity	30	%
Climate Change Allowance	40	%

- 7.19 The total volume of attenuation storage required is 334 m³. This was split over two areas of permeable paving, with a gravel sub-base depth of 0.50 m and 0.77 m.

Half Drain Time

Catchment 1

- 7.20 The half drain down time for the cellular storage crate is 3 hours and is given in the MicroDrainage Source Control results summary (Appendix J).

Catchment 2

- 7.21 For the northern permeable paving (referred to as PCP 1 in the MicroDrainage Network calculations, Appendix K), the critical storm based on maximum water level is the 120 minute, 100 year, winter storm plus 40 % climate change. In this case, the permeable paving reaches its maximum stored volume (of 85.1 m³) at 116 mins. At 244 minutes it has half drained, thus the half drain down time is (244– 116) minutes, which equates to 128 minutes, or 5.3 hours.
- 7.22 However, the winter storm which gives the longest half drain down time is the 480 minute, 100 year, winter storm plus 40% climate change. In this case the permeable paving reaches its maximum stored volume (of 66.6 m³) at 336 minutes. At 510 minutes it has half drained, thus the half drain down time is (510-336) minutes, which equates to 174 minutes or 7.25 hours
- 7.23 For the southern permeable paving (referred to as PCP 2 in the MicroDrainage Network calculations, Appendix K), the critical storm based on maximum water level is the 120 minute, 100 year, winter storm plus 40% climate change. In this case, the permeable paving reaches its maximum stored volume (of 175.8 m³) at 95 minutes. At 166 minutes it has half drained, thus the half drain down time is (166 – 95) minutes, which equates to 71 minutes or 3 hours.
- 7.24 However, the winter storm which gives the longest half drain down time is the 1440 minute, 100 year, winter storm plus 40% climate change. In this case, the permeable paving reaches

its maximum stored volume (of 33.4 m³) at 739 minutes. At 1106 minutes it has half drained, thus the half drain down time is (1106-739) minutes, which equates to 367 minutes or 15.3 hours.

- 7.25 It should be noted that for the permeable paving in the south (PCP 2), the longest storm duration yields the longest half drain down time. However, the maximum amount of instantaneous volume stored for the longest storm is very small compared with the storage capacity of PCP 2.

Water Quality

- 7.26 Permeable paving and filter drains provide water quality benefits when water cascades through the sub-base it collides with the individual aggregate components and deposits pollutants on their surface. The large surface area of the aggregates will filter the pollutants, which are broken down by natural microbial action. It is therefore anticipated that the proposed drainage solution will provide water quality betterment compared with the existing site conditions.
- 7.27 In accordance with the SuDS Manual (CIRIA C753), SuDS components must have a total pollution index that equals or exceeds the pollution hazard index for different land use classifications. It is considered that the SuDS provided as part of the surface water drainage strategy would offer sufficient mitigation for the land use classification as demonstrated in Table 4 and Table 5 (as informed by Table 26.2 and 26.4 of the SuDS Manual respectively), for Catchment 1 and Table 6 and Table 7 for Catchment 2.

Table 4: Pollution Hazard Indices – Catchment 1 – Drive Through

Land Use	Total suspended solids (TSS)	Metals	Hydrocarbons
Other roofs (typically industrial and commercial)	0.3	0.2	0.05
Non-residential car parking with frequent change.	0.7	0.6	0.7
Total	1.0	0.8	0.75

Table 5: SuDS Mitigation Indices – Catchment 1 – Drive through

Type of SuDS	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Permeable Paving	0.7	0.6	0.7
Filter Drain ³	0.2	0.2	0.2
Total	0.9	0.8	0.9

Table 6: Pollution Hazard Indices – Catchment 2 – Residential

Land Use	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs (typically industrial and commercial)	0.2	0.2	0.05
Individual property driveways, residential car parking, low traffic roads	0.5	0.4	0.4
Total	0.7	0.6	0.45

Table 7: SuDS Mitigation Indices – Catchment 2 – Residential

Type of SuDS	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Permeable Paving	0.7	0.6	0.7
Total	0.7	0.6	0.7

7.28 It is noted that for Catchment 1 the TSS is not adequately mitigated. Therefore, a sediment trap will be installed in the manhole upstream of the cellular storage tank. This will allow a final capture of sediments prior to discharge from the site. The sediments can be removed as part of the maintenance regime.

Maintenance and Adoption

7.29 The permeable paving, cellular storage crates and filter drains will be privately operated and maintained. Maintenance will be undertaken in accordance with the recommendations outlined in The SuDS Manual (CIRIA C753, 2015), as replicated in Figures 6, 7 and 8 respectively.

³ As per the CIRIA SuDS Manual (2015), where the mitigation index of an individual component is insufficient, two components (or more) will be required. However, a factor of 0.5 is used to account for the secondary or tertiary components associated with the already reduced inflow concentrations.

7.30 Various other smaller assets of the surface water drainage strategy consist of gutters, down water pipes, manholes and pipes. These assets should be checked annually and after large storm events, in order to remove debris and inspect the condition.

7.31 Jet washing may be required on occasion to remove any blockages within the pipe network. If the condition is found to be poor, replacement or repairs may be required.

TABLE 20.15 Operation and maintenance requirements for pervious pavements		
Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Figure 6: Operation and Maintenance Requirements for Permeable Paving

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks			
Maintenance schedule	Required action	Typical frequency	
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually	
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly	
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually	
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required	
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required	
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually	
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required	

Figure 7: Operation and Maintenance Requirements for Attenuation Tanks

TABLE 16.1 Operation and maintenance requirements for filter drains			
Maintenance schedule	Required action	Typical frequency	
Regular maintenance	Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices	Monthly (or as required)	
	Inspect filter drain surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage	Monthly	
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies	Six monthly	
	Remove sediment from pre-treatment devices	Six monthly, or as required	
Occasional maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (eg NJUG, 2007 or BS 3998:2010)	As required	
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium	Five yearly, or as required	
	Clear perforated pipework of blockages	As required	

Figure 8: Operation and Maintenance Requirements for Filter Drains

Summary

7.32 Given that the site is brownfield and the reduced discharge rates proposed, it is considered that the redevelopment would offer a significant betterment over the existing drainage regime and therefore reduce the local flood risk mechanism.

7.33 The surface water drainage strategy has been prepared to demonstrate that the proposed redevelopment of the site can meet national and local requirements for the management of

surface water runoff. This will be achieved through the principles of SuDS, but is subject to more detailed design considerations once planning has been approved.

8 FOUL WATER DRAINAGE SATRETRY

- 8.1 A 300 mm diameter public foul water sewer passes through the site. Based on the size for size rules it is anticipated that a new connection can be made to the foul sewer without the need for any infrastructure upgrades at the cost of the applicant. However, this will need to be confirmed through consultation with Southern Water.

9 CONCLUSIONS

- 9.1 This Flood Risk Assessment (FRA) has been undertaken to support the full planning application for the proposed redevelopment of land at the former Scottish and Southern Energy Plc office, Bartons Road, Havant.
- 9.2 This report has been prepared by Vectos on behalf of Fortitudo Ltd. in accordance with the guidelines set out in the National Planning Policy Framework.
- 9.3 The site is entirely located within Flood Zone 1, however, a surface water flow path is evident through the site in an extreme 1 in 1000 year event. Where this surface water flooding enters the site existing ground levels will be retained. This will ensure that the flow path is still able to enter the site and is not displaced elsewhere. The layout of the site has been derived in a way that will allow the flow path through it and leave at the same location as per existing conditions. At a more detailed stage of design, the external levels will also be prepared to facilitate this.
- 9.4 Finished Floor Levels (FFLs) will be raised by 150 mm above surrounding ground levels to further mitigate the likelihood of flood water entering buildings.
- 9.5 Surface water will be discharged from the site to a public surface water sewer. However, it will first be attenuated on site and discharged at a 30% betterment compared to the existing brownfield rates.
- 9.6 The surface water drainage strategy has been designed to accommodate the 1 in 100-year rainfall event including a 40% climate change allowance, which will be achieved using a range of SuDS.
- 9.7 The drainage strategy is subject to detailed drainage design, which will be undertaken once planning permission has been granted.

APPENDIX A PROPOSED SITE LAYOUT

- 1 The contents of this drawing are copyright.
- 2 Scaled drawings for planning purposes only.
- 3 Contractors must verify all dimensions and report any discrepancies before putting work in hand or making any shop drawings.
- 4 All flat roofs to be fitted with a man safe system.
- 5 Please note a domestic sprinkler system maybe required
- 6 Fixed shut fire safety glass windows may be required where windows are in close proximity to boundaries (subject to building regulations)

BLUE DASH LINE INDICATES APPROXIMATE LOCATION OF
SURFACE WATER DRAINAGE
(SUBJECT TO FULL DRAINAGE SURVEY BEING CARRIED OUT
BY DEVELOPER)

The diagrams are arranged vertically. The first diagram, labeled 'SITE BOUNDARY', shows a square plot with a red dashed line forming an irregular path inside. The second diagram, labeled 'PROPOSED PLANTING', shows a square plot with a large green circle in the center and a small black dot in the middle of the circle. The third diagram, labeled 'EXISTING TREES TO BE RETAINED', shows a square plot with two green curved lines representing tree canopies and a small black dot labeled 'T001'.

No.	Revision.	date	by
-----	-----------	------	----

SITE PLAN

9303/100					

Chapel Studios, 14 Purewell,
Christchurch, Dorset, BH23 1EP

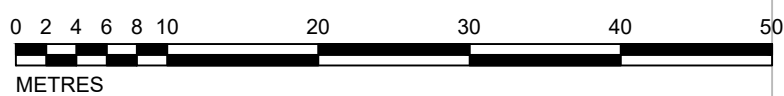
Tel: +44 (0)1202 479919
E-mail: enquiries@andersrobertscheer.co.uk
Web: www.andersrobertscheer.co.uk

The logo for ARC ARCHITECTS features the word 'arc' in a stylized, lowercase, sans-serif font, with the 'a' and 'r' connected. Below it, the word 'ARCHITECTS' is written in a smaller, uppercase, sans-serif font. The entire logo is set against a dark rectangular background.

Tel: +44 (0) 1202 479919
E-mail: enquiries@andersrobertscheer.co.uk
Web: www.andersrobertscheer.co.uk

10m @ 1:100

APPENDIX B TOPOGRAPHIC SURVEY



Ordnance Survey and Superplan Data are registered trade marks of Ordnance Survey the national mapping agency of Great Britain.

Measurements to internal walls have been taken to the wall finishes at approximately 1m above floor level and assumed to be vertical.

LEGEND:

OSBM	OS Bench Mark
RE	Roadside
RS	Road Sign
RWP	Railway Water
SC	Stop Circle
SP	Sign Post
SPAR	Signpost of Arch
SV	Stop Valve
SVP	Sol & Vent Pipe
T	Trackside
TL	Tree Lights
Tr	Tree
TrF	Tree of Feature (eg. Fence/Wall)
TrP	Treepost of Pole
TrT	Tree height (to datum)
TrS	Tree Stamp
UNK	Unknown Species
UW	Under-side of Feature (eg. Beam)
VM	Vertical Marker
WM	Water Meter
WW	Waste Pipe
WP	Water Valve

Fences:

ASF	Anglo Iron Fence
CBF	Barbed Wire Fence
CRF	Close Boarded Fence
CLF	Corrugated Iron Fence
CLF	Chainlink Fence
IR	Iron Railings
LRF	Larch in Fence
OSF	Open Boarded Fence
PRF	Post & Rail Fence
PRFw	Post & Rail Fence
PRW	Post & Wire Fence
PRW	Post & Wire Fence
(CRSP/STP)	(Cyc/Ped/Steel/Post) Retaining

Features:

- Overhead Wire
- Drainage information (pipe diameter & flow direction)
- Tactile Paving
- Trees
- Cip Slopes: Arrow indicates direction of downward slope



LDS

SINCE 1969

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RICS





THE SURVEY
ASSOCIATION

Topographic & Measured Building Surveys, Setting Out
3D Laser Scanning, Elevations, Sections, Floorplans

Client: FORTITUDO LTD.	
Drawing Title: TOPOGRAPHIC SURVEY	
Project: LAND AT PETERSFIELD RD HAVANT	
The horizontal & vertical control of this survey is based on Ordnance Survey grid as translated from GPS co-ordinates using the OSN15 & OSGM15 transformation as supplied by OS. We have applied a reverse scale factor to maintain true ground distances. Vertical values may differ from existing OS benchmarks in the vicinity which should be disregarded. All levels should be taken from LDS survey stations.	
Scale: 1:500 Plotted on A1	Drawing No: LDS/15748-TP1 © Land Development Services Ltd. 2019

APPENDIX C GROUND INVESTIGATION REPORT



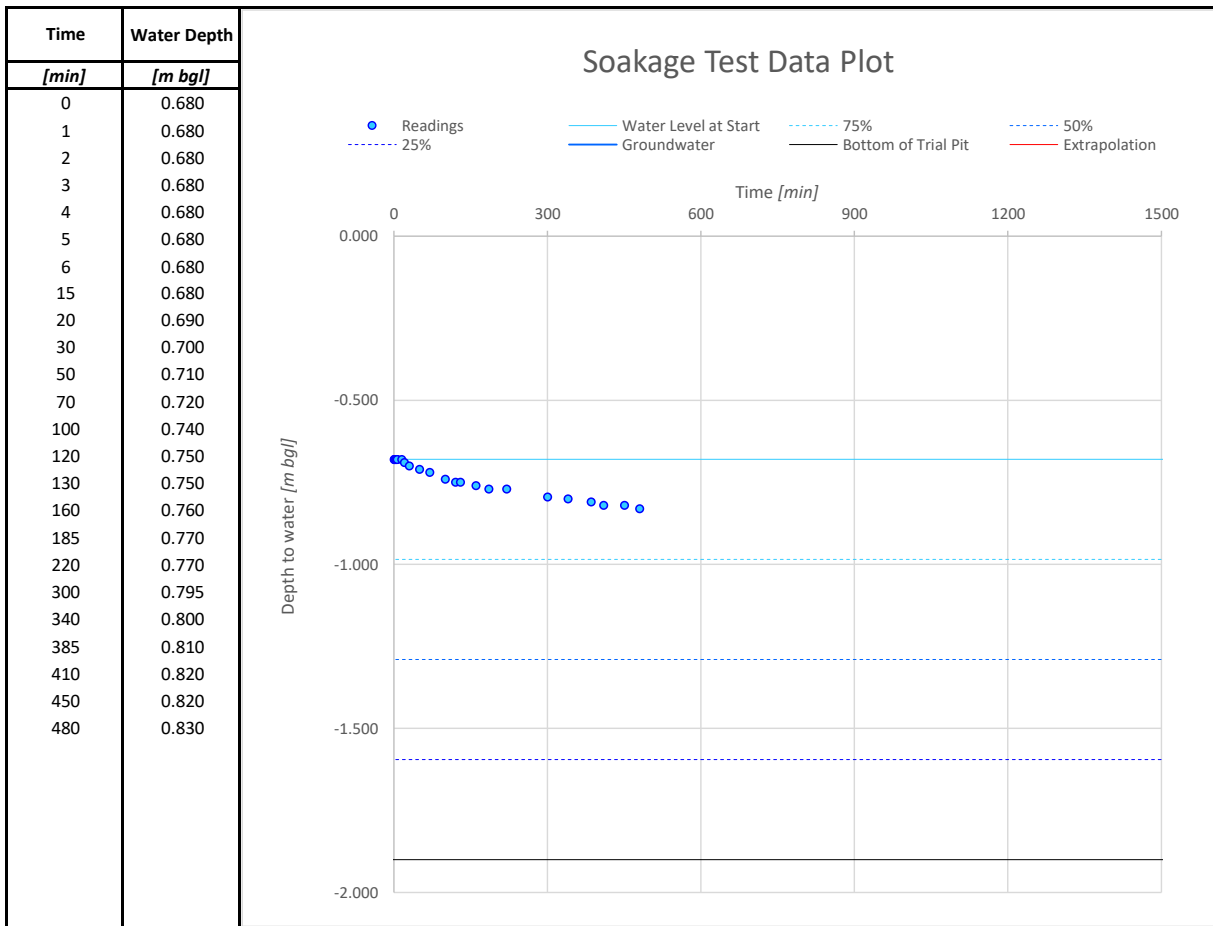
SOIL INFILTRATION RATE

Client: Fortitudo
Project Title: SSE Depot, Harvant
Project No: BRA140.D

Borehole No: TP1
Test No: 1
Date: 03/03/2020
Logged by: RB

Length [m]: 1.80
Depth [m]: 1.90
Width [m]: 0.60
Groundwater [m bgl]:

Ground	Conditions	from - to [m bgl]		Description
		0.00	0.40	crushed concrete
		0.40	0.60	made ground
		0.60	1.00	firm clay becoming very gravelly with depth
		1.00	1.90	medium dense fine sand



Soil Infiltration Rate [m/s]:

$$f = \frac{V_{p75-25}}{a_{s50} \times t_{p75-25}}$$

with:

V_{p75-25} as Effective Storage Volume of water between 75% and 25% effective storage depth [m³] **0.66**

a_{s50} as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area [m²] **4.01**

t_{p75-25} as Time for the water level to fall from 75% to 25% effective storage depth [s] **n/a**

Soil Infiltration Rate [m/s]: **n/a**

Remarks: Result could not be calculated. Soakage test failed.



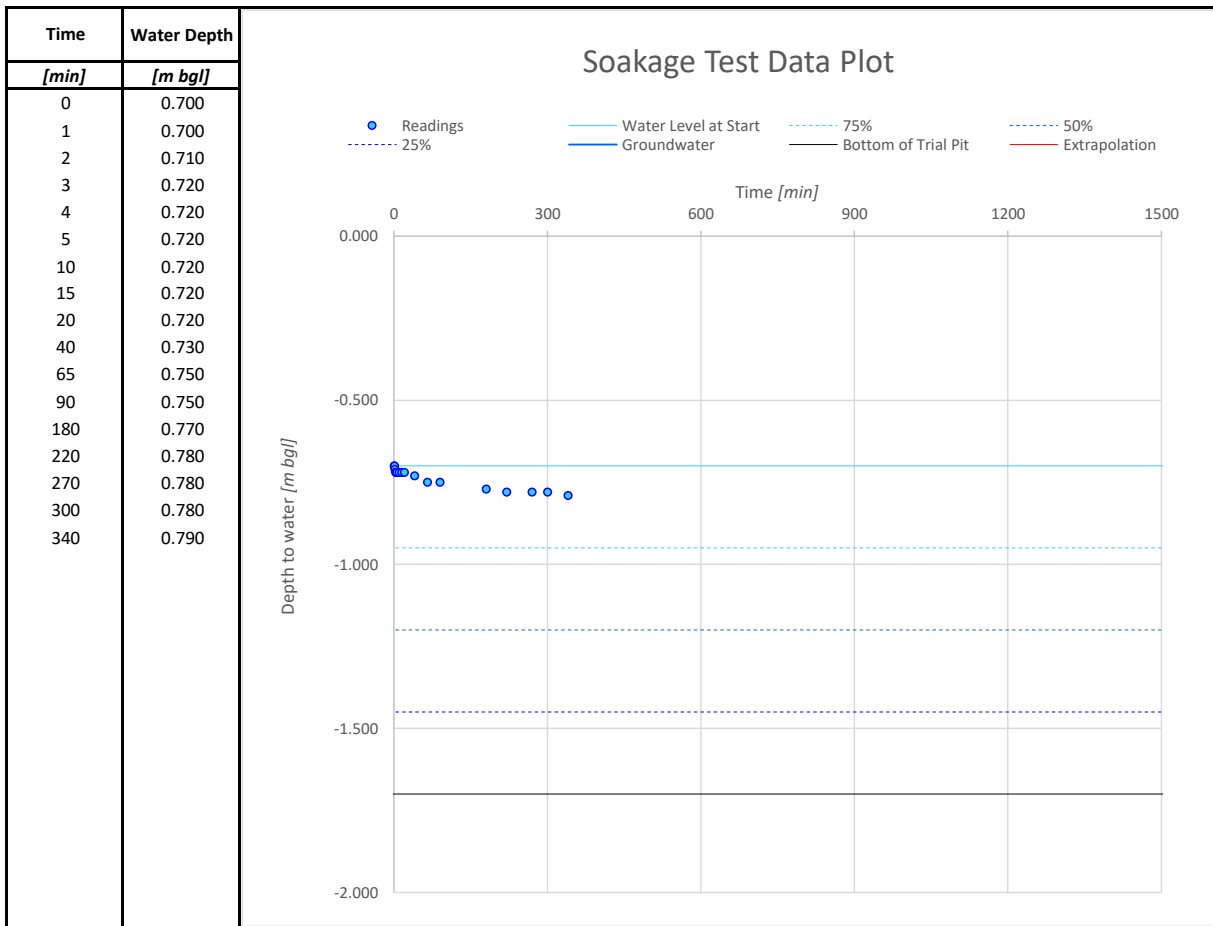
SOIL INFILTRATION RATE

Client: Fortitudo
Project Title: SSE Depot, Harvant
Project No: BRA140.D

Borehole No: TP2B
Test No: 1
Date: 03/03/2020
Logged by: RB

Length [m]: 1.40
Depth [m]: 1.70
Width [m]: 0.70
Groundwater [m bgl]:

Ground	Conditions	from - to [m bgl]		Description
		0.00	0.35	crushed concrete
		0.35	0.90	made ground
		0.90	1.70	firm gravelly clay becoming sandy with depth



Soil Infiltration Rate [m/s]:

$$f = \frac{V_{p75-25}}{a_{s50} \times t_{p75-25}}$$

with:

V_{p75-25} as Effective Storage Volume of water between 75% and 25% effective storage depth [m³] **0.49**

a_{s50} as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area [m²] **3.08**

t_{p75-25} as Time for the water level to fall from 75% to 25% effective storage depth [s] **n/a**

Soil Infiltration Rate [m/s]: **n/a**

Remarks: Result could not be calculated. Soakage test failed.



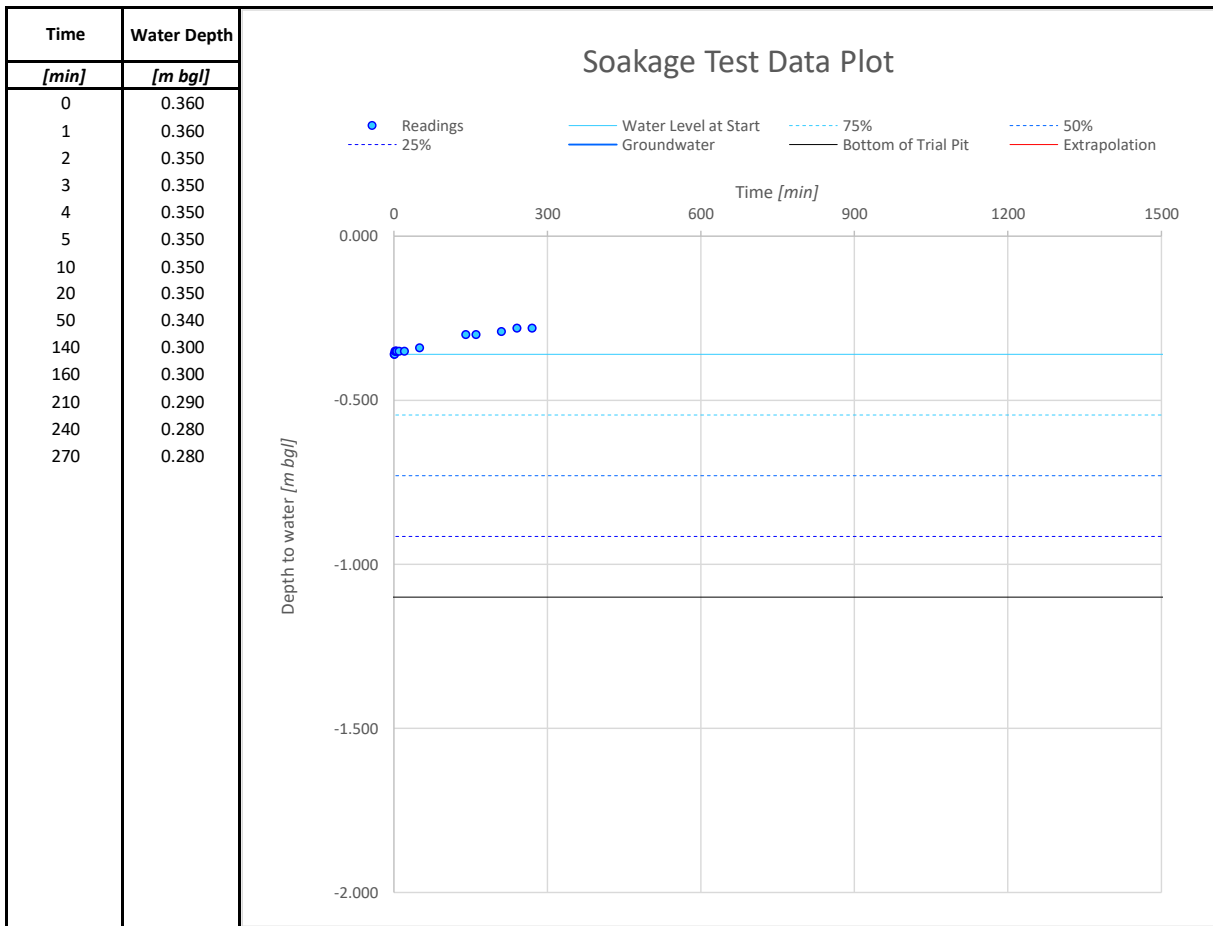
SOIL INFILTRATION RATE

Client: Fortitudo
Project Title: SSE Depot, Harvant
Project No: BRA140.D

Borehole No: TP3A
Test No: 1
Date: 03/03/2020
Logged by: RB

Length [m]: 1.30
Depth [m]: 1.10
Width [m]: 0.70
Groundwater [m bgl]:

Ground	Conditions	from - to [m bgl]		Description
		0.00	0.40	made ground
		0.40	1.00	soft to firm gravelly clay
		1.00	1.10	sandy clay



Soil Infiltration Rate [m/s]:

$$f = \frac{V_{p75-25}}{a_{s50} \times t_{p75-25}}$$

with:

V_{p75-25} as Effective Storage Volume of water between 75% and 25% effective storage depth [m³] **0.34**

a_{s50} as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area [m²] **2.39**

t_{p75-25} as Time for the water level to fall from 75% to 25% effective storage depth [s] **n/a**

Soil Infiltration Rate [m/s]: **n/a**

Remarks: Result could not be calculated. Soakage test failed.



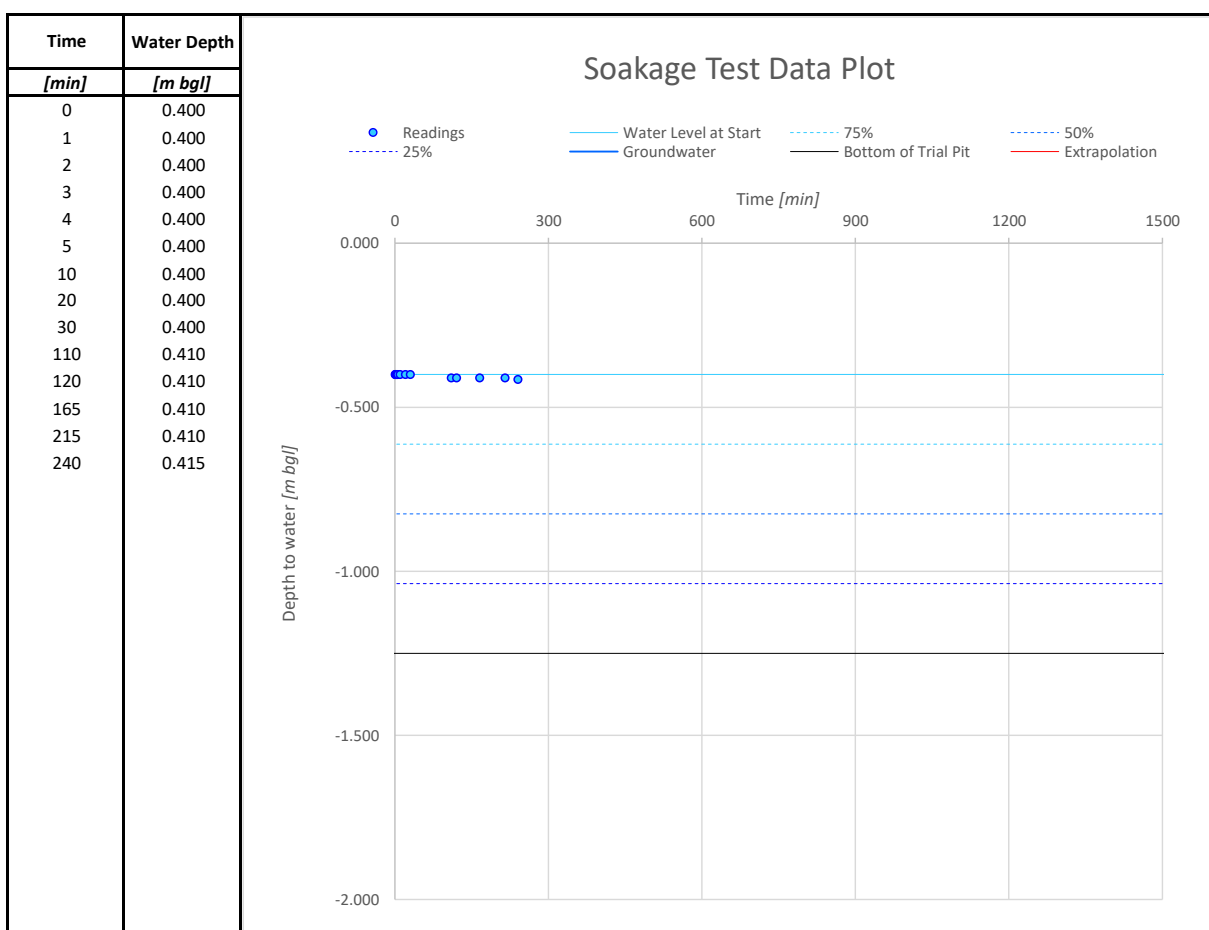
SOIL INFILTRATION RATE

Client: Fortitudo
Project Title: SSE Depot, Harvant
Project No: BRA140.D

Borehole No: TP4
Test No: 1
Date: 03/03/2020
Logged by: RB

Length [m]: 1.60
Depth [m]: 1.25
Width [m]: 0.70
Groundwater [m bgl]:

Ground	Conditions	from - to [m bgl]		Description
		0.00	0.10	brick rubble
		0.10	0.35	Made ground
		0.35	1.25	firm gravelly clay



Soil Infiltration Rate [m/s]:

$$f = \frac{V_{p75-25}}{a_{s50} \times tp_{75-25}}$$

with:

V_{p75-25} as Effective Storage Volume of water between 75% and 25% effective storage depth [m³] **0.48**
 a_{s50} as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area [m²] **3.08**
 t_{p75-25} as Time for the water level to fall from 75% to 25% effective storage depth [s] **n/a**

Soil Infiltration Rate [m/s]: **n/a**

Remarks: Result could not be calculated. Soakage test failed.

APPENDIX D PORTSMOUTH WATER CORRESPONDANCE

Nick Bosanko

From: Catchment_Management <catchment.management@portsmouthwater.co.uk>
Sent: 09 December 2019 10:57
To: Lizzie Todd-Davies
Subject: FW: Redevelopment Enquiry for land at Bartons Road, Havant, Hampshire
Attachments: BGS scan log for borehole on site.png; Planning and pre application advice Standard TCs Portsmouth Water.pdf

Good morning Lizzie,

Thank you for your email and the consultation on this development.

The site is located in a Source Protection Zone 1c for the Havant and Bedhampton springs; an essential public water supply source.

The site lies on Bedrock consisting of the Bognor Sand member and London clay overlying the chalk principal aquifer. The SPZ1c relates to subsurface activity only, where the chalk aquifer is confined and may be impacted by deep drilling activities. Subterranean activities such as deep infiltration drainage and/or piling may pose a risk to groundwater quality and our supply at Havant and Bedhampton Springs.

I have found one BGS borehole record for the site which shows the sand geology is to ~12 metres depth- please see attached the borehole scan. There should then be clay geology however BGS do not have any other public records of deeper boreholes in the area.

In terms of infiltration drainage we would have no concerns with shallow infiltration drainage (i.e. within the sand geology), however we would have a presumption against deep bore soakaways into the chalk- if deep bore soakaways were the proposed drainage solution we would require a hydrological risk assessment and pollution prevention measures. We would only agree to the use of deep pit based systems for surface water if the developer can show that all of the following apply:

- there are no other feasible disposal options such as shallow infiltration systems (for surface water) that can be operated in accordance with current British Standards;
- the system is no deeper than is required to obtain sufficient soakage;
- pollution control measures are in place;
- risk assessment demonstrates that no unacceptable discharge to groundwater will take place, in particular that inputs of hazardous substances to groundwater will be prevented; and
- there are sufficient mitigating factors or measures to compensate for the increased risk arising from the use of deep structures.

In addition, for the overall application we would require a land contamination assessment due to it being a brownfield site and we would have a presumption against piling, if piling is the only viable foundation solution we would expect a piling risk assessment and method statement (detailing the depth and type of piling to be undertaken and the methodology by which such piling will be carried out, including measures to prevent and minimise the potential for damage to subsurface water infrastructure, vibration and the programme for the works) to be submitted to and approved in writing by the local planning authority in consultation with Portsmouth Water.

We would ask to be further consultation throughout the planning process (formal planning application stage) and we like to make you aware any further pre-application advice will be chargeable- please see attached our T&CS for pre-application advice.

Many thanks

Kind regards,

Beth Fairley

*Catchment Management Team
Portsmouth Water*



From: Lizzie Todd-Davies [mailto:Lizzie.Todd-Davies@vectos.co.uk]
Sent: 05 December 2019 10:15
To: Catchment_Management <catchment.management@portsmouthwater.co.uk>
Subject: [EXTERNAL] Redevelopment Enquiry for land at Bartons Road, Havant, Hampshire

Good Morning,

We are in the process of preparing a drainage strategy for a redevelopment proposal.

The site is brownfield and is located within a Source Protection Zone (1 and 1c), and as such we are seeking your advice as per the Havant Local Plan 2036 guidelines.

At this stage, we are uncertain of how surface water will be disposed; it could be via infiltration (if site investigation indicates a reasonable infiltration rate), but given it is located within an SPZ, we wanted to consult with yourselves.

Would you be concerned with this? If so, what information would you require in order to ensure you are satisfied with protection of groundwater etc.? Are there any special measures you would require us to undertake?

The proposed development will replace the existing brownfield site (a former Travis Perkins site) with a three-storey building providing around 174 residential apartments, in addition a care home is also proposed.

The site (approximately 1.66 ha) is located on Bartons Road, Havant, Hampshire with approximate grid reference of SU721080 and postcode of PO9 5TH

Rough site location plan is given below.

Best wishes,
Lizzie.



Lizzie Todd-Davies
Assistant Flood Risk Consultant



(T) 0117 905 8888
Lizzie.Todd-Davies@vectos.co.uk

Broad Quay House, Prince Street, Bristol, BS1 4DJ



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APPENDIX E ENVIRONMENT AGENCY CORRESPONDANCE

From: PlanningSSD <PlanningSSD@environment-agency.gov.uk>
Sent: 13 December 2019 11:20
To: Lizzie Todd-Davies
Subject: RE: Redevelopment Enquiry for land at Bartons Road, Havant, Hampshire
Attachments: SSD Pre-app advice note September 2019.pdf

Dear Lizzie,

Thank you for consulting the Environment Agency on the above pre-application.

Having reviewed your proposal we are providing you with a preliminary opinion, which outlines the key environmental issues within our remit and provides guidance on any actions you need to undertake. It also provides hyperlinks to where you can obtain further information and advice to support your planning application. We offer one free preliminary opinion per site, per applicant /developer.

The Environmental Constraints identified on the site include:

- Source Protection Zone 1c

Based on the information currently available, the development raises some environmental concerns that you will need to address as part of your planning application. Further work will be needed to show how these issues can be satisfactorily addressed to ensure no environmental impacts.

Should you wish us to review any technical documents or want further advice to address the environmental issues, we can do this as part of our charged for service.

Further engagement at the pre-application stage will speed up our formal response to your planning application and provide you with certainty as to what our response to your planning application will be. It should also result in a better quality and more environmentally sensitive development. As part of our charged for service we will provide a dedicated project manager to act as a single point of contact to help resolve any problems.

We currently charge £100 per hour plus VAT. We will provide you with an estimated cost for any further discussions or review of documents. The terms and conditions of our charged for service are available [here](#).

Please note: This response is based on the information you have made available at this time. It is based on current national planning policy, associated legislation and environmental data / information. If any of these elements change in the future then we may need to reconsider our position.

We trust that the above information is of assistance. If you'd like further detailed advice, please don't hesitate to contact us.

Kind regards,

Sustainable Places Team

Environmental Planning and Engagement | Solent and South Downs



From: Lizzie Todd-Davies [<mailto:Lizzie.Todd-Davies@vectos.co.uk>]
Sent: 05 December 2019 10:17
To: SSD Enquiries <SSDEnquiries@environment-agency.gov.uk>
Subject: Redevelopment Enquiry for land at Bartons Road, Havant, Hampshire

Good Morning,

We are in the process of preparing a drainage strategy for a redevelopment proposal.

The site is brownfield and is located within a Source Protection Zone (1 and 1c), and as such we are seeking your advice as per the Havant Local Plan 2036 guidelines.

At this stage, we are uncertain of how surface water will be disposed; it could be via infiltration (if site investigation indicates a reasonable infiltration rate), but given it is located within an SPZ, we wanted to consult with yourselves.

Would you be concerned with this? If so, what information would you require in order to ensure you are satisfied with protection of groundwater etc.? Are there any special measures you would require us to undertake?

The proposed development will replace the existing brownfield site (a former Travis Perkins site) with a three-storey building providing around 174 residential apartments, in addition a care home is also proposed.

The site (approximately 1.66 ha) is located on Bartons Road, Havant, Hampshire with approximate grid reference of SU721080 and postcode of PO9 5TH

Rough site location plan is given below.

Best wishes,
Lizzie.

